The London School of Economics and Political Science

UNVEILING DIGITAL DEVELOPMENT RISKS:
The Uncertain Outcomes of Promoting Digital Technologies in the Guise of Development

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Declaration

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Abstract

Digital technologies are commonly deployed as a panacea for diverse developmental challenges, but the consequences of these development processes are largely speculative. This means neither the risks nor the benefits of digitisation in the guise of 'development' are defined or well managed. This is problematic not only because of the resources invested in these processes, but the implications of related risks. As such, this thesis aims to develop a better understanding of the relationship between digital development processes, risks, and developmental objectives.

The conceptual framework underpinning the research connects a risk agenda with a development agenda to explore how and why risks are important in shaping digital development processes. The concept of *digital development risk* is defined as the risk of digital development processes contributing to, and/or exacerbating, uncertain outcome(s) with respect to responsible well-being. This concept is used to explore the central research question, namely: how and why are digital development risks important in shaping digital development processes? The cases of the use of digital IDs for developmental purposes in Africa and of contact-tracing apps in South Africa during the Covid-19 pandemic are examined based on in-depth 'expert' interviews and documentary sources.

A thematic analysis of the cases indicates a tendency for relevant stakeholders to avoid both the definition and management of digital development risks. This enables both risk arbitrage and Ulrich Beck's notion of organised irresponsibility; that is, the risks of digital development processes tend to be ignored, downplayed, or redesignated by powerful actors. In contexts lacking adequate regulatory safeguards or the capacity to mitigate harms, digital developmental processes are found to introduce or exacerbate socio-digital inequalities, since risk management becomes the responsibility of individuals, rather than of relevant development actors. As such, the concept of digital development risk proves to be helpful in revealing the relationships between digital development risks, organised irresponsibility, and risk arbitrage. It is argued that the failure to assume responsibility for defining and managing digital development risks can mean that development beneficiaries become responsible for managing the uncertain outcomes of digital development processes, thus becoming risk beneficiaries.

Acknowledgements

In the same book in which Robert Chambers constructs the notion of responsible well-being, he also speaks of the need to 'rehabilitate those who have suffered a PhD' (2005, p. 195). The people around me – from supervisors to friends and family – likely suffered more than I did with this PhD over the past four years.

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CONTENTS

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Acronyms and abbreviations

4IR	Fourth Industrial Revolution
AfCFTA	African Continental Free Trade Area
AI	Artificial intelligence
ANC	African National Congress (South Africa)
API	Application Programming Interface
App(s)	Application(s)
AU	African Union
AUC	AU Commission
BMZ	German Federal Ministry of Economic Cooperation and Development
BRICS	Brazil, Russia, India, China and South Africa
CBA(s)	Cost-benefit analysis (analyses)
CFF	Corresponding Fields Framework (Helsper)
CovidAlert	Covid Alert SA (or Covid-Alert SA)
CSOs	Civil society organisation(s)
CRVS	Civil registration and vital statistics (system)
DHA	(National) Department of Home Affairs (South Africa)
Digital ID(s)	Digital identification ecosystem(s)
Discovery	Discovery Health Ltd
DMA	*Disaster Management Act* (57/2002) (South Africa)
DoH	(National) Department of Health (South Africa)
DoJ	(National) Department of Justice (South Africa)
DPA	Data Protection Authority
EFF	Economic Freedom Fighters (South Africa)
EN framework	Exposure Notification framework (Apple-Google partnership)
GCSCC	Global Cyber Security Capacity Centre
GDP	Gross domestic product
GDPR	*General Data Protection Regulation* (2016/679)
GIZ	*Gesellschaft für Internationale Zusammenarbeit*

GNP	Gross National Product
HDI	Human Development Index (UNDP)
HIV	Human immunodeficiency virus
ICASA	Independent Communications Authority of South Africa
ICRC	International Committee of the Red Cross
ICT(s)	Information and communication technology (technologies)
ICT4D	ICT(s) for development
ID	Identification (document)
ID4D	Identification for Development (World Bank)
IGO(s)	Intergovernmental organisation(s)
IMF	International Monetary Fund
ITU	International Telecommunication Union
LDCs	Least developed country (countries)
Logframe	Logistical framework
Malabo Convention	AU *Convention on Cyber Security and Personal Data Protection* (2014)
MDG(s)	Millennium Development Goal(s)
MNO(s)	Mobile network operator(s)
NACOSEC	National Covid-19 Secretariat (Lesotho)
NCA	National Communications Authority (Ghana)
NGO(s)	Non-governmental organisation(s)
NHI	National health insurance (South Africa)
NHS	National Health Service (UK)
NICD	National Institute for Communicable Diseases (South Africa)
NIMC	Nigerian Identity Management Commission (Nigeria)
OECD	Organisation for Economic Co-operation and Development
PCR	Polymerase chain reaction
POPIA	Protection of Personal Information Act (South Africa)

PPPs	Public-private partnership(s)
RDP	Reconstruction and Development Programme (South Africa)
REC(s)	Regional economic community (communities) (AU)
RIA	Research ICT Africa
RQ	Research question
SARS-CoV-2	Novel severe acute respiratory syndrome coronavirus 2
SDG(s)	Sustainable Development Goal(s)
SDI(s)	Socio-digital inequality (inequalities)
SIM (card)	Subscriber Identity Module (card)
Smart Africa	Smart Africa Alliance
SMS	Short Message/Message Service
SRQ(s)	Sub-research question(s)
TB	Tuberculosis
ToC	Theory (or theories) of change
UCT	University of Cape Town
UID	Unique identification number (India/Aadhar)
UN	United Nations
UNDP	UN Development Programme
UN SG	UN Secretary-General
UNHCR	UN High Commissioner for Refugees
UNICEF	UN Children's Fund
WC	Western Cape (South Africa)
WEF	World Economic Forum
WFP	World Food Programme
WhatsApp API	WhatsApp Business Platform
WHO	World Health Organisation
ZAR	South African Rand

CHAPTER 1: TO WHAT END?

1.1 Introduction

> *In Virgil's epic poem* The Aeneid *(written between 29 and 19 BCE), the Sibyl presided over the entrance to Hades, the Underworld. At the cave opening people would leave questions about their fate – written on the leaves of trees – for the Sibyl to address. She would dutifully write her answers on oak leaves and leave them to be collected at the cave entrance. However, the wind would lift the leaves, swirling them around the area in front of the cave, shuffling their order so questioners could not know to whom the answers applied; their fates were at hand, but tantalizingly impossible to locate.*

This excerpt formed part of the description for a chamber opera piece created by the South African artist William Kentridge, and exhibited in a career retrospective at London's Royal Academy in Autumn 2022.[1] In *Sibyl*, as the piece is known, Kentridge not only transposed the oracle into a modern-day office replete with multiple layers of state bureaucracy 'as a means to categorise and control people', but he laments algorithms' ubiquitous 'knowledge' of people's existential questions. The *Sybil*'s clairvoyant declarations, traditionally written on oak leaves, are transposed to scraps of lined office paper, fluttering and dancing in the wind: 'old gods have retired'; 'starve the algorithm'; and, again and again, she returns to the open-ended lament (Kentridge, 2022):[2]

TO WHAT END

Asking 'To what end?' in the context of how digital technologies and information and communication technologies (ICTs) are used for developmental processes is partly what I set out to do in this thesis, although I primarily focus on the *means* (risky

[1] See: https://www.royalacademy.org.uk/exhibition/william-kentridge for a general overview of this retrospective.
[2] Kentridge has created a few variations on this theme, including a chamber orchestra, filmed and live performances, and animations. See an excerpt of one version, which premiered in Paris, here: https://www.youtube.com/watch?v=V-3FrPnBTcI.

practices) to these uncertain ends in my empirical and conceptual explorations. Using the promotion of digital identification (ID) processes for developmental purposes in African contexts as examples of how ICTs are used and promoted 'in the name of Development' (Taylor & Broeders, 2015, p. 236), I examine how risks are defined and managed in these digital development processes. By doing so, I hope to contribute to a more realistic understanding of how and why the risks of digital development processes may shape the consequences, or developmental outcomes, of these ICTs when they are promoted for developmental purposes.

In the next section (1.2), I provide an overview of how and why the roles of ICTs in development processes are important for understanding developmental outcomes in especially global majority contexts,[3] and what this thesis aims to contribute to this growing field. I then introduce the conceptual objectives and methodological directions I take to do so (section 1.3). Finally, I describe a chapter outline for the remainder of this thesis (section 1.4).

1.2 Technology's promise, technology's peril

Efforts to promote digitisation, datafication, and the use of a plethora of ICTs for a plethora of purposes continue to be a significant focus of a myriad of 'development'[4] efforts – and even more so since the United Nations' (UNs') *2030 Agenda for Sustainable*

[3] Since I have to find a way of referring to the areas I am interested in – areas that have been called, respectively, the third world, developing world, or global South – I use terminology in this thesis that signifies not only the power disparity in the usage of such terms but the patronising tenets that often underlie(d) it. I prefer to refer to these regions of interest as the countries forming the global majority. However, while doing so, I acknowledge that these terms are not without shortcomings either, especially given that they tend to disregard and neglect disadvantaged people within 'global North/minority' contexts. For the latter, I refer to specific regions where possible, but use 'global North' when there is no suitable alternative. In doing so, I still acknowledge the shortcomings of this term and the risk of neglecting disadvantaged populations within associated regions.

[4] While I am tempted to put the term development (and iterations thereof) in inverted commas throughout this thesis to signify its contested meanings (and outcomes), I follow Abrahamsen's approach and choose not to do so after this instance since, as she points out, the practice of placing these terms in inverted commas becomes 'not only tiresome but also unnecessary as all terms, not only those related to development, are constructed and inscribed with meaning in discourse' (2000, p. xv). As will become evident in Chapter 3, my failure to do so does not mean that I do not question the meaning and values attributed to the term.

Development (UNGA, 2015) acknowledged the importance of ICTs for enabling development. Attempts to 'bridge digital divides' through so-called 'digital inclusion' initiatives, for example, appear to be driven by assumptions that the opportunity to access and use ICTs, or to participate in digital or digitised environments, is primarily a positive development for everyone everywhere (e.g., UN Secretary-General High-level Panel on Digital Cooperation, 2019) – and perhaps even inherently and definitively so.

In many cases, digital development efforts in various forms and guises do indeed have beneficial outcomes. During the Covid-19 pandemic, for example, having Internet access of a sufficient quality meant continuing education; gaining new or continuing existing work; or checking health symptoms (e.g., ITU, 2021; Souter & Van der Spuy, 2021). But ICTs and their collateral implications are not always positive, and nor are they equally distributed. During the same pandemic, millions of children could not continue their schooling because their families could not afford reliable Internet access or multiple devices (Halliday, 2020); work conference calls were 'zoom-bombed' with abusive content (Murphy, 2020); and sham 'doctors' advocated against the use of Covid-19 vaccines on viral videos (Christopher, 2020).

These examples illustrate that ICTs introduce not only the opportunities so readily and often assumed, but also uncertain or harmful outcomes (e.g., Nyamnjoh, 2023, p. xvi; Helsper, 2021; Kleine, 2010; Unwin, 2007; Heeks, 2005). Digital development efforts, similarly, can expose individuals to risks for which they or relevant institutions (e.g., regulators or policymakers) might be ill-prepared – thereby potentially exacerbating existing inequalities or even introducing new ones.

These concerns might seem somewhat incongruous given that, while many stakeholders continue to pursue *more* digital inclusion, digitisation, and datafication in some parts of the world, a rising tide of so-called 'techlash' – one of the *Financial Times*' defining words of the year in 2018 (Ipsos, 2019) – has swept in elsewhere. While such critiques might still be considered somewhat novel or boundary-defining in popular culture, policy, and even some academic traditions,[5] critical approaches to the outcomes of ICTs are far from new. Researchers in the 'digital divides' or ICT for development (ICT4D)

[5] For example, Shoshana Zuboff's 2019 book, *The Age of Surveillance Capitalism*, has been lauded by popular media and included on the popular reading lists of public figures like Bill Gates and Barack Obama.

fields (broadly construed) have been interrogating outcomes for a number of years (Mansell, 2017).

These fields have produced useful approaches for conceptualising the ways in which ICTs and digital development processes impact people's lives (many of which I draw upon to develop a conceptual framework in Chapter 3) (e.g., Helsper, 2021; Kleine, 2010; Unwin, 2007; Heeks, 2005). Indeed, researchers in diverse disciplines have raised concerns about the ways in which ICTs are developed - prodding the underlying logic of business models that arguably make it easier for online risks to proliferate (Cammaerts & Mansell, 2019) while exploiting human vulnerabilities (Harris & Raskin, 2019), diminishing human agency (Zuboff, 2015), and/or discriminating against people who are already disadvantaged (Eubanks, 2018).

But a significant portion of research relevant to digital development still tends to focus on collateral *benefits* and/or *positive* outcomes. The examination of uncertain outcomes, or risks, as well as the distribution thereof, has been less explicit, and the few studies that do examine risky outcomes have tended to undertake their empirical analyses in global North contexts (e.g., Scheerder et al., 2019; Blank & Lutz, 2018). Risks and related responsibilities are also neglected in development processes. While many development actors might rely on a selection of 'risk assessment' tools when designing, developing, and reporting on the perceived outcomes of digital development processes, these assessments are often conducted in a symbolic, perfunctory, and even tokenistic manner. (e.g., Chambers, 2005; Scott-Villiers, 2004). The design of these mechanisms tends to be criticised for their inability to properly identify, explain, or account for undesired outcomes given factors like the multiple affordances of ICTs, the agency of individuals who use ICTs in different ways, and the complexity of local contexts (e.g., Southwood, 2022, p. 2; Devarajan, 2011; Abubakar, 1989).

Given these shortcomings and avenues for exploration, this thesis aims to contribute a more nuanced and realistic understanding of the risks that accompany digital development processes. In the next section, I introduce the conceptual framework and methodological approach adopted to endeavour to contribute towards a more nuanced understanding of the promises and perils of digital development processes.

1.3 Conceptual objectives and methodological directions

There is no shortage of studies that consider the outcomes of ICTs for developmental purposes. Yet few of these have explicitly theorised the relationship between risks and development, as my conceptual framework aims to do. While this thesis could draw on a number of conceptual or theoretical approaches for studying the changes that may result from the use of certain ICTs in development processes, I decide to combine a risk agenda with a development agenda to do so. I define risks as *uncertain outcomes with respect to something we value*, and draw on heterodox development theory to define 'something we value' as *responsible well-being* (Chambers, 1997). The concept *digital development risk* is born from this fusion of risk and development, and becomes central to the remainder of the thesis. Described as the risk of digital development processes contributing to, and/or exacerbating, uncertain outcome(s) with respect to responsible well-being, my overall research question (RQ) is: how and why are digital development risks important in shaping digital development processes?

Empirically, I explore digital development risks by investigating the social and digital dimensions of the risks of digital development processes in general and digital IDs in particular. I develop a nested case study approach and identify two interrelated cases in Africa, both of which are primarily investigated at a meso or institutional level of analysis to explore my primary empirical question of how risks are defined and managed in digital development processes by diverse stakeholders and institutions involved in these processes. These are operationalised through thirty semi-structured interviews conducted with mostly senior 'expert' stakeholders, coupled with documentary sources, and analysed thematically.

To situate my empirical work with reference to existing literature, I map three broad traditions of research related to digital development processes (or, more commonly, ICT4D). I also position my research about digital IDs within these traditions, and show that relevant literature on risks tend to be rather insular, instrumental, and/or often conflated with and focused on specific harms. Critical examinations into overarching concerns about practices of digitisation (and identification) for development purposes,

and the roles and responsibilities of relevant stakeholders involved in defining and managing associated risks, are relatively rare. Hence, I will argue that there is a need for more critical engagement with the *risks* that accompany digital development *processes*, as well as the *responsibilities* of (especially powerful) stakeholders involved herein. Doing so, I will find, is easier said than done given the plethora of stakeholders involved in these processes, making it easier to avoid responsibility (as implied by the notion of *organised irresponsibility)* and to redesignate risks elsewhere (as suggested by the notion of *risk arbitrage*).

I therefore aim, with this thesis, to contribute to a more nuanced understanding of the risks of digital development processes and their potential consequences for development. This is important for a number of reasons. First, significant resources are spent by policymakers and development institutions on promoting ICTs for various purposes and in various guises, despite limited corresponding evidence as to whether ICTs will support or hinder development (Friederici, Ojanperä, & Graham, 2017; Helsper, 2012; Kleine, 2010; Mansell, 1999). In fact, digital development efforts have sometimes been found to exacerbate inequalities both in their target areas and between their target and other areas (Banaji et al., 2018; Heeks, 2002a).

Second, many people who are yet to be connected or 'digitally included', who are only marginal ICT users (depending on factors like the amount, type, and variety of use), 'digital underclasses' (Helsper, 2014, p. 21; Helsper & Reisdorf, 2017), or 'second-class citizens online' (Napoli & Obar, 2014, p. 330), might be more (or less) susceptible to risks as social and digital inequalities overlap and they or the institutional environments they find themselves in, might have different capacities and resources to manage risks (Blank & Groselj, 2014; Napoli & Obar, 2014). And, because ICTs are increasingly central to much of everyday life, even (or especially) digitally disadvantaged people (Helsper, 2014, p. 21) are also exposed to risks associated with ICTs, including the potentially discriminatory datafication practices that these might facilitate (e.g., Egner, 2011, p. 20; Eubanks, 2018; Noble, 2018; Taylor, 2017).

Lastly, in all parts of the world (as became exceedingly clear during the Covid-19 pandemic), people who are not effectively participating online (Lutz & Hoffmann, 2017) might find it increasingly difficult to function effectively in everyday (social)

environments if they continue to lack access to digital environments or ICTs (Elder, Samarajiva, Gillwald, & Galperin, 2013). This is because ICTs are becoming increasingly central to everyday life in many parts of the world (Lupač, 2018); they are crucial to everything from the provision of e-government services to procuring benefits, performing work, getting a vaccine, or gaining further education. Because ICTs are thus likely to have significant implications in all corners of the world, contexts previously considered as 'developing' can no longer be regarded as 'out there' (Manyozo, 2012, p. 10) and might, indeed, be more appropriately termed the global majority[6] (Nyabola, 2022, p. xviii). ICTs can exacerbate inequalities for people who are not effectively participating online or digitally in wealthy, highly-digitised contexts as well as in less wealthy, less-digitised global majority contexts alike (Helsper, 2021; van Deursen & van Dijk, 2019). The various stakeholders involved in digital development processes – from policymakers to development agencies – need to acknowledge that, by designing, financing/funding or implementing digital development processes, they might also be trapping people in a world framed by the 'paradoxical coexistence' of progress and risk (Jarvis, 2007, p. 23). In other words, they might be turning so-called development beneficiaries into *risk beneficiaries* instead, meaning individuals or communities become responsible for managing the uncertainty of outcomes that arise from digital development risks themselves, whether they want to or not.

Any attempt to unravel this world of progress and risks, of promise and peril, is a little like trying to decipher the Sybil's scribblings. But, because the uses and outcomes of ICTs are largely determined and shaped by the ways in which they are developed in particular contexts, cause for optimism remains. If we can encourage and develop a better understanding of both the collateral benefits and risks of digital development processes, we could help enable the policymaking discourse and practice to evolve beyond token mentions of potential harms to a more critical understanding of the outcomes and risks that accompany digital development processes. The need for this kind of understanding is arguably becoming more pressing as ICTs become increasingly central to our lives across the world. Without a more nuanced understanding of the risks that accompany ICTs, relevant stakeholders and risk beneficiaries will be unable to maximise the promise (opportunities) and mitigate the perils (risks) that accompany digital development processes.

[6] See fn. 3.

1.4 Structure and chapter outline

The last section of this chapter provides an overview of the thesis.

In **Chapter 2,** I situate the reader in the two overlapping empirical contexts that inform this thesis, namely the use of ICTs in the name of development in Africa (with a focus on digital IDs), and the adoption of digital contact-tracing mechanisms (as examples of functional digital IDs[7]) in South Africa during the Covid-19 pandemic. To do so, I first describe some of the characteristics that inform and provide parameters for my empirical research, namely the socio-economic situation, the ICT landscape, and the relevant policy environment in Africa and South Africa. I then provide relevant background to Covid-19 as a specific event that is relevant to understanding my nested case in particular, including the policy landscape that shaped how these interventions were used and how related risks were defined and managed by a variety of stakeholders.

Chapter 3 provides an opportunity to develop the conceptual framework that forms the foundation of my empirical explorations. Before doing so, I examine conceptual stepping stones (ICTs, risk(s), and development) and situate the project in the context of relevant research. Because I find that risks are to some extent neglected in research related to digital development processes, I argue for the construction of a new way for digital development research. This thesis aims to take a first step in this direction by critically examining and engaging with how and why digital development risks are important in shaping digital development processes (my theoretical problem), and how risks are defined and managed by relevant stakeholders engaged in these processes (my empirical question). To help develop a better understanding of how risk is defined and managed in digital development processes, I draw on certain useful concepts from Risk Society scholars, including organised irresponsibility and risk arbitrage, and suggest an

[7] A functional identity system is typically not linked to a civil registry but collects biometric or other data. Examples include public or private sector applications, including drivers' licenses, SIM card registrations, banking, or pensions. By contrast, a foundational identity system is primarily created to manage identity information for the general population, and is typically linked to birth and death registration (Manby, 2020).

additional one, namely risk beneficiaries. My conceptual framework, which is summarised at the end of the chapter, therefore combines a risk agenda with a development agenda.

In **Chapter 4,** I describe the methodological basis of this thesis, including why my concerns about the collateral implications of digital development processes indicate and justify a critical realist epistemology and qualitative methods. After elaborating two sub-research questions (SRQs) to better explore my empirical RQ, I discuss the operationalisation thereof in my research design, which relies upon a nested case study approach. I define and justify my choice of two cases, and discuss the principal method used to operationalise my case studies, namely in-depth interviews, complemented by my reading of documentary evidence to provide relevant context and thematic analysis of some documents. After describing sampling, data collection, and analysis strategies, I address relevant ethical considerations.

In **Chapters 5** and **6,** I develop my two cases initially through a first-level thematic analysis to describe the case findings (these findings are further analysed in relation to my conceptual framework in Chapters 7 and 8). While these two chapters have similar structures and analytical approaches, each of them investigates the experience, definition, and management of digital development risks at different levels and using slightly different examples of empirical objects (digital IDs and contact-tracing applications or apps respectively). Each of them therefore evinces different social and digital dimensions of digital development risks. In Chapter 5, I detail my findings from my initial case, which concerns the use of digital IDs in development processes in Africa, and how stakeholders (with an emphasis on development actors) both define and manage the risks associated with these digital development processes in general. Findings from my nested case are discussed in Chapter 6, in which I elaborate on the use of certain functional examples of digital IDs, namely digital contact-tracing apps used during the Covid-19 pandemic in South Africa, and perceptions of the ways in which the socio-digital dimensions of associated risks were defined and managed.

Chapter 7 provides an opportunity to critically analyse and discuss the findings that were discussed in the preceding empirical chapters. As my main analytical chapter, it sets out findings and insights in respect to my primary RQ and SRQs, and highlights

conceptual linkages that became apparent while doing my fieldwork and analysis. This chapter indicates a paucity of risk definitions in digital development processes, or risk definitions that only define certain aspects of risk in a fractured manner. The neglect of risks, I argue, makes it difficult if not impossible to appropriately manage risks and both their negative and positive connotations or dimensions, while also enabling organised irresponsibility and potentially facilitating risk arbitrage. While I do not directly explore the outcomes of these neglectful tendencies, I suggest that they are not only problematic but may potentially introduce or even exacerbate the socio-digital inequalities for risk beneficiaries on the continent.

Finally, **Chapter 8** recaps my empirical and conceptual findings to highlight the contributions and implications of this thesis for not only digital development research, policy, and process (including digital IDs), but for an understanding of risks in the context of digitisation and datafication. I also discuss some limitations of this research and suggests directions for future research and work.

In the next chapter, Chapter 2, I elaborate on the circumstances introduced at the beginning of this chapter to set the scene of this thesis.

CHAPTER 2: DIGITAL *DONGAS*, THE INEQUALITY VIRUS, AND THE HOPE OF DIGITISATION

2.1 Introduction: from Datahouse to digital *dongas*

I write much of this thesis from Datahouse, a co-working space popular with start-ups that is located in an office development known as Technopark, outside a relatively affluent university town called Stellenbosch, near the southernmost point of South Africa. A bronze plaque at the building's entrance declares that the building was officially opened in May 1988 by the country's then Minister of Economic Affairs and Technology, Danie Steyn. Today, Datahouse is but a spectre of the bright hope and fanfare with which Steyn likely cut that ribbon over thirty years ago. Its lonely hallways echo with the incessant hum of generators (as the country is crippled by up to twelve hours of power cuts every day), and its parking lot is framed by lawns of straggly weeds and emptied dams (as the Cape of Good Hope continues to grapple with drought conditions aggravated by the global climate crisis).

The story of digital development processes in Africa, and how risks are framed within them, is not a straightforward one to tell. It is riddled with high hopes and trite determinisms – not too dissimilar to the building from which I write this chapter. Difficulties aside, this chapter aims to situate the reader in two distinct but overlapping empirical contexts that inform this thesis, namely the use of ICTs for development purposes in Africa (with a focus on digital IDs), and the adoption of certain contact-tracing mechanisms (as examples of functional digital IDs) in South Africa during the first six-to-twelve months of the Covid-19 pandemic, when the 'most lingering and significant decisions to mitigate the effects of the pandemic were made' (Hirsch, foreword in Chilenga-Butao, 2022, p. i). The latter, as I explain in my methodology chapter (Chapter 4), serves as a nested case study aimed at exploring a more specific application and example of a digital ID intervention (and digital development processes more generally).

To provide relevant context for my study, I divide this chapter into two parts, each of which provides background context for understanding other chapters. In **Part I**, I outline some of the characteristics that inform and provide parameters for my empirical research. To do so, I explore the socio-economic situation, the ICT landscape, and the relevant policy environment in Africa in general and South Africa specifically. In **Part II**, I consider Covid-19 as the specific event that is relevant to understanding my study: namely, the use of specific digital contact-tracing apps promoted during the first six-to-twelve months of the pandemic in South Africa. I also summarise the policy landscape that shaped how these interventions were used and how related risks were defined and managed by a variety of stakeholders. As I explain in Chapter 3, in addition to being ICTs, digital IDs also operate as or facilitate functional and foundational registration processes, and can thus introduce important contextual issues pertaining to a country's history and experience with civil registration and vital statistics (CRVS) systems. Given that my research is concerned with digitisation and datafication processes in the context of development processes, I focus on that dimension of digital IDs rather than the context pertaining to countries' experience and history with registration processes which, in itself, could be another and worthwhile project.[8]

PART I

2.2 Africa/South Africa as a geographical parameter

Providing relevant context and background for an African study is daunting since generalising across 54 independent and unique states that are home to over 1 billion people, is neither feasible nor particularly useful.[9] It is also difficult to do so without falling into the pitfalls of languid generalisations when it comes to the continent; 'Africa' is too often defined 'with negative reference to some normative, but often unspecified, conception of the good' (Chigudu, 2020, p. 6). When viewed in its component parts, it

[8] The history of South Africa's identification processes has been covered extensively by Breckenridge (2014). For a summary of the current situation, see Razzano (2021).
[9] It is also practically difficult given the paucity of data available on the continent. As Devarajan argues (2011), Africa faces a statistical tragedy that aggravates development challenges.

becomes clear that Africans are 'doing more than just surviving' (Nyabola, 2018, p. xvii). That said, *deconstructing* Africa is not necessarily the answer (Hirsch & Lopes, 2020). While there might be no single (developmental) trajectory or pattern on the continent, understanding general trends pertaining to the use of ICTs for development enables certain crucial comparisons to be made – especially when it comes to Africa's participation in globalised (and digital) economies.

In this section, I provide an overview of three main characteristics of particular relevance to this thesis: Africa and South Africa's economic situation, its experience with ICTs, and its policy landscape as it applies to digital development processes (with a focus on data governance frameworks). These aspects are important for explaining why I argue that both Africa and South Africa tend to rely on digital development interventions as a potential panacea for various socio-economic challenges, to which I turn in Part II.

2.2.1 The socio-economic landscape

It is an understatement to say that Africa's experience with development has been mixed. Today, African citizens not only remain poorer on average than those in the rest of the world, but face vast income differences within their countries, and throughout the continent itself, which is the second most unequal in the world (African Development Bank, n.d.; David Malpas, 2022; Seery, Okanda, & Lawson, 2019; Sulla, Zikhali, & Cuevas, 2022). These experiences are closely intertwined with the continent's progression from colonial to post-independent/neo-colonial and increasingly global – and digital – economies (Makulilo, 2016, pp. 7–8; Pelizzo, Kinyondo, & Nwokora, 2018). The spectres of neoliberal policy packages of liberalisation, privatisation, and deregulation (as often evinced by structural adjustment policies recommended by creditor institutions in the 1980s) remain discernible among some countries' institutional (in)capacities to respond to global and globalised challenges and a tendency to rely on the private sector for typically public functions (Cheru, 2016). That said, many African countries' economic performances have improved and accelerated since the 1990s and 2000s.[10]

[10] Some economists have argued that this growth might be due to the delayed impacts of the controversial structural adjustment policies, which got 'rid of bad policies' (Fourie, 2021, p. 170).

South Africa, the country I look at in the nested case study (Chapter 6), has been an unfortunate exception to this positive story since 2009 (Hirsch & Lopes, 2020). In the years before the Covid-19 pandemic, the term 'junk status' was often used to describe South Africa's economy (Chilenga-Butao, 2022). While other emerging markets in BRICS (originally Brazil, Russia, India, and China)[11] recorded gross domestic product (GDP) growth rates of over 6% over a number of years, South Africa has only experienced, on average, a 1% growth rate between 2012 and 2021 (Kganyago, 2023). Economists have argued that the country is caught in a middle-income country growth trap, defined by not only policy incoherence but an 'undiversified export profile, low-quality schooling system, and insufficient savings and investment' (Bhorat, Cassim, & Hirsch, 2017, p. 230). The result is evinced by unequal growth and persistently high levels of inequality (Hirsch & Lopes, 2020). Indeed, almost thirty years since the (official) end of apartheid,[12] South Africa's inequality is said to be the worst in the world (Sulla, Zikhali, & Cuevas, 2022).[13]

Yet South Africa's story after 1993 cannot be told solely in monetary terms, and should be complemented by data related to well-being – e.g., health, education, and other standards of living. In these terms, it is important to note that while poverty has declined in some terms since the end of apartheid (Finn, Leibbrandt, & Woolard, 2013), the legacies of colonialism and apartheid continue to reinforce the inequality of developmental outcomes (Madlingozi, 2007) by facilitating 'a world of apartness' (Madlingozi, 2018, p. 3). This means that the 'weight of race hasn't changed that much' (McGregor, 2022, p. 254) – as illustrated by the fact that, for example, the top 10% of South Africa's population holds 80.6% of financial assets in the country (Sulla, Zikhali, & Cuevas, 2022). Additional scourges include ongoing political instability within the ruling party (Hirsch, foreword in Chilenga-Butao, 2022) and the damning findings of seemingly endemic state capture, corruption, and fraud in the public sector,[14] especially

[11] BRICS membership was expanded quite significantly in August 2023.
[12] For a more comprehensive overview of South Africa's development trajectory, see Roos (2016) or other sources quoted in this subsection.
[13] According to the World Bank, South Africa had a consumption (or income) expenditure Gini coefficient of 0.67 in 2018 (i.e., pre-pandemic). It ranks first among 164 countries in the organisation's global poverty database (Sulla, Zikhali, & Cuevas, 2022).
[14] Following a 2016 report, *State of Capture*, a judicial commission of inquiry was established under Chief Justice Raymond Zondo to investigate allegations of state capture (Daily Maverick, 2022), which implicated 1 438 individuals and entities (State of the Nation, 2022). In the

under the embattled former president Jacob Zuma (Zondo, 2022). The resultant hollowing out of state capacity has not only damaged economic growth in the country, but has severely curtailed the state's capacity to respond to unforeseen circumstances such as the Covid-19 pandemic (Chilenga-Butao, 2022) (see Part II).

In respect of the latter, both South Africa and Africa more generally are highly dependent on global markets, which means that they are extremely susceptible to global risks. The negative implications of developments like the Covid-19 pandemic and Russia's war in Ukraine have been significant (Bambra, Lynch, & Smith, 2021; CUTS International, 2020; OECD, 2020; Souter & Van der Spuy, 2021; Sulla, Zikhali, & Cuevas, 2022). Africa's 'potential' should therefore be contextualised within a 'rapidly changing global environment characterised by an ever-growing confluence of world-scale challenges' that are 'inextricably linked' (Hirsch & Lopes, 2020, p. 42). (This concern echoes the notion of the Risk Society, explored in section 3.3.2.) The World Bank writes that the pandemic 'dealt the biggest setback to the fight against global poverty since 1990', and these effects have since been fuelled by war in Ukraine and climate-related disasters (World Bank, 2022, p. np.). As a result of these factors, it predicted that economic growth in Sub-Saharan Africa would decelerate from 4.1% in 2021 to 3.3% in 2022 (World Bank, 2022).

Similarly to the rest of the continent, the pandemic has damaged the socio-economic outlook of the fading rainbow nation. In 2020, GDP per capita decreased to a level last seen in 2005 (Stats SA, 2020a). By the fourth quarter of 2021, unemployment in the country reached 35.3%, although an expanded definition of unemployment (which includes those discouraged from seeking work) puts the number at closer to 46.2% (Maluleke, 2022). In 2022, inflation in South Africa reached a 13-year high, and poverty reached levels last experienced over a decade ago (World Bank, 2023b). While the International Monetary Fund (IMF) projects South Africa's real GDP growth to be 1.1% for 2023 (compared to 4.6% in 2021) (Bolhuis & Kovacs, 2022), South Africa's Reserve Bank is more sceptical, forecasting growth of only 0.3% (Kganyago, 2023).

Commission's final reports – published in late 2022 – extensive wrongdoing was identified at various state entities. See https://www.statecapture.org.za.

Besides the pandemic, other factors to blame for sobering economic outlooks relate to political instability (also within the ruling African National Congress party, or ANC) and rather intractable structural constraints like electricity shortages which continue to plague the country (a challenge exacerbated by state capture and corruption).[15] In respect of the latter, the Reserve Bank deducts up to two percentage points from projected GDP growth as a result of the energy crisis (*ibid.*).

2.2.2 The ICT landscape

Economists commonly identify at least two reasons for optimism as far as Africa's future trajectory is concerned, implying that 'the gap between Africa's potential and its reality is not impossible to bridge' (Hirsch & Lopes, 2020, p. 44). The first is Africa's youthful population, half of whom will be under 25 years old by 2050 (World Bank, 2023a). The second – and a factor of particular relevance to this thesis – is the potential promise of ICTs. For example, one economist argues that ICTs have 'transformed the traditional path of economic development' on the continent, paving the way to 'another route to prosperity' that is less dependent on commodity cycles (Fourie, 2021, p. 173).

While many African countries adopted protectionist policies after independence by resisting 'imported' technology in order to 'completely detach from European influence' (Makulilo, 2016, p. 9), most countries have since embraced various waves of new technologies, foreign or not (Iyer, Chair, & Achieng, 2021). The so-called Fourth Industrial Revolution (4IR) (Schwab, 2016) was particularly popular with policymakers from 2016 to late 2020 (e.g., Research ICT Africa, 2020; Schwab, 2016; Tshabalala, 2017). In South Africa, for example, politicians frequently lauded the ostensible promise of the 4IR – with President Cyril Ramaphosa promoting the notion through a variety of presidential initiatives, appointees, commissions, and research centres (African Development Bank, 2019; Razzano et al., 2020; The Presidency, 2019). The Covid-19 pandemic seems to have realigned (or at least postponed) some of this focus, although policymakers also turned to a range of digital development 'solutions' during the

[15] In February 2023, the electricity crisis left households without power for up to twelve hours a day (Ndenze, 2023).

pandemic in order to address a plethora of challenges associated with it (Hirsch, foreword in Chilenga-Butao, 2022).

This interest in and reliance upon the potential of ICTs is not new, although the UN community at the highest levels has only embraced this notion more recently. To some (arguably limited) extent, the international development community recognised the potential role that ICTs can play in development processes in the Millennium Development Goals (MDGs) (2000-15) (cf., Heeks, 2005), which mobilised global commitments towards promoting human development and reducing poverty (Cheru, 2016), and recognised the development role that ICTs could play as both a target in itself (Goal 8, Target 18) and by enabling the achievement of other MDGs (Byrne, Nicholson, & Salem, 2011, p. 1).[16] In 2003 and 2005, the UN hosted the World Summit on the Information Society (WSIS) with the objective of helping to help 'build a people-centred, inclusive and development-oriented Information Society' (WSIS, 2003, p. para 1). WSIS was not only an important inflection point for Internet governance, but was significant in terms of mobilising the international community in a realisation of the enabling role that ICTs can play to support sustainable development (Van der Spuy, 2017).

This realisation was to some extent picked up and reflected in the successor to the MDGs, namely the UN's 2015 *Agenda for Sustainable Development*, which more explicitly acknowledged the importance of ICTs like the Internet for promoting sustainable development. A target for universal and affordable access to ICTs in least-developed countries (LDCs) is contained in goal 9c of the *Agenda*, while ICTs are recognised in goal 17 as enabling the implementation of all the SDGs. This means that the UN and the broader development community now regard ICTs as tools that can enable and facilitate the better implementation of the SDGs. It should be noted, however, that some have argued that the *Agenda* underestimated the underlying significance of ICTs within society, or that their presence and usage will have a more significant impact on development processes than policies and interventions (Souter, 2017).

[16] This is not the first time the development community emphasized the significance of ICTs for developmental goals, although the MDGs and SDGs provided more tangible metrics and normative goals in this regard.

In Africa, since the MDGs and even more so the SDGs, ICTs in general and smartphones in particular have thus been recognised as 'critical drivers of social and economic growth and development' (Gillwald, Mothobi, & Rademan, 2019, p. 1). The global 'trends' of digitisation and datafication are now widely recognised as significant for 'every aspect of social and economic activity' on the continent (Razzano et al., 2020, p. 6), with a particular focus on mobile and Internet technologies (Gillwald & Mothobi, 2019, p. 12). Yet Africans' access to and the distribution of ICTs like mobile and Internet technologies remain highly uneven (Gillwald & Van der Spuy, 2019; Souter & Van der Spuy, 2021; UN Secretary-General High-level Panel on Digital Cooperation, 2019); and translating the SDGs from policy to practice is easier said than done (Cheru, 2016). The continent's lasting 'technological arrest' (Makulilo, 2016, p. 9) might have experienced a so-called 'Covid-bump' (i.e., the pandemic increased demand for Internet access and use), but ICT usage numbers remain relatively low. According to the International Telecommunication Union (ITU), only 40% of Africa's population used the Internet in 2022,[17] for example. Significant and rather sticky imbalances persist on the continent and they tend to reflect social inequalities, including: an urban-rural gap (64% of urban dwellers on the continent use the Internet, compared to only 23% of people in rural areas); a gender gap (34% women use the Internet in Africa, compared to 45% men);[18] and a generational gap (55% of Africa's youth use the Internet, compared to only 35% of the rest of the population, aged 10 and older) (ITU, 2022).[19]

In South Africa, the country's inequalities are predictably reflected in ICT access and use and are – like other inequalities – also a factor of South Africa's history. The first telephones arrived in South Africa in the 1870s, reportedly sent as a gift to a commander of the British forces to assist in the Anglo-Zulu War (Tysoe & Knott-Craig, 2020, p. 53). A hundred years later, the apartheid government was also using ICTs to suppress and control certain populations: it, for example, limited access to fixed telephone lines in townships and informal settlements as it reportedly equated telecommunications access to 'access to power' (Tysoe & Knott-Craig, 2020, pp. vii–viii).[20] By the end of apartheid

[17] The ITU defines 'being online' as having used the Internet over the past three months.
[18] The gender gap is calculated by subtracting the access rate for women from that for men, and then dividing this by the access rate for men.
[19] ITU aggregates are calculated, via data from MNOs and other actors, supplied by Member States and augmented by data modelling tools to estimate missing values. Despite shortcomings, it provides a useful indication of connectivity trends.
[20] For a more comprehensive review of South Africa's telecommunications reforms since the end of apartheid, see Cohen (2003) and Lewis (2020).

and its decades of policies that facilitated 'separate development' and unequal access to an array of resources, the country faced not just a mere 'digital divide', but a vast digital ravine or *donga*, which Lewis describes as 'deep red scars slashed across the landscape, angry signs of deprivation and drought' (2020, pp. 1, 3).

When the ANC came into power after the country's first democratic election in 1994, it prioritised the need to reform the unequal telecommunications sector. The significance of ICTs for development was highlighted in the ANC's post-apartheid macro-economic plan for the country, the Reconstruction and Development Programme (RDP), which provided that 'all South Africans should have access to a modern, affordable telephone system' (ANC, 1994, p. np.). Subsequently, ICTs were also recognised in South Africa's *National Development Plan 2030* as a 'critical enabler of economic activity', and central to the development of 'a dynamic and connected vibrant information society and a knowledge economy that is more inclusive, equitable and prosperous' (National Planning Commission, 2012, p. 190). While many of these reforms did serve developmental or 'more noble objectives', they also coexisted with 'opportunities for rent-seeking and personal enrichment' (Lewis, 2020, p. 6) – as was exposed in the Zondo Commission's state capture inquiry (Zondo, 2022) (see fn. 14).

Efforts to implement some of these lofty commitments have been less encouraging (Gillwald et al., 2019). While South Africa fares 'better' than much of the rest of the continent (Gillwald & Mothobi, 2019; Southwood, 2022) since it has the highest Internet penetration rate in Sub-Saharan Africa (Banya et al., 2022), ICT access remains unequal within the country. That said, the exact nature of such discrepancies depends on the source consulted and the ways in which these digital inequalities are measured or assessed (Johnson, 2020).[21] For example, the Independent Communications Authority of South Africa (ICASA) estimates that 90.8% of South African households have access to cellular phones, and 77.5% of households have access to the Internet (as of 2021) (ICASA, 2023)[22] – although this number does not distinguish users who have multiple

[21] While various aspects of ICT usage might be important and relevant, I focus on mobile phones given their salience to the nested case study and the fact that mobile phones are the most popular devices for accessing the Internet in South Africa (Gillwald & Mothobi, 2019).
[22] ICASA uses supply-side data and counts the total number of data SIM cards from mobile operators for its estimations.

phones or sim cards (of which there are many[23]). Research ICT Africa, on the other hand, estimated in 2021 that 67% of the population had smartphones and 62% of the population used the Internet (Banya et al., 2022), a notable increase from its 2017/18 *After Access* survey, which estimated 48% smartphone penetration and 53% Internet usage.[24]

While the extent of the discrepancy therefore depends on measurement and source, it is reasonable to argue that a significant proportion (between 25.9% and 38%) of South Africa's population still uses basic mobile phones and lacks the capability of connecting to the Internet via their mobiles. In addition, rural-urban, education, racial, and poverty inequalities persist (ICASA, 2023). While the proportion of people who use the Internet soared in the country during the pandemic (*ibid*.), this increase was uneven, with marginalised communities and groups experiencing slower growth than wealthier, male, or urban dwellers (Banya et al., 2022). Part of the reason for this unequal growth are policy challenges and failures and this is examined in the next section.

2.2.3 The data governance landscape

Enthusiasm for digitisation and datafication – alongside the increased use of data for various societal goals (Marcucci, Alarcón, Verhulst, & Wüllhorst, 2023) – indicates that policymakers' awareness of and concerns about the potential risks of ICTs have come to the fore in South Africa and on the continent more broadly. While the ICT policy landscape constitutes many legal sectors, one particularly relevant one is that of data protection, which has 'since its inception' operated with the goal of 'taming technology' (Gellert, 2020, pp. 7, 8). To do so, data protection frameworks generally aim to protect the rights, freedoms, and interests of individuals whose personal data is stored, processed, and disseminated digitally (Gellert, 2020, p. 1). The choices policymakers make in creating data protection frameworks 'set a trajectory' for how different

[23] One survey found that 55% of respondents in South Africa said they owned or used multiple SIM cards or phones (Kibuacha, 2021).
[24] Both of these efforts draw on demand-side data. The 2021 study combines findings from a national phone questionnaire of 1 400 randomly selected respondents and findings from six focus groups. The 2017/8 survey uses the After Access household survey, which is nationally representative.

stakeholders will 'engage with digital ecosystems and data', thus potentially presenting 'direct and long-lasting consequences for economic development' (Pisa, Dixon, & Nwankwo, 2021, p. 2).

In Africa, these frameworks are often said to be inadequate or lacking (e.g., AUC, 2020, 2022; Ilori, 2020), and the topic of data governance is said to lack sufficient literature in the local context (Hlomani & Ncube, 2022). Some have argued that the relatively limited attention that has been dedicated to data protection could be blamed on policymakers being distracted by other, seemingly more pressing challenges; coupled with the fact that Africans are sometimes said to have different interpretations of (and attach different levels of importance to) certain data governance rights (Makulilo, 2016; Roos, 2016).

An example is the concept of privacy, which has been presented as a 'casualty of the project of survival' in African contexts (Breckenridge, 2014, p. 204). While some have argued that privacy in Africa is 'underdeveloped' because of historically collective[25] cultures on the continent (e.g., Roos, 2016, p. 192), data rights everywhere were historically not as individualised as they are today. Tisne, for example, points out that privacy only became more individualised in the 1970s with the advent of computing (2020). While the concept of privacy might be 'relatively new' in Africa (and elsewhere) (Makulilo, 2016, p. 15), globalisation is seen as having exposed African communities to the (privacy-related) risks of ICTs, which have led to the increased importance of privacy protections on the continent (Makulilo, 2016). At the same time, forces of globalisation (coupled with the export of foreign standards, discussed later in this section) are said to have led to the retreat of traditionally collective values of African societies (Makulilo, 2016).

African policymakers accordingly have paid more attention to rights like privacy over the past ten years. Greenleaf & Cottier have found that Africa has the fastest global rate of expansion when it comes to data privacy laws: as of late 2021, 60% of all African countries had enacted privacy laws. The proof is often in the (implementation) pudding, however, and there is a significant contrast between the existence of laws and the

[25] Roos uses the term 'collectivist', but given that 'collective' is more commonly used in the literature (and elsewhere in this thesis), I opt for the latter.

robustness or enforcement of them (Chen, 2021). Of the laws that are in place in Africa, about half are not yet in force, or are not fully effective due to failure to appoint or capacitate a relevant data protection authority (DPA) (Greenleaf & Cottier, 2020). The absence of relevant, capacitated regulators means that Africans can struggle to find ways of holding governments or private sector actors to account for the potential mismanagement of their data (Nyabola, 2018, pp. 70–75). There are also other challenges: many of the laws that do exist are either inadequate, flawed, or already dated; some DPAs are not sufficiently independent or face financial constraints; and many countries have duplicated authorities with similar mandates (Babalola, 2022; Ilori, 2020). Ndemo and Thegeya warn (2022, p. 2):

> *The rapidly changing landscape of data generation, storage, and mining capacity—as well as the dearth of human and financial resources, reliable institutions, and enforcement capacity to support an efficient data governance environment—will, absent immediate action by key stakeholders, cause the continent to regress at the moment when it is arguably positioned to show its greatest progress ever.*

In South Africa, the data governance landscape is to some extent defined by the Protection of Personal Information Act (POPIA), which was promulgated in 2013 to promote the constitutional right to privacy, which is contained in section 14 of the Bill of Rights (South African Government, 1996). The last of POPIA's provisions came into effect during the Covid-19 pandemic which provided some impetus to clarify existing protections (Chen, 2021). The Information Regulator (IR) – an independent entity tasked with monitoring and enforcing compliance by both public and private bodies with both POPIA and the Promotion of Access to Information Act (2000) – was established in 2016 and became operational in 2018. It has become quite active over the past three years, even challenging Meta's WhatsApp following concerns about a revised privacy policy in May 2021 (Reuters, 2021).

The relationship between personal data protection in a country like South Africa, and cross-border data flows across or to the rest of the continent and the world, is also important. Better (domestic) regulatory safeguards are said to tend to engender trust in other contexts, and can thus facilitate a country's global competitiveness (Chen, 2021).

This is perhaps why data governance principles are receiving increased attention at a continental level, and are to some extent driven by the need to facilitate cross-border data flows in the African Continental Free Trade Area (AfCFTA) (Gillwald, Razzano, Rens, & Van der Spuy, 2020; Razzano et al., 2020), in which trading started on 1 January 2021.[26] An example is the African Union Commission's (AUC's) adoption of the Convention on Cyber Security and Personal Data Protection (popularly known as the Malabo Convention) (AUC, 2014), which sets out relatively strong intentions for the protection of personal data and cybersecurity on the continent (Ilori, 2020). However, the Convention took almost a decade to be ratified by the 15 Member States that needed to do so for it to (potentially) enter into force. Since the Malabo Convention, other policy instruments at regional and continental levels have also shaped Africa's experiences with digitisation or, as one critic argues, enabled the AU to 'remain active in a fast-moving regulatory topic' (Yilma, 2022, p. 6). Examples include the AU's *Digital Transformation Strategy* (2020), *Data Policy Framework* (2022), and *Interoperability Framework for Digital ID* (adopted in 2022)[27] (see section 3.6.3).

Many of these policy instruments are funded, shaped, and influenced by international standards and norms, even if only implicitly so. The Malabo Convention, for example, contains definitions of concepts like 'personal data' that are said to be influenced by the EU (Greenleaf & Cottier, 2020) – specifically the EU's *General Data Protection Regulation* (2016/679, GDPR).[28] As such, there is a perception that the 'de facto global standards for data protection were primarily designed by rich countries to meet their own needs' (Pisa & Nwankwo, 2021, p. 1) and are not always suited to contexts with resource or other constraints (Marcucci et al., 2023). Not only are many policies related to diverse ICTs often 'paternalistically positioned [and exported] as universal: applicable for all, everywhere' by especially development and supra-national entities (Adams, 2021, p. 184), but the influence of donor funding, external consultants, related conditions and foreign pressures, are said to be highly visible in the continent's treatment of rights (Makulilo, 2016, p. 371) – and, by implication, how digital risks are defined, mediated and mitigated.

[26] See: https://au-afcfta.org.
[27] As of February 2023, the Framework had yet to be published, although it was adopted by Member States in February 2022. (The writer was a member of a taskforce responsible for drafting the Framework and has also worked on implementation since its adoption.)
[28] See: https://gdpr.eu.

In the next part of this chapter, I turn to providing relevant context for my nested case study, which explores the use of contact-tracing apps in South Africa during the first part of the pandemic.

PART II

2.3 Nesting the South African case in the Covid-19 pandemic

This part of the chapter is aimed at providing an overview of the context which informs the case study I discuss in Chapter 6, namely certain digital ID processes initiated, developed and/or experimented with in South Africa during the first six-to-twelve months of the Covid-19 pandemic. In this subsection, I aim to provide relevant background as far as the ways in which digital contact-tracing apps (as examples of functional digital IDs), in particular, were used to respond to aspects of the pandemic in South Africa at this time. Because '[v]iruses know no borders and, increasingly, neither do digital technologies and data' (Budd et al., 2020, p. 1189), many of the technologies relied upon had cross-border application and were resorted to in diverse contexts. As a result, I also contextualise South Africa's experience in the global and African contexts where appropriate.

2.3.1 Covid-19 and South Africa

The infectious disease caused by the novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2 – or Covid-19) was first reported as a 'pneumonia of unknown cause' in Wuhan, China, in December 2019. It quickly became a global problem – albeit one with vastly different (and unequal) impacts across the world (Oldekop et al., 2020). When, less than three weeks after the first reported death, China's death toll from the disease stood at 106, South Africa's National Institute for Communicable Diseases (NICD), the state agency responsible for supporting

government's response to communicable diseases, issued a statement assuring South Africans that the country was 'prepared to deal with the eventuality of a possible imported case as we have put in place systems to rapidly identify, detect and respond to any cases that may reach our borders' (NICD, 2020, p. np.).

The rest of the world was more sceptical about how Africa(ns) would 'cope' with the virus. These concerns were likely fuelled by some African leaders promoting the use of traditional medicines or remedies and/or relying on religious prayer as a public health response to the pandemic (e.g., Mpota, 2020). Dire projections of how Covid-19 would impact and supposedly decimate countries like South Africa were rife, and echoed similarly unfair projections of Africa's development in general, noted in the introduction to section 2.2 above. During a presentation in late 2020, Chigudu lamented that 'Africa, in the COVID-19 outbreak narrative, has been placed as the virus's final frontier where, we have been repeatedly assured, it will yield untold damage' (2020a, p. np.). Such projections were subsequently followed by sheer incredulity when most African countries recorded relatively lower Covid-19 related incidence and mortality rates than most countries in the global North (Nachega, Grimwood, et al., 2021).

While South Africa was not the first African country to report Covid-19 infections (WHO, 2020b), the virus reached the country in early March 2020 after a group of infected skiers returned home from holidays near Milan, Italy (DoH, 2020). By this stage, the disease had already infected more than 100 000 people around the world. When, on 11 March 2020, the World Health Organisation (WHO) declared a pandemic (WHO, 2020a), South Africa had 17 confirmed cases. Four days later, on 15 March, that number would be 61. On the same day, South African President Cyril Ramaphosa declared a national state of disaster. In the first of Ramaphosa's frequent pandemic-related updates to the country – meetings that would eventually become known as 'family gatherings' – he told South Africans (Ramaphosa, 2020a, p. np.):

> *This epidemic will pass. But it is up to us to determine how long it will last, how damaging it will be, and how long it will take our economy and our country to recover. It is true that we are facing a grave emergency. But if we act together, if we act now, and if we act decisively, we will overcome it.*

Ramaphosa explained that the need to 'act decisively' was partly why a state of disaster was declared in the country (2020d). South Africa's first lockdown started on 26 March 2020, enabled by new (and extensive) disaster regulations to govern what would become over two years of living in a state of disaster (discussed in more detail in section 2.3.3 below). It would not only be one of the strictest lockdowns in the world, but was reportedly condemned as draconian by Michelle Bachelet, then the UN Human Rights High Commissioner (Defence Web, 2020). While referring to incidents of alleged police brutality that were widely reported as taking place in South Africa, Bachelet also issued a blanket warning in which she reminded states not to abuse emergency powers during the pandemic (UNHRC, 2020). By the time the state of disaster in South Africa would end on 4 April 2022 (Ramaphosa, 2022), over 100 000 people in the country would die from Covid-19 related causes, and approximately 3.7 million people would have been infected with the virus in the country (NICD, 2022).[29]

The pandemic – or what Oxfam calls 'the Inequality Virus' (Berkhout et al., 2021) – had a compounding effect on pre-existing challenges of inequality and deprivation (Oldekop et al., 2020). These inequalities extended to vaccines and travel limitations for the continent: for example, in Nyabola's evocative account of her experience of Covid-19 in Kenya (and Africa, more generally), she laments the way in which 'the notion of global solidarity' was lost when 'powerful countries' apparently conspired to 'leave more than two-thirds of the world behind', not only in terms of vaccine distribution, but also as far as imposing unreasonable travel bans on African countries were concerned (2022, pp. xiii, 29).

In South Africa, inequalities related to race, age, sex and socio-economic status rendered some groups more vulnerable to poor disease outcomes, while they also had more limited access to health interventions (like well-equipped hospitals with sufficient numbers of ventilators). For example, black people admitted to hospital with the virus were reportedly 1.3 times more likely to die than white people admitted to hospital (Jassat et al., 2022). Lockdowns also meant significant job losses (2.2 million jobs were lost in the second quarter of 2020 alone) (Stats SA, 2020b), leaving only a relatively small elite within the formal economy being able to continue to work, go to school, source

[29] Given that testing was quite low in the country (and in Africa more generally), this number is potentially underestimated.

food or access business relief applications online during lockdowns (Banya et al., 2022). While the government 'topped up' existing social grants and introduced special relief (the 'Covid grant') in an attempt to mitigate some of the effects of lockdowns for the most vulnerable parts of the population (Bhorat, Oosthuizen, & Stanwix, 2021; Chilenga-Butao, 2022),[30] polls indicated that many potential beneficiaries were dissatisfied with the ways in which these were distributed as well as with the temporary nature of support (Martin, 2022).

As far as digital inequalities are concerned, Covid-19 not only acted as an accelerator of digital transformation (Hakmeh, Taylor, Peters, & Ignatidou, 2021; Pisa et al., 2023) (discussed in the next section), but also exposed and exacerbated information disparities (Banya et al., 2022). One study indicated that people who were overrepresented in the informal sector and facing multiple overlapping inequalities, were less likely to benefit from digital substitution, while smartphone owners (predominantly men, urban residents and youth) were more likely to benefit from Internet-ready devices to substitute during lockdowns (Banya et al., 2022).

In the next section, I describe some of these digital substitutions and interventions, before examining some of the safeguards that the government put in place to avoid unintended consequences.

2.3.2 Test, trace, digitise: contact-tracing mechanisms during the pandemic

Globally, various ICTs were said to play a role, or were enthusiastically lauded, in government strategies and responses to the global crisis occasioned by the pandemic, including by supporting existing services and managing aspects of the pandemic itself (Hutchings, 2020; WEF, 2020; Whitelaw, Mamas, Topol, & Van Spall, 2020). Banya *et al*., for example, point out that 'one of the most visible effects of the pandemic' was the 'huge increase in government service applications through the adoption of automation and digital technologies' (Banya et al., 2022, p. 21)(2020). Digital 'solutions' also featured

[30] See Chilenga-Butao (2022) for an overview of the positive impacts of special social grants during the pandemic.

broadly in other actors' responses to the pandemic, facilitating food delivery, digital payments and remote schooling (e.g., Donner, 2020; Hakmeh et al., 2021; ITU, 2021; Oldekop et al., 2020; Souter & Van der Spuy, 2021; Stocker, Lehr, & Smaragdakis, 2023, pp. 18–21). As such, ICTs apparently 'join a long line of public-health innovations that have been at the heart of disease-prevention-and-containment strategies for centuries' (Budd et al., 2020, p. 1188). As the so-called first pandemic in the 'Internet age' (ITU, 2021), however, Covid-19 also drove the development and adoption of new technologies at an unprecedented 'scale and speed' (Budd et al., 2020, p. 1188) – introducing concerns about potential consequences (e.g., Pisa et al., 2023; Tisné, 2020). As Stocker, Lehr and Smaragdakis write (Stocker et al., 2023, p. 18):

> *COVID-19 has disrupted the 'real' world and has substantial implications for the virtual world and thus the Internet ecosystem.*

Despite lower ICT adoption and usage rates (ITU, 2022), Africa was no different in its enthusiastic embrace of technological responses to the pandemic. For example, in a journal article by prominent African epidemiologists, the continent's lower Covid-19 burden was partly attributed to the 'leveraging of technology innovations' to 'accommodate rising case burdens' (Nachega, Atteh, et al., 2021, p. 1185). In South Africa, the government also quickly turned to ICTs as a potential aide (or distraction) mechanism. When Ramaphosa declared a state of disaster on 15 March 2020, he demanded 'extraordinary' and even 'radical' measures to curb the spread of infection, and emphasised the government's work to strengthen its surveillance and testing systems (Ramaphosa, 2020a, p. np.). In the same statement, he called for partnerships to jointly face the 'common threat' posed by the disease, and explained that South Africa's government was already working with private sector actors 'to set up a national tracking, tracing and monitoring system of all people infected with the coronavirus and those they have been in contact with' (Ramaphosa, 2020a, p. np.).

Over the next few months, various digital interventions and datafication efforts were indeed proposed and developed in partnership with private sector and other actors to respond to different challenges associated with the pandemic. These ranged from digital contact-tracing mechanisms (e.g., CovidConnect, COVI-ID, and CovidAlert), to the use of digital platforms for distributing social benefits (e.g., GovChat), to vaccine

verification or 'immunity' passports (e.g., VXPASS). These efforts often relied upon (or utilised) what Marcucci *et al*. call 'non-traditional data', defined as 'data that is digitally captured, mediated or observed using new instrumentation mechanisms, often privately held and used for purposes unrelated to its initial collection'. Examples include mobility data, health data, economic data and even sentiment data (Chafetz, Zahuranec, Marcucci, Davletov, & Verhulst, 2023, p. np.).

Many of these data collection efforts relied upon technologies associated with digital IDs, which are said to have assumed 'renewed significance during the pandemic' (Martin, Schoemaker, Weitzberg, & Cheesman, 2021, p. 4). Digital IDs were used to distribute aid and targeted healthcare, to track people under lockdown conditions, and/or to facilitate contact-tracing during the pandemic (e.g., Gillwald et al., 2020). I focus primarily on the latter and the partnerships that led to them in the South African context in this study, although I also examine some of the other digital interventions used as pandemic responses as and when relevant. While contact-tracing apps generally produced and relied upon mobility and geolocation data to monitor the spread of the virus and the impact of various control mechanisms (like lockdowns), many of these functions (or affordances, see section 3.2.1) – and the data that was collected through them – served or serviced more than one purpose, whether directly or indirectly (Chafetz et al., 2023).

Globally, detecting and containing clusters of infection, coupled with efforts to interrupt community transmission, were deemed of paramount importance due to Covid-19's notorious transmissibility, a case fatality rate of greater than 1%, and the lack of effective vaccine for at least the first year of the pandemic (Ferretti et al., 2020; Saher & Anjum, 2021; WHO, 2020c). An essential part of these detection and containment efforts involved contact-tracing – identifying people who might have come into contact with an infected person (Whitelaw et al., 2020). Contact-tracing efforts have been used to mitigate outbreaks of infectious diseases since at least the 14th century, and have typically been conducted by skilled public health workers with local knowledge (Budd et al., 2020). For Covid-19, however, the stakes were especially high. Epidemiologists at the time predicted that contact-tracing could only curb the spread of the disease if 50% of positive cases were identified and 60% of their contacts were traced and quarantined in less than three days from infection (Ferretti et al., 2020).

In South Africa, the country's burden of disease was already high before the pandemic (Hirsch, foreword in Chilenga-Butao, 2022). As such, the National Department of Health (DoH) had extensive prior experience of dealing with this burden, including containing, and tracing the spread of, human immunodeficiency viruses (HIV) and tuberculosis (TB) (Nordling, 2020). Covid-19 was designated a notifiable medical condition in the country given its high transmissibility rates, meaning positive cases had to be reported to the DoH within a specific timeframe (NIMC, n.d.). When infection numbers started rising in April 2020, the DoH redeployed thousands of community health workers with experience in TB and HIV tracing to help screen manually for potential Covid-19 infections (Andersen, 2020).

Eventually, South Africa would reportedly have three human contact tracers for every 100 000 people (Nachega, Atteh, et al., 2021) (or 1 800 tracers for a population of approximately 60 million).[31] Besides the use of phone calls and texts, these tracers managed their rapidly growing task without automation, working primarily from call-centre type structures (Hunter, 2020). It proved to be a long and arduous process. As one tracer explained in a local news article at the time (Huisman, 2020, p. np.):

> *I call up to fifty people a day. If you test positive, we want to know when did you do the test. Are you in Pretoria* [Tshwane]*, are you at home, where are your close contacts – your family? We want to know your comorbidities, can you isolate where you are? I mean, some of these patients live* [with] *nineteen people in a house. So, we arrange for them to go to an isolation site. We have transport that picks them up at home, taking them to the sites, and then back home again afterwards. After 14 days we call them again to check up how they are. If they're well after 14 days, we close the file.*

While this manual approach was initially sufficient when infection numbers were low, tracers were quickly overwhelmed, and were not only anxious about being infected themselves, but faced long turnaround times for polymerase chain reaction (PCR) (test) results, challenges related to positive cases' underutilisation of state quarantine facilities

[31] For informal comparative purposes, it is noteworthy that the state of New York (USA) alone reportedly employed 17 000 contact-tracers to monitor Covid-19 infections (Wang, 2020).

due to community stigmas and crime, as well as other contextual difficulties (Nachega, Atteh, et al., 2021). Given its reliance on human recollection, these manual contact-tracing efforts were not always very effective (Budd et al., 2020). And, with many poor South Africans living in 'tightly packed informal settlements with limited sanitary facilities' and often traveling in packed minibus taxis, conditions did not favour the easy containment of the disease (Hirsch, foreword in Chilenga-Butao, 2022, p. ii). In summary, in South Africa and elsewhere where manual contact-tracing efforts were pursued, 'failures occur[ed] at every stage of this test-trace-isolate sequence' (Lewis, 2020, p. 384).

As the scope of the pandemic and the speed at which the disease was spreading became more apparent, manual contract-tracing regimes came under more strain and less labour-intensive alternatives were sought (Johnson, 2020). With automated tools that used smartphones or other means to facilitate faster notifications, many policymakers across the world started promoting the potential use of contact-tracing apps (Taylor, Sharma, Martin, & Jameson, 2020; Veale, 2020; Yeung, 2020). At more or less the same time, epidemiologists stressed that '[g]iven the infectiousness of SARS-CoV-2 and the high proportion of transmissions from presymptomatic individuals, controlling the epidemic by manual contact tracing is infeasible' (Ferretti et al., 2020, p. 1). The authors of this frequently quoted study added: 'A contact-tracing App which builds a memory of proximity contacts and immediately notifies contacts of positive cases can achieve epidemic control if used by enough people' (*sic*) (*ibid*.).

As a result of these shortcomings, many countries turned to the use of digital contact-tracing apps, which are typically used 'to trace the locations, or proximity between, pairs of people who have the app installed and active on their smartphones' (GSMA, 2020, p. 1). Practically, this means that apps tend to use location (gathered by GPS) or proximity (gathered by Bluetooth) data to detect and identify the phones of other app users, while collecting data about interactions with others (GSMA, 2020; Hakmeh et al., 2021; Saher & Anjum, 2021). Each of these approaches introduces its own challenges and risks, also from a technical perspective (e.g., susceptibility to security breaches).[32]

[32] These challenges – and related risks – are also explored in my nested case study in Chapter 6.

One report from the World Economic Forum (WEF) found that between April and July 2020 alone, digital 'solutions' aimed at detection and containment grew by approximately 300% in the 41 English-speaking countries it assessed (2020). These interventions were developed by the public or the private sector, jointly by two or more companies, or as part of a public-private collaboration (WEF, 2020). The most significant of these was arguably a partnership between Apple and Google, announced on 10 April 2020, to roll out a contact-tracing Exposure Notification (EN) framework (Apple & Google, 2021).

Many of these digital contact-tracing apps were justified with reference to a study that had been done to assess the potential benefits of using digital interventions for contact-tracing (Abueg et al., 2020). The writers predicted that for digital contact-tracing efforts to be effective, approximately 60% of a country's population would have to use the same app, but that even lower usage numbers might help to reduce infections and even deaths (Abueg et al., 2020).[33] Another study conducted by members of the same team, using the UK's National Health Service (NHS) contact-tracing app as a case study, suggested that for every percentage point increase in contact-tracing app uptake, the number of Covid-19 cases could be reduced by 0.8% (using modelling) or 2.3% (using statistical analysis). The authors emphasised the importance of thus using these apps in contexts that are 'awaiting full protection from vaccines' (Wymant et al., 2021, p. 408) – like South Africa, in which only 35% of the population were fully vaccinated by January 2023.[34]

At the same time, the 'epidemiological impact' of these apps was acknowledged to be uncertain because 'they have never been deployed at scale before, and their effectiveness is unknown' (Abueg et al., 2020, p. np.). Epidemiologists stressed that the apps were 'not a substitute for manual tracing – both are valuable' (Wymant et al., 2021, p. 411). Another challenge was the need for a rather significant part of the population to download and use the app – a particular concern in countries with low smartphone or Internet penetration, or related inequality barriers and challenges (which could impact a person's willingness to spend time, battery, or data for downloading and using the app on phones that often have limited storage or battery life) (Johnson, 2020). While some countries mandated the use of these apps, this approach was met with significant resistance in

[33] Most of these epidemiological studies were conducted in Europe or North America, including in Washington state (USA) or the UK.
[34] See: https://ourworldindata.org/covid-vaccinations?country=ZAF.

most cases (GSMA, 2020), and such an obligation was not imposed in South Africa (where it would likely have been difficult to enforce given the digital *donga*, or gaps in ICT access and use).

2.3.3 Risk mitigations during the pandemic

Besides potential efficacy, many epidemiologists, as well as others (e.g., Budd et al., 2020; Gillwald, Razzano, Rens, & Van der Spuy, 2020; Hakmeh et al., 2021; Mansell, 2020; Taylor et al., 2020; Veale, 2020), emphasized that contact-tracing apps should not be used in an unfettered manner. In South Africa, for example, Breckenridge (whose work is important to defining digital IDs, see section 3.2.2) and colleagues warned the medical community that while 'the rapid facilitation through technology' of certain public services, including a tracing database, might be potentially useful, they also infringe constitutional rights to privacy and should be carefully monitored and long-term implications should be considered (Klaaren, Breckenridge, Cachalia, Fonn, & Veller, 2020, p. 617).

The medical community did seem to take note of such warnings: in the same article in which they argued that manual contact-tracing efforts were too slow given the infectious nature of Covid-19, Ferretti *et al*. stressed that people should be consulted and 'democratically entitled to decide' whether to participate as far as apps were concerned. They added: 'The intention is not to impose the technology as a permanent change to society, but we believe under these pandemic circumstances it is necessary and justified to protect public health' (2020, p. 5). Similarly, researchers who worked on the Wymant *et al.* study (2021) published a later piece in which they called for more rigorous assessments of digital contact-tracing efforts in order to weigh public health benefits against the 'unwanted effects for individual people and society' (Colizza et al., 2021, p. 361). They urged (*ibid*.):

> *Stringent evaluation is needed to develop contact-tracing apps into an accepted and ethical tool for future outbreaks of other infectious diseases.*

Such evaluation is especially important in contexts where relevant protections are not always in place to enable stringent monitoring and evaluation. In South Africa, contact-tracing apps and other digital interventions were 'injected abruptly into an incomplete data protection landscape' (Gillwald, Rens, Van der Spuy, & Razzano, 2020, p. np.), with POPIA only coming into effect on 1 July 2021 (cf., section 2.2.3 above). Yet the government did try to create other protections. Under South African law, the declaration of a state of disaster enables the state to implement certain limitations to both individual and collective rights, like social distancing, quarantine, and isolation measures (Disaster Management Act, section 27). While it is more limited in scope or potential impact than a state of emergency, it permits the extensive limitation of rights In specific circumstances (Alt Advisory, 2021), it was also the 'first time in our post-apartheid history that there have been such broad grants of discretionary powers to government officials' (Klaaren et al., 2020, p. 618). Shortly after the state of disaster was declared, regulations were published to enable relevant authorities to access location-based data gathered by mobile network operators for contact-tracing purposes (Ramaphosa, 2020c). As Ramaphosa explained in one of his 'family gatherings' (2020b):

> *Using mobile technology, an extensive tracing system will be rapidly deployed to trace those who have been in contact with confirmed coronavirus cases and to monitor the geographical location of new cases in real time. This drive is far-reaching, it is intensive and it is unprecedented in scale.*

Civil society and academics were alarmed about these initial regulations and their potential consequences for privacy, variously calling them 'invasive', 'vague', 'overboard', 'intrusive', and/or 'potentially unconstitutional' (e.g., Duncan, 2021 cited in Alt Advisory, 2021; Hunter, 2020; Gillwald et al., 2020). In April 2020, the government issued new directives (cf., Chapter 8 para 13, DMA: Regulations related to Covid-19, 2020). Among other things, these provided for the appointment of a Covid-19 designated Judge, Kate O'Regan (a retired and respected Constitutional Court judge), who was tasked with reviewing weekly reports from the DoH about the details of any individuals whose locations or movement had been tracked; providing recommendations about the content and application of the regulations; and submitting a post-state of disaster report (Alt Advisory, 2021). In a press release announcing the appointment, the Department of

Justice (DoJ) noted that 'the Designated Judge has an important role to play to safeguard the privacy and personal information of persons during this process' (Phiri, 2020, p. np.).

While this appointment and the other privacy protections contained in the regulations were lauded (e.g., Hunter, 2020), others were perturbed by the fact that the regulations neither made mention of the Information Regulator – an institution that should theoretically have fulfilled the role of overseeing data gathering during the pandemic (e.g., Hunter, 2020; Razzano, 2020; Section 27, 2020) (see section 2.2.3 above) – nor of POPIA. Despite 'frustrating' delays (Tlakula in Justice and Correctional Services, 2020, p. np.) to promulgate POPIA, both the Regulator and POPIA theoretically remained in place during the state of disaster. Yet the Regulator's Chairperson, Advocate Pansy Tlakula, lamented, in May 2020, that 'the Information Regulator was not consulted when the regulations were drawn up' (Justice and Correctional Services, 2020, p. np.).

While the potential risks of the contact-tracing apps studied in Chapter 6 were therefore circumscribed by the regulations, these safeguards were drafted and introduced at a time when the interventions had not been implemented at scale. Perhaps more problematically, the eventual end to the state of disaster also did not necessarily mean an end to these digital interventions, as some of them remain in place today, long after the state of disaster is over (cf., Klaaren et al., 2020). In this study, I investigate socio-digital dimensions of the risks associated with these digital development processes, including both risks associated with the 'digital' side of risk (e.g., mission creep and lock-in, which are also implied by the continued existence of some of these interventions), and broader or social risks related to the ways in which these risks are experienced, defined and managed in diverse contexts.

2.4 Conclusion

By the time I left the somewhat depressing Datahouse offices in Stellenbosch to return to London, seasonal rains had started falling and the lawns around the office block had become lush and green. While the offices were no less lonely, and the power outages had grown ever more frequent, hope mingled with the smell of rain. The same cautious

optimism could be equated to ongoing processes of digital development on the continent, although – as I will elaborate in the next chapter – caution is too often thrown to the wind when it comes to potential digital development processes on the continent.

To recap, in this chapter I situated the reader in the context of this thesis, which is concerned with risks that can be associated with the use of ICTs in Africa. To do so, I described two contexts that inform this thesis, namely that of digital development processes in Africa (with a focus on digital ID processes), and the use of specific contact-tracing mechanisms (as examples of functional digital IDs) in South Africa during the first part of the Covid-19 pandemic. I first sketched the socio-economic situation in Africa and South Africa, before exploring the ICT and related policy landscape in South Africa and Africa generally. I illustrate why, while there is significant optimism about what ICTs can mean for the continent (also from a developmental perspective), there are concerns that ICTs exacerbate inequalities – especially in the context of what seems like inadequate policy frameworks to protect and safeguard Africans from the risks that potentially accompany increased exposure to and use of ICTs (the focus of my empirical work). In Part II, I provided context for my examinations of how specific applications of digital IDs (contact-tracing apps) were used during the first part of the Covid-19 pandemic in South Africa.

Chapter 3, which follows, develops the conceptual framework I use to guide my investigation of these phenomena.

CHAPTER 3: FROM RISK AND REWARD TO DAMAGES FOR DEVELOPMENT (CONCEPTS AND THEORIES)

3.1 Overview

The real problem of humanity is the following: We have Paleolithic emotions, medieval institutions and godlike technology.

This quote, attributed to Edward O. Wilson (2009), is frequently used by the founders of the Center for Humane Technology[35] to warn about the 'catastrophic effects of runaway technology' and particularly digital platforms – technology which they helped build before becoming disillusioned about what they themselves were developing (Marantz, 2019, p. np.). To deal with these 'effects', the Center developed a 'ledger of harms' to describe the 'costs' of digital platforms' tendency to prioritise expansion, engagement, and growth. One 'harm' in their somewhat strange list is to 'do unto others', meaning the concern that 'many people who work for tech companies – and even the CEOs – limit tech usage in their own homes' (Harris & Raskin, 2019, p. np).

With an interest in examining how the notion of 'do unto others' relates to digital development processes, perceptions of associated risks, and so-called beneficiaries, I consider how risks (rather than harms) are defined and managed in development processes from a theoretical perspective in this chapter. This allows me to operationalise an approach for examining the changes that might result from using certain ICTs and related datafication processes for 'development'[36] purposes (ICT4D or data/datafication for development, D4D), and specifically in perceptions of changes that are uncertain, or *risky*. I am also interested in examining how diverse stakeholders attempt to respond to and deal with these risks, and related *damages for development* (as another type of D4D).

[35] See: https://www.humanetech.com.
[36] See fn. 4.

Having sketched general background for the thesis in Chapter 2, I now turn to theorising the problem in which I am interested. In the first part of this chapter (**Part I**), I examine three components that are crucial to this thesis, namely ICTs (including digital IDs); risk(s); and development. After describing relevant history and theories for each of these conceptual pillars, I summarise this part of the chapter by introducing two new concepts that are important to this thesis, namely digital development risk(s) and risk beneficiaries.

In the second part of the chapter (**Part II**), I situate the project in the context of relevant research related to ICT4D and digital divide(s)/development so as to explore processes in which ICTs are proposed and implemented with developmental purposes, as well as how researchers and policymakers tend to describe (and theorise) the risks that accompany these processes. Because risks (and associated responsibilities) have not been thoroughly explored in research concerned with (digital) development processes, I argue for the construction of a new avenue for digital development research which more explicitly examines the definition and management of digital development risks.

In the final part of this chapter, **Part III**, I develop the conceptual framework I apply in this thesis, which combines a risk agenda with a development agenda to explore my overall RQ, namely: *how and why are digital development risks important in shaping digital development processes?* The formulation of this question and relevant concepts explored in this chapter also guides my empirical RQs, which explore: *how are risks defined and managed in digital development processes?* Both of these questions are concerned with digital development processes in general, which include relevant processes, initiatives, and activities developed in the guise of development.

PART I

In this first part of this chapter, I explore three conceptual stepping stones that, together, provide a way to examine my theoretical RQ. These are the tools (ICTs and digital IDs), risks, and development (including relevant processes and outcomes).

3.2 The tools and concepts

3.2.1 ICTs

I consider ICTs to include networked technologies that serve (a) communication, information and/or datafication function(s) and therefore play a role in shaping and mediating our everyday lives.

To resolve the 'long-standing issue' about the relationship between objects and subjects (Rappert, 2003, p. 565) as far as ICTs and human conduct are concerned, my conceptualisation of these technologies draws on research on the materiality of technologies (Freedman, 2002; Lievrouw, 2014; Parikka, 2012; Williams, 1985) to argue that ICTs potentially allow and/or disallow certain actions or behaviour (thus also acting as *de facto* governors) (Lessig, 2006). This means ICTs' functions and potential outcomes are difficult to pre-ordain. I also turn to Hutchby's conceptualisation of the affordances of technology to take into account both the materiality of ICTs (the technological shaping of social action) and the social shaping of technology to acknowledge that ICTs are shaped by and shaping of 'the practices humans use in interaction with, around and through them' (2001, p. 444). While digital dimensions as 'fungible, ephemeral, and indeterministic' are sometimes difficult to separate from physical dimensions that can be 'rigid, stable, and tangible' (Yoo, 2013, p. 222), my focus on ICTs' affordances enables me to consider the interaction between these dimensions when there is 'some degree of technological mediation' (Hutchby, 2003, p. 587) – as in the case of digital IDs, for example (cf., Roberts and Bosch, 2023, p. 10).

My conceptualisation of ICTs as actively crafted and designed within and as the products of specific institutional environments, and thus as non-neutral 'tools' that also shape the environments in which they are used or deployed, has important implications for the project's understanding of developmental change.

It implies that ICTs and their institutional environments, along with related datafication processes, spin webs of power that are both constituted by unique affordances (Hutchby, 2001; Zuboff, 2019), and can entrap stakeholders within networks that can constrain

choice or have detrimental outcomes (Eubanks, 2018). Rather than acting as tools that care for people and their wellbeing, ICTs act as tools for governing and organising people (Peters, 2015, p. 100). In doing so, they can simultaneously enable and disable various forms of power (Robinson, 2009) – both for people who are caught 'in' those webs and those who are not, because they might be un- or under-networked, like the so-called 'digital underclasses' (Helsper, 2014, p. 21; Helsper & Reisdorf, 2017) or 'second-class citizens online' (Napoli & Obar, 2014, p. 330).

ICTs are thus designed, financed/funded, and implemented in certain (powerful) stakeholders' interests and with particular purposes in mind for specific audiences in defined institutional settings. They emerge from diverse stakeholders' 'experiments, enthusiasms, theories, beliefs and interests' (Freeman, 1994, p. 11, cited in Mansell, 2021) – whether those are made explicit or not.

3.2.2 Digital IDs: from stories to samples to bits

I include digital IDs in my theorisation of ICTs. Defining 'legal identity' as a concept is a rather complex exercise (Donner, 2018, p. np; Szreter & Breckenridge, 2012, p. 5), as will become clear later in this chapter (cf., section 3.6.2). The term 'identity' is broad (Szreter & Breckenridge, 2012, p. 5), often introducing questions related to factors like nationality, religion, gender, race, and sexuality (and their intersections) and thus carrying the burden of some problematic ambiguities. As Brubaker & Cooper lament, identity 'tends to mean too much (when understood in a strong sense), too little (when understood in a weak sense), or nothing at all (because of its sheer ambiguity)' (2000, p. 1).

That said, and broadly construed, an *identity* defines what a person or thing is, a *legal identity* is the (official) recognition of that identity in legal terms, and *identification* is the process of establishing that identity and distinguishing the person or thing from others (Manby, 2020). The identification process is typically achieved by making a subject *legible* (e.g., by entering their details in a register of sorts) and by issuing a credential (e.g., an identity document) (Szreter & Breckenridge, 2012). As such, registration is 'the act of producing a written record' (Szreter & Breckenridge, 2012, p. 4).

I am particularly interested in *digital* forms/proofs of identity (which I call 'digital IDs'), which have become increasingly popular for delivering on the Sustainable Development Goal (SDG) goal of achieving universal legal identity (explored in the introduction to section 3.6 below). While a 'digital ID' or 'digital identity' can be defined as 'a set of electronically captured and stored attributes and/or credentials that uniquely identify a person', a process of digital identification is 'an identification system that uses digital technology throughout the identity lifecycle, including for data capture, validation, storage, and transfer; credential management; and identity verification and authentication' (World Bank, 2019b, p. 11). This process of data capture often happens via biometrics (fingerprints, facial recognition or iris scanning), or the 'automated recognition of individuals based on precisely measured features of the body' (Breckenridge, 2014, p. 12), which are closely related to and facilitated by datafication practices and digitisation processes.

The increased use of biometrics and datafication in digital ID processes is interesting as these dimensions imply potentially significant shifts in citizens' relationships with their governments, and thus have implications for 'the agency of ordinary people' (Breckenridge, 2021, p. 49). In this regard, documentary identification might be based on characteristics such as the name, date, and place of birth of a person (i.e., the biography or *story*), but biometrics detach a physical body from a social body, thus implying a 'shift from stories to samples' (Debos, 2021, p. 65) – and, in the case of digital IDs, bits. This transition to samples and bits impacts the state's 'will to know' its citizens or – crucially – 'its will *not* to know' (own emphasis) (Dalberto, Banégas, & Cutolo, 2021, p. 7), as is explored in section 3.6.2 below.

3.2.3 Qualifying the 'digital'

In this thesis, I explore the definition and management of that accompany ICTs when used for developmental purposes. As is explained later in this section, I use the term *digital development processes* to define these tendencies and developments in order to emphasize not just the ICTs, but the risks involved when using (or purporting to use) ICTs for developmental purposes.) I therefore do not directly focus on the risks of

specific ICTs, but rather on the risks involved with *process(es)* of relying upon them for developmental purposes. That said, I acknowledge that conceptualising the 'digital' in these development processes (i.e., ICTs) is easier said than done. It is therefore important to consider some factors, '-isms', and other maladies that should be kept in mind while examining the changes that result from using ICTs in development processes.

First, the ICTs involved in digital development processes are often (and often by definition) new, complex, and sometimes poorly understood and untested before their deployment in diverse (development) contexts, therefore complicating our ability to define, measure, understand or theorise related change(s) (Souter, 2016b). As noted in section 3.2.1 above, ICTs are typically 'fungible, ephemeral, and indeterministic' (Yoo, 2013, p. 222) and thus more intangible than 'physical' dimensions (and related risk). This ambiguity, coupled with a lack of a consistent terminological approach to and understanding of ICTs, has contributed to significant speculation about the potential of ICTs (Mansell, 2012) for development.

Second, the prioritisation of instrumental approaches to ICT-related outcomes is partly due to **technological (tech) determinism** (and related albeit different optimisms, like technological solutionism), a conceptual malady that involves concerns about the lack of political control and/or involvement in technological decision-making; the reification of technology in itself while discounting the role of human behaviour (Southwood, 2022); a denial of the impact of social and cultural practices (Tufte, 2017); and a 'sense of historical inevitability, pessimism or even fatalism' (Peters, 2017, p. 21). Not only are ICTs often 'treated by, or presented to, governments as a panacea for many of the problems associated with traditional bureaucratic functioning' (Hoods & Margetts, 2007, p. 179), but when ICTs become a fixation in and of development efforts, there is a tendency to avoid 'serious contemplation over consequences of development' (Deb, 2009, p. 8).

On the other hand, Peters points out that 'abuse does not ruin the use' (2017, p. 13) – that, especially as ICTs become ever more central in everyday lives, a 'reorientation' is needed to appreciate the growing 'embedment' of ICTs in our lives 'without forfeiting critical judgment' (Peters, 2015, p. 90). He speculates that, at the very time that 'big

questions' about ICTs' role in societies are becoming especially crucial, we cannot afford to *not* be a little deterministic (Peters, 2017, p. 24). This is also related to why, as I argue in section 3.7.3 below, it is important to conceive of ICT-related changes and risk as occurring ambiguously, rather than strictly defined as either exogenous or endogenous to a given system.

Third, public pressure for solutions can be deflated or diverted by promoting ICTs as symbols of progress while assuring the public that 'something is being done to solve the problem' (Deb, 2009, p. 475). The latter tendency is similar to what Schneier originally called 'security theatre' (2009, p. np), and what McDonald has applied to ICTs under the conceptual umbrella of '**technology theatre**' (2020a, p. np). Defined as 'the practice of focusing public attention on elaborate, oft ineffective procedures to mask the absence of a solution to a complex problem' (McDonald, 2020b, p. 22), technology theatre has been used to describe some governments' deployment of 'experimental' ICT applications such as contact-tracing apps and other technological 'fixes' during the Covid-19 pandemic (McDonald, 2020b, p. 23).

Fourth, it is not only technological determinism which complicates the theorisation of ICTs and related risks, but, there is sometimes an over-reliance on contextual challenges as a scapegoat to avoid dealing with problems. **Socio-cultural determinism** occurs when the construction of change and risk is regarded as too 'heavily influenced by processes of social construction' to delve meaningfully into trends, consequences or, arguably, outcomes (Mansell & Steinmueller, 2002, p. 461). Van Loon explains that socio-cultural determinism can lead to change being delimited to 'mere responses to human needs'; a tendency which can cause a failure to notice or account for unforeseen consequences (2002, p. 9) and, arguably, risks. Like Peters (2017), he contends that while this determinism needs to be problematised, we should do so 'without making the opposition disappear in sublation. The tensions between technology as an instrument (tools) and as a force are not fictions of speculative imagination' (Van Loon, 2002, p. 9). (This is reflected in my suggestion to differentiate the socio-digital dimensions of risks, explored in section 3.7.1 below.)

In the next two sections, I explore some of these tensions by first defining what I mean by risk before turning to digital development processes and related perceptions of

outcomes. Rather than opting for common instrumental, formulaic, and quantitative approaches to risk as far as ICTs are concerned, I turn to a broader, sociological approach to risk offered by Ulrich Beck's theory of the World Risk Society (1992).

3.3 Conceptualising the risks of digital development processes

3.3.1 The roots of risk

Although its etymology is contested (Mythen, 2004), the word 'risk' likely has its roots in words denoting either the acquisition of wealth and good fortune (the Arabic *risq*) or 'a will to undertake' danger, including the medieval Latin '*resecum*' (something that cuts, like a reef) (Liuzzo, Bentley, Giacometti, Bonfante, & Serraino, 2014, p. 2269). The latter meaning reportedly emerged in the 14th century and was used by merchant insurers to describe dangers at sea, including oceanic reefs and other hazards that might threaten boats and their merchandise.[37]

Giddens points out that the word *risk* has positive and negative connotations, encompassing both a) taking the chance to explore and b) seeking to normalise and control such chance (1999, p. 3). He differentiates risk from danger or hazards in that the latter are seen as given – 'either they come from God, or they come simply from a world which one takes for granted' – whereas risk is always 'bound up with the aspiration to control and particularly with the idea of controlling the future' (Giddens, 1999, p. 4). Gellert, similarly, explains that risk implies an intention and is more than just danger; it 'can be equated to *a will to undertake*, to make decisions in situations that escape one's full mastery (which is the essence of dangers at sea)' (own emphasis) (2020, pp. 27–28).

Today, the term *risk* is commonly used to denote any kind of uncertainty, ambiguity, ignorance, and/or indeterminacy (Riesch, 2012). While in everyday parlance risk seems to have shrugged off its more positive (and daring) origins or rewarding connotations,

[37] In doing so, marine insurance also played a not-insignificant role in facilitating 'Western' expansionism, including through slave-trading the exploitation of colonies (Lurvink, 2020; Pearson & Richardson, 2019; Rupprecht, 2016).

some current definitions include the notion of risk as uncertainty, with the potential for 'risky opportunities' – i.e., for deriving benefit as well as harm (e.g., Livingstone, 2013, pp. 17, 13). Besides everyday parlance, various disciplines of risk research can also be identified (Möller, 2012, p. 57; Mythen, 2004, pp. 2–5). This terminological ambiguity both reflects and is reflected in its etymological uncertainty; with multiple definitions and meanings that range from broad to narrow, specific to general (Hansson, 2012, p. 28). Aven and Renn, for instance, identify ten common definitions of risk across disciplines, and then divide them into two overarching categories (2009), namely:

- **risk expressed as probabilities**; common to scientific approaches to risk that adopt statistical and probabilistic tools. This approach is often criticised for its 'reification of risk' by disregarding contextual and sociocultural factors from which risk derives meaning (Lidskog & Sundqvist, 2012, p. 1016); *and*

- **risk expressed through events, consequences, and/or uncertainties**; common to social sciences. This approach is more interested in perceptions, beliefs, and attitudes towards risk in general, as well as cultural approaches concerned with broader perspectives like how risk conceptions are mediated in specific social contexts (Möller, 2012, p. 57).

While the latter category of definitions is often rather vague, it is better suited to unpicking the ways in which ICTs in general and digital IDs in particular might have uncertain outcomes in specific contexts – outcomes which will be uncertain given the affordances of these technologies in the first place. This approach also situates this work in a cultural (or social) theory of risk – discussed in the next subsection – rather than alternatives like actuarial, toxicological, or epidemiological approaches (Möller, 2012).

3.3.2 Unequal distributions of risks (and its rewards)

Various approaches have been developed for conceptualising risk in the social sciences. Anthropological traditions typically consider variations in risk perceptions between individuals and societies, while psychometric paradigms unpack which risks are

perceived to be harmful by individuals. Governmentality approaches, in turn, consider how institutions construct certain perceptions of risk that, in turn, shape human behaviour (Mythen, 2004). Finally, a Risk Society approach (e.g., Beck, 1992; Giddens, 1999) reflects upon society's definition of and responses to risks that are primarily manufactured by humans or humanity.

The sociologist who developed the World Risk Society theory, Ulrich Beck, argued that there has been, as a result of 'modernisation',[38] a significant shift from traditional to risk societies. In pre-industrial times, risks were considered largely exogenous, knowable, and definable (e.g., natural hazards like droughts or floods) (Giddens, 1999) – typically contained in terms of time and space, and largely manageable in terms of (institutional) systems of causality, liability, and insurance (Mythen, 2004).

Today, the manufactured risks which are produced by humans or humanity itself have become endogenous to developmental processes of modernisation (Mythen, 2004, p. 182) and its 'globalization of doubt' (Beck, 1992, p. 21).[39] Beck argued that modernisation's 'destructive forces' (1992, p. 20) are exposing humanity to global, delocalised, transcendental, and inescapable risks for which we are generally ill-prepared (1992, 2006) – and which might well prove to be apocalyptic (Mythen, 2021), especially as far as the environment is concerned (Beck, 1995). Besides the climate crisis, other examples commonly invoked by Risk Society theorists include pandemics, international terrorism, and/or nuclear accidents (Beck, 1992, 2009; Burgess et al., 2017; Mythen, 2018, 2021) – in other words, events which have 'boomerang effects' (Beck, 1992, p. 37) and 'cross international borders, dis-embedding and unsettling political and economic interests' everywhere (Mythen, 2021, p. 537).

As a theory, the Risk Society can thus be defined as a society shaped by 'new kinds of risks' that are produced (or *manufactured*) by humans or humanity itself and that we are 'increasingly occupied with debating, preventing and managing' (Beck, 2006, p. 332). In this society, however, the social institutions previously responsible for dealing with

[38] Beck viewed modernisation as a non-linear process replete with complexity and ambiguity (Mythen, Burgess, & Wardman, 2018) in which risks are produced by humans, rather than by natural hazards.
[39] While not of direct relevance to this thesis, it is important to acknowledge critiques about Beck's failure to clearly distinguish between natural hazards and manufactured risks (Mythen, 2004, p. 184).

risks are increasingly seen as the manufacturers of risk too. Indeed, Beck warned that the very institutions and instruments that were created and established to address some of these risks are now '*part of the problem* rather than the solution' (original emphasis) (2006, p. 338). Not only do institutions now lack the capacity to define and manage manufactured, global risks that they themselves contributed to, but many institutions are overwhelmed by global challenges and are potentially less capable of shaping their own governance agendas where global (and critical) resources are concerned (Beck, 1992, p. 23; Culver, 2011, p. 9).

The Risk Society therefore provides useful conceptual tools for not only understanding manufactured risks (some of which are elaborated upon later in this section), but for delineating responsibilities for defining and managing them. Despite these and other strengths, the theory is not without shortcomings. Many have criticised the generality and vagueness of Beck's thesis (Burgess, Wardman, & Mythen, 2017; Mythen, 2021), for example, coupled with the patchy use of empirical evidence to justify claims (Mythen, 2004, p. 117). One critic, for instance, argues that the Risk Society is not only 'convoluted, incoherent, and emotional' but more a 'loose set of vague ideas, feelings, and hunches' than a theory (Bergkamp, 2017, p. 1289). Another points out that the generality and universalism inherent to the theory underestimates the diversity, complexity and multidimensionality of risk situations and the agency of individuals and institutions acting within these contexts (Mythen, 2004, p. 181):

> *People do not share the same life experiences. Ergo, they cannot possibly share the same interpretations of risk.*

Rather than agree that 'the *risk society* is a dead end' (original emphasis) (Bergkamp, 2017, p. 1289) given these and other critiques, I am guided by Mythen's reminder (2021, p. 539) that because the Risk Society was not designed or intended to be a prescriptive tool or model for risk analysis, it cannot be criticised for failing to do what it was never intended to do. Beck's theory, I suggest, is especially useful for stimulating debate about global risks that tend to evade traditional institutional structures for risk definition and management (Mythen, 2004), and for accommodating broader questions about the outcomes of development processes that are important to this thesis.

I, therefore, suggest that the Risk Society provides a fruitful starting point for gaining a better understanding of how risks are defined and managed in digital development practices. By relying upon this theory, I prioritise a flexible approach to risk that is sensitive to context, agency, ambiguity, complexity, and ICTs' affordances. To do so, I first turn to defining 'risk(s)' before exploring how the Risk Society theory can be utilised to operationalise processes of defining and managing the risks associated with digital development processes. (It is important to differentiate the act of defining what we mean by risk(s) and the process of risk definition – a step which precedes the process of risk management. Both risk definition and management are critical to unveiling and dealing with the risks that accompany digital development processes.) This paves the way to the next conceptual anchor – namely development (3.4) – which is important for exploring what it is that digital development risks might jeopardise (or risk) in the context of digital development processes.

3.3.3 Towards a definition of 'risk(s)'

In the Risk Society, the definition of risks is difficult both the institutions and actors traditionally responsible for defining risks are faltering, and because of the nature of risks themselves. In respect of the latter, risk is unpredictable (Mythen, 2004, 2005, 2018); 'ambivalent' (Beck, 2006, p. 330); highly 'mediated' (Wimmer & Quandt, 2007, p. 340); 'uninsurable' (Lash, 2018); unknowable (Jarvis, 2007, p. 28); and 'vague' (Riesch, 2012, p. 93). When it comes to the risks that might be introduced by ICTs, the immaterial, abstract, often invisible nature of many ICTs, coupled with the 'air of unreality' (Adam et al., 2000, p. 3) that pervades technological change (see section 3.2.3), make it even more difficult to understand what constitutes these risks, and for whom.

From a terminological point of view, risks are also often conflated with harms (and related synonyms, like threats or hazards). For instance, Livingstone calls the relationship between risks and harm a 'thorny and often misunderstood question' (2014, p. 129), with a common misperception being that risks are 'inherently a "bad thing"' (Livingstone, 2014, p. 140).[40] The legal scholar Kleinig, similarly, describes harms as

[40] A practical example of this conceptual fogginess was the UK government's *Online Harms White Paper* (HM Government, 2019), which warned about 'growing evidence of the scale of

'conceptually foggy, susceptible to fictional applications, and subject to ideologizing' (1978, p. 27). Difficulties aside, harms can be defined as something negative that has already vested (Kaminski, 2023), or, to draw on the legal definition, the 'interference with or invasion of a person's [welfare] interests', which are in turn defined as 'those interests which are indispensable to the pursuit and fulfilment of characteristically human interests' (Kleinig, 1978, p. 33).

Risks, on the other hand, are more uncertain: they have a future orientation (referring to a harm that has not occurred but might) that can include both positive (reward) and negative dimensions. As such, I define **risks** as: *uncertain outcomes with respect to something we value.* This definition draws on cultural and psychological approaches to risks which emphasise the willingness to incur or anticipate (Beck, 2006) non-trivial damage (harm) (Möller, 2012) to something of 'human value' (Riesch, 2012, p. 93). It embraces the ambiguity of risks (including both positive and negative dimensions) and regards its very indeterminacy as an integral part of that which makes it interesting and worth studying. Whether risks are 'real' or not is less relevant for my analysis (Riesch, 2012, p. 100), and it is important to emphasize positive as well as negative dimensions of risks in this definition (Giddens, 1999), as well as the fact that this anticipation relates to a willingness to incur these risks (a willingness which can either be rewarding or damaging). As far as outcomes are concerned, *something we value* is a (positive) change or developmental outcome, as is examined later in this chapter.

While I will build on Beck's theory of risks as abstract, potentially globalised and unpredictable, it is important to emphasise that whether risks have positive or negative outcomes depend both on how they are defined in the first place and how they are managed (i.e., by reducing identified risks both in terms of likelihood and probability) through *risk management* measures to a point where they might be deemed tolerable (Gellert, 2020) – or, indeed, that they might become opportunities and rewards.

While these two processes – defining and managing risks – are in practice frequently overlapping and cross-cutting, I unpack them separately for ease of reference in the remainder of this section. These two subsections build upon each other, however, and

harmful content and activity that people experience online' and seemingly equated exposure to online content (a risk) to harm (Tambini, 2019).

should be read together. I will also introduce and advocate for the use of additional concepts useful to the process of defining and managing risks, namely organised irresponsibility and risk arbitrage.

3.3.4 Risk definition(s)

Building on earlier definitions, **risk definition(s)** can be defined as *perceptions of the uncertain outcomes in (a) specific context(s)*. Related terms that are also used include risk perceptions, risk assessments, risk analyses, risk constructions, or the ways in which risks are uncovered or communicated. (For the sake of clarity, the term risk definition is primarily used throughout this thesis, however.)

Risk definitions are tricky given that the ways in which this might be done depend on 'the social world of meanings' (Lidskog & Sundqvist, 2012, p. 1008), and/or individuals' and institutions' changing perceptions, priorities, and interests in diverse contexts over time. In preindustrial and industrial societies, responsible actors and institutions defined risks by drawing on 'mystical beliefs or religious ideology' and, subsequently, science and technical 'rationality', which introduced economic calculi of risk and recourse to 'scientific experts' (Mythen, 2004, pp. 52–56). The oldest tradition of risk definition (besides maritime insurers) likely derives from mathematical fields in the seventeenth century, followed by insurance-related analyses. The industrial revolution and related technological advances meant the rapid development of the field of risks, including its definition (Roeser et al., 2012). As a 'relatively new object of sociological research' (Lidskog & Sundqvist, 2012, p. 1002), so-called 'modern' risk definition processes originated in the 1960s/70s, and gained a strong focus on chemical and nuclear risks (Hansson, 2012, p. 18).

In these processes, science and its 'experts', coupled with the 'safety net' of their universal methodologies, held the power to define risks and to steer debates about these processes (Mythen, 2004, p. 56). As the nature of risks changes in the Risk Society, these 'prevailing methods of calculation and liability' (Mythen, 2004, p. 57) are seemingly no longer up to the task of defining risks, with scientific approaches being cricised for being less objective or neutral than they appear (or often purport) to be (Hansson, 2012). Mythen

explains that scientific approaches to risk definition typically adopts too linear an understanding of the relationship between risks and outcomes, while ignoring the ways in which economic, political, and organisational contexts shape institutions' ability or willingness to define and manage risks (2004).

As such, the Risk Society is also characterised by a crisis of trust in traditional approaches and related institutions for risk definition. Scientific 'rationality' (i.e., dominant technical discourses utilised by scientific experts) now clashes with what Beck called 'social rationality' (i.e., cultural evaluations convened through everyday lived experiences) due to the destablising force of these risks (Beck, 1992, p. 30). As a result, other institutions and actors become more relevant as far as risk definitions are concerned. Of particular relevance to this thesis is the role of ICTs and the media (Adam, Beck, & Van Loon, 2000) as important (and powerful) actors in this regard. Jarvis explains that a 'strange paradox' arises in which technological 'progress' is exacerbating risk rather than mitigating it (2007, p. 23), and Beck warned that some of the potential gains of 'new' technologies may be 'overshadowed' by the dangers and risks that accompany such developments (1992, p. 13). Not only are ICTs therefore accompanied by risks themselves, but they also play an important part in defining risks, raising awareness about them once defined, and in amplifying insecurities about them quite selectively. If risks are 'not "real"' but 'are "*becoming* real"' (original emphasis) (Beck, 2006, p. 332), ICTs and the media play a significant role in this process of *becoming* or of defining risks.

The process of defining risks also provides opportunities for powerful institutions and stakeholders to minimise risks for themselves while maximising them for others. 'Risk definition, essentially, is a power game', Beck warned (2006, p. 333). Mythen, similarly, explains (2004, p. 68):

> *To indulge in a metaphor, we might think of information about risk being deposited at various points of a piece of rope. The piece of rope is the subject of a tug-of-war, contested by experts from within and outside the relations of definition. To further confuse matters, the public may tug both for and against the relations of definition.*

As such, risks and the definition thereof can generate 'winners' and 'losers' (Jarvis, 2007, p. 26); with the latter being exposed to increased or different risk, and/or also potentially acquiring more responsibilities as far as the management of risks are concerned. The positive opportunities or 'energising' characteristics of risks (e.g., rewards) are largely neglected in definitions of risks (Giddens, 1999, p. 3), as are the unequal distribution of associated outcomes.

3.3.5 Risk management

Once risks are defined, they need to be managed – although, as noted in the introduction to this section, these processes tend to run concurrently and/or be conflated. Beck, for instance, called this 'a systematic way of *dealing with* hazards and insecurities induced and introduced by modernisation itself' (1992, p. 21). Building on this and earlier definitions explored in this section, I define **risk management** in the context of digital development processes as *the actions taken or not taken to manage (including mediate and mitigate) the uncertain outcomes of digital development processes in a specific context*. (It can, but does not necessarily, involve a level of responsibility to manage risk too.) Since my definition of risks encompasses both the possibility of positive (opportunities) and negative (harms) outcomes (Giddens, 1999), risk management therefore also entails balancing the harms and benefits associated with risks (Gellert, 2020, p. 218).

Risk management measures – which often involve regulatory tools or regimes – can assume different guises and be targeted at different levels or stages (Hood, Rothstein, & Baldwin, 2001) of a development process. Where ICTs and risk mitigation measures are concerned, examples of risk mitigations include preventative measures (which focus on the perceived effects of the risk by, for example, improving the design of the technology concerned to offer better protection); anticipatory approaches (which target mitigation strategies on avoiding harms before they occur); corrective measures (which are targeted at the source of the risk and focus on how to limit the probability or magnitude of the

risk); and/or resilience approaches (which designs mitigation strategies to enable potential victims to 'bounce back' from collateral harms) (e.g., Gellert, 2020).[41]

Managing the risks associated with digitisation in general and digital development processes in particular is difficult given the complexities that shape the Risk Society. Fortunately, Beck's theory also provides some useful conceptual tools for unpacking some of these difficulties. As mentioned, a central tenet of the Rsk Society is that the institutions that were traditionally responsible for managing risks (e.g., governments) are no longer up to that task. Indeed, they are now 'recast as the progenitors of risk' (Mythen, 2004, p. 59), while rather paradoxically also being responsible for managing the risks they themselves help to produce. In the Risk Society, traditionally powerful (and responsible) institutions fear growing discontent and the loss of power, and thus turn to concealing, denying, and even redistributing risks elsewhere (Beck, 1995) – i.e., they effectively *organise* their lack of responsibility (or *irresponsibility*) for managing risks.

As such, the concept of **organised irresponsibility** implies that 'overrun' institutions are 'imprudently tiptoeing around the burgeoning problem of bads' while deploying 'dramaturgical displays of risk management' that amount to nothing more than the 'cosmetic treatment of risks, exacerbating rather than alleviating the problem' (Mythen, 2021, p. 536). Since a growing number of stakeholders are engaged in many of these processes – especially in neoliberal contexts partly defined by a growing reliance on public-private partnerships and related 'collaborations' for service delivery, or in digital development processes that engage a plethora of actors – causation (between actions and impacts) becomes more difficult to unpick. As such, it also becomes easier to avoid individual or institutional responsibilities (or culpability) while cumulatively contributing to risks.

Organised irresponsibility implies that stakeholders will increasingly be able to avoid or even redistribute the responsibility for risk management, and risks themselves, elsewhere: from governments to the private sector, or from the private sector to individuals, for example. At its worst, conditions of organised irresponsibility can

[41] Given that my interest lies in digital development risks at a meso or institutional level in a Risk Society sense, and not in specific risks and their mitigation, it is beyond the scope of this project to explore these tools in detail.

facilitate processes of **risk arbitrage**, which can be defined as the power a stakeholder might have to avoid defining and/or managing risks (depending on their relative interests) and the responsibility for associated harms (Curran, 2018b) by redistributing it elsewhere, while potentially also retaining the benefits (opportunities) of these risks for themselves. As Curran explains, opportunities for risk arbitrage are especially prevalent when 'complex organizational, technological, and economic systems' are involved (or, by extension, in conditions where organised irresponsibility are present) where powerful stakeholders can more readily get away with amplifying risks 'in ways in which they are structurally placed to benefit from the returns from this additional risk while also being able to avoid being held responsible for the losses emerging from these risks' (2018b, p. 602).

Processes of risk arbitrage lead to the (mis)management of risks which can, in turn, exacerbate inequalities for those who are less powerful. This concern is particularly relevant in the context of digital development processes, where risks can therefore mean that intended development beneficiaries might inherit uncertainties rather than development gains. Before exploring how risks might shape these experiences, I first turn to the next pillar of my conceptual approach, namely development.

3.4 Conceptualising development

3.4.1 From change to *good* change

I take a particular interest in this thesis in how ICTs are used for purported development purposes, and the risks that can result from such usage. While these processes are related to the concept *ICT(s) for development* (ICT4D) – which can be defined as 'the application of any entity that processes or communicates digital data in order to deliver some part of the international development agenda in a developing country' (Heeks, 2018, p. 10) – this term (and its definition) is too narrow for my purposes (cf., Southwood, 2022, p. 177). I suggest that it does not sufficiently reflect upon how development

agendas might become an excuse (or scapegoat) for using ICTs in development contexts, while disregarding the potentially risky outcomes of these processes.[42]

I therefore use the term **digital development processes** instead of ICT4D, since I want to emphasize, first, the many dimensions involved with this collective term, including how digital technologies are used for developmental outcomes, how development actors themselves rely upon digital technologies in their work, and how most development contexts (and elsewhere) are becoming more digitised (Roberts, 2019). Second, given my intended meso or institutional level of analysis, I want to interrogate the *processes* involved when using (or purporting to use) ICTs for development purposes rather than the specific ICT tools *per se*, which will come and go with time; always to be replaced with the next promising technological or digital 'thing'.

Within this framing, I want to gain an understanding of the *change(s)* – understood as difference(s) that occur with time – that might result from using certain ICTs as a part of digital development processes, and more specifically, in perceptions of changes that pose risks in certain contexts. I also want to explore how stakeholders define and manage these risks, because understanding how people perceive of development (change) and its direction(s) also shape how they act in response to definitions of risks involved in digital development processes (Mansell, 2012; Mefalopulos, 2020).

My interest in change does not only relate to claims about 'neutral' change arising from or in digital development processes, but in change that purports to support certain *development* agendas – in change that brings a particular society closer to an end point to which it aspires (Willis, 2021, p. 223). Simply put, I am interested in '*good* change', which happens to be one definition of development (own emphasis) (Chambers, 2005, p. 184). Though I am tempted to retain Chambers' straightforward definition, I acknowledge that understandings or definitions of the concept of 'development' itself are highly contested (Abrahamsen, 2000; Adjibolosoo, 1995; Manyozo, 2017) and dependent on a number of factors that need to be actively negotiated (Cowen & Shenton, 1996; Fair & Shah, 1997), even if it is beyond the scope of this thesis to explore relevant critiques in great detail.

[42] See Souter (2016b, 2016a) for an overview and critique of the development of ICT4D as a field.

In the next section, I first explore the origins and changing perceptions of the nature and outcomes of development before defining the approach I will take to understanding developmental change – the *something we value* in my definition of risk.

3.4.2 The development of Development

While development and 'progress' are often viewed as two sides of the same coin, development was initially viewed as the *counterpoint* of progress, rather than its close cousin. Cowen and Stanton trace the notion of development to 'the throes of early industrial capitalism in Europe' (specifically France and England) (1996, p. 4), where and when it was first viewed as a remedy for the 'disorganised faults of progress' (Cowen & Shenton, 1996, p. 6), including the harmful consequences and shortcomings evinced by industrialisation, which in turn included uncontrolled urbanisation, poverty, and unemployment. They explain (Cowen & Shenton, 1996, p. 11):

> *It was the turmoil and fear of revolution in the first half of the nineteenth century that gave birth to the idea of development and it is these unexplored origins that are the source of much present-day confusion about development's meaning.*

Development indeed has acquired a rather different meaning today, depending on who or what entity defines it. It is important to note that while some approaches or perceptions of development might have evolved over the past 80 years or so, underlying philosophies of development changes and outcomes remain contested and no one theory can be said to have 'overcome' any other, though some are, of course, more influential depending on the actor(s) and development processes involved. The modernisation approach remains the most dominant approach to development today (Willis, 2021, p. 232; Manyozo, 2012, p. 11; Mosse, 2004, p. 1; Melkote, 2003, p. 130), and is discussed in this section before turning to alternatives.

While development ideas have their roots in earlier social, political and economic theorising, it became more formalised in the aftermath of World War Two (1945 onwards), which saw an increased focus and international discussions about how to

address inequalities in war-torn regions (e.g., via the Marshall Plan for recovery and reconstruction in Europe) and also in the global majority world (Willis, 2021, pp. 30, 40, 43; Rist, 2014, pp. 69-72). An inaugural speech by President Harry Truman in 1949 indicated not only the US' growing geopolitical power, but its realisation that investments in 'development' elsewhere are not merely philanthropic, but can help to protect American interests domestically (Rist, 2014, p. 75). As McVety explains (2012, p. 115):

> *Economic aid was the ultimate weapon for securing policy goals without direct military involvement. Abroad, it was sold as all carrot, no stick, and leaders around the world were willing to stand in line to get a piece. At home, it was sold as the last best hope for the future.*

Proponents of this version of 'development' hoped to construct a future by turning 'traditional' societies into 'modern' ones (Louw, 2020, p. 183) like the ones apparently epitomised by Truman. To 'progress' in a modernisation sense, it was assumed that societies have to move through certain 'stages', and often by emulating, adopting, or using 'western benefits and advances' (Fair & Shah, 1997, p. 3). In terms of such approaches, countries from the global majority world were encouraged to 'leap'(-frog) from 'simple hunting savagery' to 'mechanical civilization' (Hoebel, 1954, p. 292, cited in Deb, 2009, p. 22) by promoting 'the idea that modern scientific knowledge and technology were superior' (Chambers, 1994, p. 14) and that 'developed' countries provide 'leadership' to be emulated (e.g., Abramovitz, 1986, p. 385).

Faith in the market is common to the modernisation approach, which tends to equate technological modernisation (including industrialisation, urbanisation, and the increased use of ICTs) with development (cf., Rist, 2014, p. 98). From the 1980s until today, the modernisation approach has been influenced by neoliberal tenets that are still prevalent in many approaches to today, 'despite the devastating impacts of global economic crises and austerity, as well as the growing inequalities and unsustainable environmental destructions' (Willis, 2021, p. 232).

Traditional approaches to the change(s) facilitated by ICTs, in line with the modernisation paradigm, have prioritised exogenous explanations in a Schumpeter

tradition (Nordhaus, 1969), meaning that changes resulting from development policies (and often, in this context, economic growth) is explained by the influence of external forces or shocks (e.g., the introduction of a digital ID) acting *upon* a system. Within this tradition, changes associated with the use or introduction of ICTs are typically defined as inexorable: 'taken for granted as something to be welcomed' (Mansell, 2012, p. 181), and 'presumed, on balance, to be consistent with human well-being, democracy, and freedom' (Mansell, 2012, p. 17). The importance of social, economic, and political factors is typically viewed as outside (or exogenous to) decisions like whether or not a country should invest in a particular technology, which is largely imposed from the outside.

From the 1960s onwards, alternative approaches to the modernisation perspective started emerging and growing (Willis, 2021, p. 29), including dependency theories and critical 'anti-development' approaches such as post-development, anti-development, anti-aid, beyond-development, and postcolonial theories (see Litonjua, 2012; Nilsen, 2006; Kothari & Minogue, 2002; Escobar, 1995; Schuurman, 1993; Rogers, 1976; Rodney, 1972). Many of these tend to reject development in part or as a whole, and 'not merely on account of its results but because of its intentions, its worldview and mindset' (Nederveen Pieterse, 2010, p. 110).

While I support post-development theorists' arguments that development processes – or that which is done 'in the name of Development' (Taylor & Broeders, 2015, p. 236) – are often controversial, contested, and/or harmful (e.g., Abrahamsen, 2000; Adjibolosoo, 1995), I resist claims that calling out 'bullshit' on development processes (Manyozo, 2017, p. 17) should lead to the wholescale rejection or avoidance of development while failing to present alternatives. As Nederveen Pieterse argues: 'What is the point of declaring development a "hoax" (Norberg-Hodge 1995) without proposing an alternative?' (2010, p. 123). The strict application of these theories can fall prey to neglecting the role of individuals as actors of change, and can risk being deterministic (Mosse, 2004). In addition, post-development theorists sometimes pay insufficient attention to the counterfactual, namely 'how much worse things could have been if nothing had been done' (Chambers, 2005, p. 185).[43]

[43] Needless to say, assuming a post-development approach would also terminally challenge the hopeful ambition underlying this project – primarily that we can and should work on improving digital development processes – as is explained in Chapter 4. (Also see fn. 4.)

While most of these approaches are said to have had only limited influence on policymaking, they are important (among other reasons) for emphasising the need to engage critically with the power relations engaged in any process or definition of development (Willis, 2021, pp. 76, 231). They might even implore us to, as Esteva and Escobar posit, to say 'one No to "development" and many Yeses to the "many paths people are following around the world *beyond development*" (own emphasis) (2017, p. 2564).

In the next section I turn to heterodox development approaches which, at the very least, make an attempt to move beyond the narrow paths constructed within the modernisation paradigm – however influential that approach might still be.

3.4.3 Participatory and empowering approaches to development

Alongside more critical approaches to development, there has been growing recognition of the importance of bottom-up and people-centred processes since the 1980s. Development processes are therefore perceived to have become broader and richer (Burchardt & Hick, 2017) as well as more participatory or even empowering (Botes & van Rensburg, 2000; Chambers, 2005; Melkote, 2003; Melkote & Steeves, 2015) over the past forty years.

At the same time, the positioning of ICTs as external or exogenous to socio-economic, political and cultural systems has increasingly been questioned since the 1980s. Not only do heterodox approaches criticise the uneven outcomes of modernism and neoliberal approaches, but they 'endogenise' the use of technologies by viewing change as occurring from within a system (Barro & Sala-i-Martin, 2003, p. 285) as a whole (Romer, 1988), as no longer being the result of 'forces that impinge from outside' (Romer, 1994, p. 3). Associated development approaches ask critical questions like 'why things are the way they are, how they happened, and what were or are likely to be their political, social, economic, or other consequence' (Mansell, 2012, p. 35).

The measurement of developmental outcomes in these traditions also tends to be more nuanced, extending to factors beyond economic growth. The UN's SDGs (see section

2.2.2), for instance, combines goals for economic growth and inclusion with environmental protection, and applies to all countries in the world (unlike their predecessors, the Millennium Development Goals or MDGs) (UNGA, 2015). To encourage wider responsibilities for and collaboration towards meeting the targets, the SDGs also identify roles and responsibilities for a broad array of stakeholders, including the private sector – a development that is criticised for failing to challenge the 'neoliberal mechanisms that have created many inequalities and poor development results in the first place' (Scheyvens, Banks & Hughes, 2016, p. 376).

Another example of broader views of assessing development progress and outcomes, in line with more heterodox approaches, is the UN Development Programme's (UNDP) Human Development Index (HDI),[44] which focuses on certain 'key dimensions of human development', including a long and healthy life, being knowledgeable and having a decent standard of living (UNDP, n.d.). The HDI is to a significant extent influenced by the capability approach, which is widely considered as one of the most influential alternatives to orthodox economic development approaches (e.g., Poveda & Roberts, 2018). As a 'broad normative framework', the capability approach provides a way of conceptualising and evaluating inequality and other development changes (Robeyns, 2005, p. 94).

Amartya Sen, who pioneered this approach,[45] defines development as a dynamic and ongoing process of 'expanding the real freedoms that people enjoy' (1999, p. 3) to 'lead the lives they have reason to value' (Sen, 1999, p. 293). His approach recognises that different kinds of capabilities, rights, opportunities, and entitlements contribute to the expansion of human freedom in general, thus promoting development (Sen, 1999, p. 37). In respect of the 'effectiveness' of freedom, 'development' is only achieved if people have agency, while the ability to translate resources into advantages depends on personal, social, and environmental 'conversion factors' that enable or disable opportunities and their distribution. As such, Sen recognises that technological progress will only 'substantially contribute to expanding human freedom' if appropriate conditions are in place (1999, p. 3). As Robeyns explains (2005, p. 99):

[44] See: https://hdr.undp.org/data-center/human-development-index#/indicies/HDI.
[45] While beyond the scope of this thesis to explore in detail, it is important to recognise that other scholars have significantly expanded upon and contributed to capabilities approach, including Nussbaum (2011).

> *… all the means of well-being, like the availability of commodities, social institutions, and so forth, are important, but the capability approach presses the point that they are not the ultimate ends of well-being.*

While Sen's approach requires researchers to look at capabilities (or opportunities) from an empirical point of view, this is easier said than done. Sen has been reluctant to identify a list of central or baseline capabilities, convincingly arguing that a predetermined list would not only deny public participation and neglect social conditions crucial in a specific context, but would be too inflexible given the likelihood of future change (Sen, 2004). It would also, as Helsper points out, very likely amount to a top-down approach of elites pre-determining 'what matters' on behalf of 'others' (2022, p. 24). However, this inherent complexity also means that it has proven difficult to apply the capabilities framework meaningfully while retaining the flexibility and space for individual agency (Kleine, 2010, p. 29). That said, various attempts have been made to operationalise the capabilities approach, including in fields related to ICTs (e.g., Gigler, 2011; Kleine, 2009; Zheng & Walsham, 2008; Johnstone, 2007; Madon, 2004).

Besides seemingly inevitable operationalisation difficulties, another critique of the capabilities approach relates to Sen's focus on the individual (e.g., Willis, 2021, p. 136) and – some argue – his neglect of power. Poveda & Roberts, for example, write that Sen fails to fully account for how unjust social and power structures will shape personal or individual choices, agency, and related constraints (2017). The capabilities approach is thus sometimes criticised for potentially underestimating that choices are limited in reality, can be poorly informed, and are often directionally defined or pre-determined (Jacobson & Chang, 2019).

This critique is especially relevant to digital development processes, given that ICTs have multiple purposes and uses and operate in complex development processes (cf., sections 3.2.3). As such, 'landscapes of choice' can be uneven (Kleine, 2011), and agency – a central tenet of capabilities approaches – is constrained. *More* choice (or opportunities) is not necessarily better than less choice (or opportunities) – indeed, too much choice can be detrimental in certain contexts. (e.g., Deb, 2009, p. 362). Others, however, disagree with this criticism, arguing that Sen's focus on concepts like functionings and capabilities,

along with conversion factors, means that variations in social environments, societal structures, and cultures *are* included in the capabilities framework, albeit not explicitly (Zheng & Stahl, 2011, p. 74; Kleine, 2010, p. 28).

Relatedly, Sen's focus on *individual* freedoms is also criticised given that it might enable people to do things 'at the cost of others', rather than consider how such freedom impacts the broader community and environment (2009, p. 360). The existence of individual choice or agency in isolation (also from collective or group structures) could lead to vastly different outcomes for different people – including the amplification of inequalities (Stewart, 2005; Taylor, Floridi, & Van Der Sloot, 2017). Deb, for instance, argues that Sen's focus on individual freedoms might enable people to do things 'at the cost of others', rather than consider how such freedom impacts the broader community and environment (2009, p. 360).

To operationalise some of these critiques, which effectively suggests that one looks at both inequality of outcomes and opportunities (Helsper, 2021), I draw upon two concepts to understand what 'something that we value' (in my definition of risk) means, and how related responsibilities for the distribution of its antithesis (harms) might be theorised. These approaches, I argue, enable me to adopt a constructive way forward.

3.4.4 Development today: Responsibility, well-being, and development

Despite the influential nature of some participatory and empowering approaches to development, as well as a growing acceptance of more people-centred processes and definitions, many developmental approaches are limited today by structural factors and 'a continued faith in the market as the key actor in development' (Willis, 2021, p. 232). As such, the 'implicit assumptions' of the dominant (modernisation) approach are perceived to 'linger on and continue to influence the policy and planning-making discourse of major actors in the field' (Servaes, 2003, p. 3).

These lingering assumptions also shape the extent to which stakeholders are able and willing to engage with the uncertainties of outcomes (i.e., risks) arising from the development processes that they continue to promote in contexts like the global

majority world. While I do not intend to question the idea of development itself in this thesis, it is crucial to interrogate how the ways in which we define and manage the risks that accompany development processes, including our assumptions and definitions of development itself, shape uncertain outcomes. As such, it is important to engage with not only these assumptions but that what is done 'in the name of Development' (Taylor & Broeders, 2015, p. 236), i.e., the conduct of development, and how responsibilities for defining and managing the risks associated with development conduct are dealt with by powerful actors involved in these processes.

To do so, *developmentality* as a concept is potentially useful. While various interpretations, explanations, and uses of this rather unwieldy term exist (e.g., Deb, 2009; Nederveen Pieterse, 2010, p. 28), I draw on one that is informed by Foucault's notion of *governmentality*,[46] or 'the conduct of conduct' (Foucault, 2007, p. 115). Governmentality, as such, is more than the sum of what governments do or fail to do (Lawlor & Nale, 2014); it refers to the 'institutions, procedures, analyses and reflections, calculations, and tactics' (Foucault, 2007, p. 108) used to 'shape the actions of others or of oneself' (Dean, 2010, p. 250) by 'working through the desires, aspirations, interests and beliefs of various actors, for definite but shifting ends and with a diverse set of relatively unpredictable consequences, effects and outcomes' (Dean, 2010, pp. 17–18).

As such, developmentality can be defined as the conduct of conduct by development stakeholders: i.e., the *conduct of development*. While critically reflecting on development stakeholders' ability to govern at a distance (Joseph, 2012), Lie uses this construct as a critique of the 'inherently lopsided nature of aid relations' (2015a, p. 1), and specifically the neoliberal underpinnings that continue to shape contemporary development processes. He argues that while major development 'partners' like the World Bank (2015a) purport to facilitate more 'empowered', emancipated, and participatory development processes – with the aim of transforming aid 'beneficiaries' from passive clients to active partners – they have simply shifted how they convey power by effecting other indirect means of governance, including through the deployment of

[46] Foucault first spoke about the concept in a series of lectures delivered at the Collège de France in 1978-9. English publications related to the concept followed later (Dean, 2010, p. i).

tools like 'impact' assessments, 'theories of change', and logistical frameworks (or logframes).[47]

Developmentality in this context is associated with the notion of organised irresponsibility, discussed in section 3.3.5 above, and is especially relevant for reflecting upon the changing nature of development projects over the past forty or so years. Willis points out that since the 1980s, governance (or the exercise of power) has become a significant focus of development projects (2021, p. 101). In the 1990s and 2000s, many development actors have shifted to investing in policy influence and sector programmes, as opposed to their erstwhile focus on project-based assistance (Chambers, 2015, pp. 13, 15). This, Chambers argues, implies a shift from 'the grounded, bounded and stable to the more nebulous, permeable and inconstant' (2005, p. 17). This kind of development focus has also made it more difficult to attribute responsibility (Chambers, *ibid*):

> *More actors are involved. The scale is wider. The impacts are further away. So responsibility and accountability are more diffuse.*

Given these shifts and a need to more critically engage with the power and responsibilities of various stakeholders involved in digital development processes and associated risks, I opt for defining development in close conjunction with associated responsibilities, while drawing on heterodox development approaches and emphasising both individual and collective interests. Similar to Beck, Chambers is concerned about the growing prevalence of a plethora of 'modern' problems (or risks) that signify 'grotesquely unjust systems' (2005, p. ix) and imply 'awesome' responsibility for those with power (2005, p. 203).

Chambers' concept of *responsible well-being* (1997, 2005) draws on participatory approaches and methods that emphasise individual agency in defining both what matters and our responsibility for managing (good) change: 'We have agency, the ability to act and change the world, and this brings with it responsibility for the effect of actions

[47] While locating itself within the context of investigating development outcomes, a thorough examination of various monitoring and evaluation tools, including theories of change, falls outside the scope of the thesis. See authors like Arensman, van Waegeningh, & van Wessel (2018); Heeks (2010); Kogen (2020); Ramírez & Brodhead (2013); Tufte (2017); Waisbord (2017) for a critical examination of same.

and inactions' (Chambers, 2005, p. 203). According to Chambers, the objective of development is well-being for all, meaning 'the experience of a good quality of life' (2005, p. 192). This in turn, involves a 'whole range of human experience, social, psychological and spiritual as well as material' that is defined individually (2005, p. 123) and is connected to both livelihoods (i.e., having enough to meet basic needs and support well-being) and capabilities (as a means to well-being and livelihoods).

Chambers recognises that the quest for a good quality of life for one person might negatively impact another person (or future generations) – also through the introduction or (re)allocation of risks. He therefore uses the principles of equity ('putting the last first and the first last') and sustainability (any conditions must be sustainable from an economic, social, institutional, and environmental perspective) to qualify livelihood and well-being. *Responsible* well-being by and for all, therefore, becomes the overarching end to which development should strive (Chambers, 2005, p. 194). As such, this portmanteau provides a way of conceptualising what development objectives (like the SDGs) should set out to do, namely meet current (development) needs while protecting the interests of future generations. To do so, Chambers' concept places significant emphasis on the responsibilities of the powerful, or 'non-oppressed', to serve others, including both those who are alive and future generations (2005, pp. 193–194).

As a concept, responsible well-being has not been particularly influential in broader development policy. In his self-effacing manner, Chambers himself admits that 'it has virtually no literature. It has no institutional champion. It does not serve the interests of any organization' (2005, p. 201). Nevertheless, what draws me to his concept is its focus on potential outcomes that are not only individual but also collective and societal, that are occurring not just in the present but also in the future. In other words, in outcomes that are uncertain (like risks).

I also appreciate the way in which Chambers qualifies well-being by responsibility, which is especially important as far as the responsibility for defining and managing digital development risks are concerned. Chambers' emphasis on responsibility in the context of the powerful or the 'haves', which includes development stakeholders is also helpful. As one commentator argues, the concept is a reminder that 'one cannot be responsible

for others' well-being without being responsible for one's own; but neither can one be well on one's own, without taking some responsibility for the well-being of others' (Scott-Villiers, 2004, p. 200). In a sense, then, responsible well-being is similar to the African philosophy of *umuntu ungumuntu ngabantu* (or ubuntu), which reminds us of our common humanness and our 'bondedness' to others (including to future generations) (Murove, 2013) and – together with related concepts like *buen vivir* from the Andes and *swarai* from India – indicates a focus on *collective* well-being (Willis, 2021, p. 231), which Chambers also promotes.

However, because Chambers does not explicitly account for the important role of digitisation (or its complexities) in responsible well-being (a topic on which there is a growing amount of literature[48]), it is necessary to turn to another concept for theorising the interaction between social and digital worlds (and related risks), and the (in)equalities that might arise from the risks that accompany digital development processes.

Helsper's concept of socio-digital inequalities emphasises the differences between how people access and use ICTs and related outcomes, as well as the important interplay between *social* (analogue) and *digital* inequalities as the potential outcomes of these interactions (2023). She defines socio-digital inequalities as 'systematic differences between groups, countries, and regions in the opportunity and ability to engage (or to decide not to engage) with ICTs in ways that facilitate beneficial outcomes across all domains of everyday life while avoiding negative outcomes for yourself and others now and in the future' (Helsper, 2023, p. np.). She accounts for the possibly negative or risky aspects of our engagement with ICTs – both now and in the future, like Chambers – while also explicitly recognising the important interplay between *social* (analogue) and *digital* inequalities.

To conclude, I use two concepts to understand development for the purpose of this thesis. While socio-digital inequalities as a concept is useful for theorising the connection between opportunities, choices and outcomes as well as the interplay between social and digital 'worlds', responsible well-being explicitly acknowledges the *responsibilities* of development stakeholders and other powerful actors and emphasises

[48] See, for example, Burr & Floridi (2020).

the importance of weighing up individual benefits with present and future, collective or societal outcomes. The notion of developmentality, in turn, is used to reflect specifically on the conduct of development and associated (ir)responsibility for digital development risks. In the next and final section of Part I, I bring these overarching concepts together to conceptualise of the risks that accompany digital development processes more specifically.

3.5 Summary of Part I: *digital development risk(s)* and *risk beneficiaries*

Building on the stepping stones provided in the two preceding sections, which explored the definition and management of risks, and the nature of development and associated responsibilities, it is now possible to elaborate on how I aim to examine risks from a conceptual and empirical perspective.

First, I can now develop my definition of risks as *uncertain outcomes with respect to responsible well-being*. Building on these concepts, I propose the concept ***digital development risk(s)*** to frame my interest in exploring the risks that accompany the use of ICTs in development processes and to emphasise the fact that development is not simply 'good change', but also entails potential risks. Drawing on earlier definitions, I define this as the risk of digital development processes contributing to and/or exacerbating, uncertain outcome(s) with respect to something we value, i.e., responsible well-being.

Defining and managing digital development risks is easier said than done given the significance of risk definition processes, the difficulty of governing ICTs, and the plethora of stakeholders potentially involved in the conduct of development (or developmentality), thus facilitating both organised irresponsibility and the potential for risk arbitrage. In sections 3.3.2 and 3.3.5 we learned that traditional institutions are seemingly inept at dealing with manufactured risks of the Risk Society – a shortcoming that extends to how they deal with developmental objectives. Similarly to concerns that have been raised about the conduct of development (i.e., developmentality approaches), Risk Society theorists argue that institutions are also incapable of appropriately dealing

with the (re)allocation of associated resources, rewards, and costs – or the 'dissemination of the cake produced by economic and technological development' (Beck, 1992, p. 19). While not directly concerned with development and its outcomes, Beck argued that institutions of the Risk Society should forget 'serving up' social goods, and should rather turn to mediating risks as 'the cake is now poisoned' (1992, p. 19).[49]

How is this poisoned cake – or digital development risks – distributed? Concepts like organised irresponsibility, risk arbitrage, and even developmentality imply that any attempt at defining and managing digital development risks can create or exacerbate inequalities, or in Risk Society language, can produce winners and losers. Unfortunately, Beck's theory does not elaborate extensively on the unequal outcomes of risk definition and management practices. Indeed, he was often criticised for writing that 'poverty is hierarchic, smog [as a metaphor of global risk] is democratic' (Beck, 1992, p. 36). Not only did he not adequately account for the unequal distribution of risks, but Beck neglected that the 'boomerang' effects of manufactured risks tend to reinforce rather than transform existing patterns of inequality (Mythen, 2004, p. 181).

Making an effort to respond to some of these critiques, Beck later wrote that inequalities based on class are now less relevant than inequalities based on risks (and exposure thereto) (2013, p. 72). He therefore argued that individuals' relative ability to manage or avoid risks is shaped by not only their relative privilege and advantage, but also factors like geography (Beck, 1992, pp. 40–41). Experiences of the severity, scope, and intensity of risks (and whether or not risks translate to harms), therefore, depend on power asymmetries, the context in which it is experienced, and the levels of disadvantage at stake (Egner, 2011). In other words, social, economic and geographical circumstances shape how people and institutions are positioned *vis-à-vis* risks (Beck, 1992, p. 49).

Globalised risk not only means that 'Western governments or powerful economic actors define risks for others' (Beck, 2006, p. 333), but some also have to bear the brunt of the abuses of others. This therefore implies that risks could introduce 'new international inequalities' (Beck, 1992, p. 23). While Beck therefore acknowledged the significance of economic inequalities, the potential outcomes of social and cultural inequalities, or

[49] This argument should be contextualised in Beck's setting (Germany), where he might have been in a position to suggest that social goods are to some extent already delivered (cf., Mythen, 2004) – an assumption that does not, however, hold in much of the majority world.

indeed different risk definitions dependent on diverse contexts, are notably less pronounced in his work (Curran, 2018a; Mythen, 2004, 2021; Skeggs, 2004, 2019; Tyler, 2015).

Given these critiques, it is important to recognise complex contextual conditions (Möller, 2012), socio-cultural values, and dispositions that determine how digital development risks will, in turn, shape responsible well-being. To do so, I suggest investigating the risks that accompany digital development processes by drawing on Helsper's notion of socio-digital inequalities (2023). This approach acknowledges that risks (like ICTs in my conceptualisation in terms of affordances literature) are shaped by and simultaneously shaping of *social* circumstances, or society, as well as the *digital* technologies that introduce or facilitate them. By focusing on both social and digital dimensions of digital development risks, I avoid rigid constructions of exogenous/endogenous change. Rather than regard social and digital dimensions of risks as distinct categories, I view them as overlapping and in constant interplay to acknowledge that the definition of risks depends on contextual considerations, and will differ depending on the level(s) at which resultant harms or opportunities (of risks) might be experienced – i.e., societal, collective, and/or individual levels.

It is important to recognise that digital development risks will be defined and managed differently depending on whether it is experienced or dealt with at individual, collective, and/or societal levels (Smuha, 2021; Taylor et al., 2017). For instance, some risks might be small or insignificant at an individual level, but unacceptable at a societal level (Bayamlıo & Leenes, 2018; Borgesius et al., 2018; Brkan, 2019; Smuha, 2021) – also certain harms might be acceptable because they are outweighed by potential opportunities or benefits (Livingstone & Helsper, 2013). Many 'new' technologies, for example, function, sort, and profile based on group rather than individual behaviour or characteristics (Taylor, 2017), which also means that it is important to consider how digital development risks are defined and managed beyond the individual level, that is, on the insitutional level. Risks will also be defined and managed differently by individuals or a collective of intended development beneficiaries (e.g., refugees) compared to the consultants doing cost-benefit analyses (CBAs), development stakeholders or policymakers promoting digital development processes, or technologists developing the ICTs involved (Newby, 1992). And even within these loose categories, individuals have different appetites for

defining and managing risks: 'some are more risk averse, while others have a bigger appetite or tolerance' (Gellert, 2020, pp. 37–38).

Given these important divergences and my interest in digital development processes (and related outcomes), it might be useful to also explicitly define these stakeholders as the beneficiaries of digital development risks, as opposed to or in addition to being intended beneficiaries of digital development processes. In the context of digital development processes, therefore, I suggest that relevant individuals or communities may become **risk beneficiaries**, meaning that they become responsible for managing the uncertainty of outcomes associated with these processes, as well as for the consequences of others' (including failed or irresponsible institutions') actions or inactions. Drawing on participatory development approaches, this concept does not imply that these individuals or communities are mere passive clients of development, but rather that they are active partners that become responsible – whether they want to be or not – for defining and managing digital development risks.

Having defined the central constructs of what will be my conceptual framework, I now turn to how risks and digital development processes have been dealt with in existing literature and work in the field.

PART II

3.6 Unpacking digital and identity 'divides'

Having defined the central concepts that frame my theoretical approach, I now examine how research of relevance to digital development processes has dealt with (digital development) risks. To do so, I explore both the policy prerogative that continues to promote certain ICTs for developmental purposes, and the ways in which existing research (and policy) have approached (development) change and related digital development risks.

Access to ICTs such as the Internet or digital IDs – whether evinced in the quest for 'information' or 'knowledge' societies or, more recently, the 4IR (Schwab, 2016; Stiglich & Davis, 2022) – is now not only typically seen as inevitable and crucial for the 'full enjoyment of human rights' (UN General Assembly, 2021, p. np), but is highlighted as an enabler of the UN's SDGs in development parlance (e.g., UN Broadband Commission for Sustainable Development, 2017; UN Secretary-General High-level Panel on Digital Cooperation, 2019; UN Secretary-General, 2019). Even if some have argued the SDGs neglect the significance of ICTs for achieving development goals (Souter, 2017), overcoming digital divide(s)[50] (discrepancies in access to and use of ICTs) by promoting 'digital inclusion' and 'getting more people plugged in and wired up' (Mansell & Steinmueller, 2002, p. 39), has become a significant policy priority in many parts of the world.[51] As Nederveen Pieterse points out: 'Bridging the digital divide has become a keynote of development policy, heavily promoted by major institutions' (2010, p. 167).

Digital IDs – which are discussed further in the context of my own empirical research in Chapter 6 – have joined this promotional package, especially since the provision of a legal identity for all by 2030 was recognised in SDG 16.9 (UN General Assembly, 2015).[52] With increased digitisation, this SDG is now often twinned with the goal to promote access to and use of ICTs (SDG 9c): *digital* identification ecosystems have thus become increasingly popular, especially in the global majority contexts (Addo & Senyo, 2021; Donner, 2018; Gelb & Metz, 2018). Many development stakeholders have accordingly prioritised the provision of legal identity in digital and biometric guises since the SDGs (Debos, 2021, p. 65). In its 2016 *World Development Report*, for example, the World Bank recommended that 'the best way' to achieve SDG 16.9 is 'through *digital identity (digital ID)* systems' (original emphasis) (2016, p. 194).

[50] The term was reportedly first used by Lloyd Morrisett to describe information 'haves' and have-nots' (Southwood, 2022, p. 5).
[51] I place these terms in inverted commas because their usage is problematic. Helsper, for example, points out that besides implying rather top-down processes with limited choice as to whether one wants to be included or not (2021, p. 8), 'digital inequalities are more complicated than a gap between connected and disconnected' (*ibid*., p. 1). Robinson *et al*. similarly point out that digital inequalities combine with other 'offline axes of inequality' and therefore cannot be analysed separately from offline circumstances (2015, p. np.) – as terms like 'digital divides' and 'digital inclusion' seem to imply.
[52] The indicator attached to this SDG refers to birth registration, namely the percentage of children under the age of five whose births have been registered with a civil authority, disaggregated by age.

Much work remains to be done if these (and other) SDG targets are to be met. In 2021, the World Bank estimated that approximately 850 million people live without any form of legal identification (birth certificate or national ID) in the world (or 1 in 9 people globally), with over half of that number (470 million) living in Sub-Saharan Africa (Clark, Metz, & Casher, 2022) (almost 40% of the population). These so-called 'identity gaps' (a term which echoes the term 'digital divides') are said to pose 'a challenge to human development, not just economic growth' (Addo & Senyo, 2021, p. 2). Without a legal identity, many people are reportedly unable to participate in society in a plethora of ways – 'they may not be able to vote, open a bank account, transact online, own land, start a business, connect to utilities or access public services such as health care or education' (UN SG High-Level Panel on Digital Cooperation, 2019, p. 10).

Despite these claims, expectations as to the nature and potential implications of 'bridging' digital and identity divides are highly contested and remain unsettled, ranging from utopian or optimistic (e.g., predictions that ICTs can 'upgrade' development) to sceptical (e.g., predictions that ICTs will amplify inequalities) (e.g., Helsper, 2021; Unwin, 2017; Kleine, 2010; Heeks, 2010, 2005) or even dystopian (Georgiou, 2022). This ambiguity is discernible in existing research in this rapidly-evolving field (Nederveen Pieterse, 2010), which reflects different perceptions of how (and where) change is said to occur. In much of the literature on digital development (or ICT4D), three broad (and often overlapping) traditions[53] are commonly demarcated (Helsper, 2021; Mansell, 2017; Nederveen Pieterse, 2010; Robinson et al., 2015). In the next subsection, I discuss these traditions, while comparing and contrasting them to conceptualisations of change, before situating this project in a proposed new, fourth way forward.

3.6.1 A first tradition

Digital development research initially emphasised supply-side challenges and related economic barriers (e.g., through the availability of relevant broadband infrastructure, electricity, devices and/or public access facilities), with the assumption being that if

[53] I prefer the use of the term 'traditions' and not 'levels', as these research traditions are loosely defined, not exhaustive or cumulative, and tend to overlap. 'Levels', on the other hand, seem to imply a linear progression, and thus implies the potential of improvement (or deterioration), which is not necessarily the case.

access to technology is technically feasible, people will automatically adopt and, presumably, benefit from it. Research in this tradition, which tends to suffer not only from a lack of theoretical grounding (Lutz & Hoffmann, 2017; van Dijk, 2006), but from technological determinism (Lupač, 2018; Peters, 2017) (cf., section 3.2.3 above), sometimes acknowledges the existence of certain risks or harms that might result from access and usage, but often views these risks as manageable and best left to the market to manage (Mansell, 2017).

This first tradition is also visible as far as digital IDs are concerned. In line with it, proponents of digital IDs tend to make instrumental claims of the plethora of developmental purposes for which these tools can apparently be used by sweeping 'away the slow and messy and unreliable paper-based systems of government' (Breckenridge, 2014, p. 16). In a report on digital cooperation, for example, the UN quotes a McKinsey & Company study to enthuse that digital IDs 'could add between 3 and 13%' to a country's GDP' (UN SG High-Level Panel on Digital Cooperation, 2019, p. 10).[54] Other development stakeholders tend to tout the relative ease, low cost, and convenience of digital IDs compared to traditional, analogue systems (Trikanad & Bhandari, 2022; Van der Spuy, Bhandari, Trikanad, & Paul, 2021). In what some even describe as a 'new "Washington Consensus"'[55] (Dalberto et al., 2021, p. 31), the benefits of digital IDs are said to range from their use in elections to refugee registration or creditworthiness assessments, among other purposes (e.g., Addo & Senyo, 2021; Dalberto et al., 2021; Debos, 2021; Gelb & Metz, 2018; Manby, 2020).

The tendency to make much of the positive 'impacts' of digital ID processes was especially noticeable during the Covid-19 pandemic (see section 2.3.2), during which most governments turned to various ICTs – and related data sources – to respond to a plethora of challenges associated with the crisis, including facilitating aid and targeted healthcare, tracking people under lockdown conditions, and/or tracing contact with the virus (Chafetz, Zahuranec, Marcucci, Davletov, & Verhulst, 2023; Klaaren et al., 2020; Marcucci, Alarcón, Verhulst, & Wüllhorst, 2023; Martin, Schoemaker, Weitzberg, &

[54] Buried in an endnote, the authors explain that the study was based on seven rather diverse countries (Brazil, China, Ethiopia, India, Nigeria, the UK, and the USA).
[55] The term was initially used to describe the development packages embraced by Washington DC-based entities like the World Bank and IMF. It has since attained a broader orientation to describe neoliberal approaches to development, including policies related to privatisation, deregulation, and tax reform (Irwin & Ward, 2021).

Cheesman, 2021; Zahuranec, Chafetz, & Verhulst, 2023). Policymakers tended to downplay 'analogue' challenges like under-capacitated institutions while promoting the 'uncritical adoption of technological solutions' (like contact-tracing apps) to 'social problems' (like the pandemic) (Marda, 2020, p. 30). McDonald, for example, argues that this amounts to technology theatre, and notes that contact-tracing apps were particularly popular puppets for this theatre (2020b, p. 24):

> *The idea that an app based on our experimental (at best) understanding of COVID-19, would bridge the gap between under-resourced and politically intransigent leadership and the delicate, difficult requirements of an effective, sustained response effort is fantasy – but the show must go on.*

This brings us to the second tradition, which, *inter alia*, begins to ask more critical questions about the audience of this 'show'.

3.6.2 A second tradition

Within a second tradition, researchers commonly refine the simplistic offline-online dichotomy (Graham, 2008; Robinson, 2009) to consider the system as a whole (Romer, 1988). This approach aligns with a shift towards 'endogenising' the use of technologies by viewing change as occurring from within a system (Barro & Sala-i-Martin, 2003, p. 285), and no longer being the sole result of 'forces that impinge from outside' (Romer, 1994, p. 3). In the second tradition, the social, economic, and cultural contexts of digital engagements are viewed as crucial when investigating digital inequalities – i.e., that digital inequalities tend to mirror and compound 'offline' and structural disadvantages (Blank & Lutz, 2018; Halford & Savage, 2010; Robinson et al., 2015).

This tradition thus welcomes a more nuanced understanding of the fact that ICTs are no silver bullet – that demand-side challenges, including relevant institutional contexts and 'offline' or social inequalities, matter (Van Deursen & Helsper, 2015). Related theories like Toyama's amplifier theory for ICT4D, for example, argue that technologies tend to exacerbate existing inequalities and cannot substitute for missing (institutional) capacities, while digital development processes are most likely to be successful when

they amplify already successful efforts rather than 'bridge' gaps or substitute for missing elements and challenges in social contexts (2011).

Another example is the shift in focus to demand-side challenges when it comes to Internet access and adoption: exogenous approaches (sometimes characterised as 'tech push' approaches) prioritise the closing of 'a digital divide' while focusing on supply-side challenges like the provision of infrastructure (e.g., broadband or devices). Endogenous approaches are likely to argue that (developmental) changes resulting from promoting Internet access or use would arise from how people and societies interact with such ICTs (Souter, 2017). In a report from the Organisation for Economic Co-operation and Development (OECD), for example, Love warns (2016, p. 124):

> *…without the right skills, people languish on the margins of society, technological progress will not translate into economic growth, and countries can't complete in the global economy.*

Research in this second tradition commonly focuses on these skills and/or literacy levels, competencies, and the resources needed for making access 'effective' or 'meaningful' (e.g., Grošelj, van Deursen, Dolničar, Burnik, & Petrovčič, 2021; León, Rehbein, Labbé, Van Deursen, & Cerda, 2021). While this approach incorporates necessary contextualisation, and typically unpacks the type(s) of access and intensity of use that are at stake (Napoli & Obar, 2014), it also tends to view ICTs as neutral goods and often ignores differential use and types of participation (or non-participation) (Lutz & Hoffmann, 2017). Where digital IDs are concerned, for example, it tends to discount the long (and often tragic) analogue histories that these systems have (Breckenridge, 2014, 2021; Gelb & Metz, 2018), or the ways in which legibility might make people's lives harder rather than easier. It ignores, for instance, that being 'known' to the state (by having one's identity registered and/or authenticated) potentially enables civic responsibilities that are less desirable or equitable in some contexts, like 'taxation, debt service, military recruitment, and religious inquisition' (Breckenridge, 2021, p. 50).

This tradition is also present in increased concerns about what it is that digital IDs deliver in development processes – a question that starts with the ambiguity of what actually amounts to 'legal identity'. Because the UN did not define what is meant by

'legal identity' in SDG 16.9, various stakeholders have adopted (or co-opted) diverse interpretations of this goal to serve their respective interests and priorities (Manby, 2020). The involvement of the private sector and other stakeholders as development 'partners' in meeting the SDGs has not only imbued many of these initiatives with a rather neoliberal nature, but has shaped what certain NGOs prioritise in their bids, plans (Willis, 2021, p. 144), and even research priorities (also discussed in the next section).

As a result and in many cases, countries have promoted a number of overlapping, functional[56] forms of digital ID to serve a variety of socio-economic goals,[57] often in partnership with private sector actors (Nyst, Pannifer, Whitley, & Makin, 2016), and typically not linked to a single (foundational) national system (Manby, 2020). While some of the programmes or initiatives delivered by development stakeholders might thus be filling some 'identity gaps', activists have – in critiques that echo the second (or even third) tradition of digital divides research – called for greater clarity on what is being delivered and whether it is indeed serving state and/or developmental obligations (e.g., Center for Human Rights and Global Justice, Unwanted Witness, & Initiative for Social and Economic Rights, 2021; Manby, 2020; Privacy International et al, 2022; Trikanad & Bhandari, 2022; Van der Spuy et al., 2021).

In other words, research in this second tradition sometimes tends to replicate the more instrumental 'digital inclusion' rhetoric by assuming that to 'be connected' or identified is necessarily an ideal that everybody should aspire towards (e.g., Carmi & Yates, 2020). Another criticism relates to the concern about socio-cultural determinism (section 3.2.3 above), which can make it difficult to unpack the consequences and outcomes of digital development processes. This brings me to a third tradition, which focuses more explicitly on outcomes.

[56] See fn. 7 for the differences between functional and foundational digital IDs.
[57] In Ghana, for example, researchers complain of a 'card glut' due to the confusing array of state-issued digital IDs that serve a variety of purposes, amounting to 'a siloed approach as a way of retaining or hoarding the power and budgetary allocations associated with such ID projects' (Oduro-Marfo & Falconer, 2021).

3.6.3 A third tradition

Research within a third tradition, which also prioritises an endogenous approach to change, encompasses critical stances that consider the outcomes of ICTs as well as the relationship between digital inequality and 'offline' inequalities (an aspect that is to some extent neglected in the first and second tradition) (Nederveen Pieterse, 2010; van Deursen & Helsper, 2015; Van Deursen, Helsper, Eynon, & Van Dijk, 2017).

Examples include evaluating economic, social, cultural and individual implications (e.g., Büchi, Festic, & Latzer, 2018; Donner, 2015; Micheli, Lutz, & Büchi, 2018; Mothobi, Shoentgen, & Gillwald, 2018; Van Deursen & Helsper, 2015; Van Deursen & Helsper, 2018); economic development at micro- or macro-levels (Willems, 2021); ecological sustainability and cultural development (Castells & Himanen, 2014, cited in Mansell, 2017); or how choice is improved by digital interventions (Kleine, 2010, 2011).

With the exception of research on children and youth and Internet use (cf., the work of Livingstone, 2013, 2009), the definition and management of risks that accompany digital development processes is less common in digital development or digital ID research – especially in global majority contexts. So, too, is the study of datafication-related risks in this context.[58] Research pertaining to digital IDs has sometimes highlighted potential challenges, but has tended primarily to focus on specific challenges related to exclusion, privacy, and costs (Gelb & Metz, 2018), and often with reference to specific groups or collectives, like refugees or migrants (e.g., Latonero, Hiatt, Napolitano, Clericetti, & Penagos, 2019; Leung, Lamb, & Emrys, 2009; Madon & Schoemaker, 2021; Martin & Taylor, 2020; Schoemaker, Baslan, Pon, & Dell, 2021). It less frequently examines the definition and management of digital development risks. Of the risks commonly highlighted, surveillance or privacy breaches have received the most attention, and typically from a legal or operational perspective (Dalberto et al.,

[58] Exceptions include a (qualitative) study in The Netherlands on the impact of educational attainment on negative outcomes (Scheerder, van Deursen, & van Dijk, 2019) and a (quantitative) study in Britain that focuses on the social structuration of negative outcomes of Internet use (Blank & Lutz, 2018). As far as datafication risk is concerned, one recent study interrogates the definition of digital inequality by arguing that digital footprints are important social differentiators and should be included in any analysis of ICTs' outcomes (Micheli et al., 2018). These were all conducted in Europe.

2021, pp. 36, 6). Research on (the risk of) exclusion and inclusion and (the need for) recognition or legibility under law has only recently become more prevalent.

While much of the available research on digital IDs has been conducted from a global North perspective or in a global North context (Dalberto et al., 2021, p. 4), a growing number of work is available that cover aspects of, for example, these processes in some African contexts. This includes papers related to Uganda (Center for Human Rights and Global Justice, 2021) – which criticises potential mass exclusion, especially of women and elderly people in the country from the national ID, *Ndaga Muntu*; and Kenya (Schoemaker, Kirk, & Rutenberg, 2019) (which examines user risks and vulnerabilities as a result of the competing interests involved in promoting digital ID, *Huduma Namba*). Another example is a comparative study of digital IDs that was conducted in ten African countries, which found that most countries lack adequate legal safeguards to protect citizens from the potential risks of these instruments, especially in the light of a growing number of vague public-private partnerships (PPPs) and other collaborations involved in implementation (Van der Spuy et al., 2021).[59] Another report, funded by the European Union, argues that many African governments tend to focus on the economic benefits of digital ID while avoiding human rights implications (Musomi, Domingo & Ogah, 2023: viii).

While practitioner research on the topic of digital IDs and their potential risks is therefore increasing – including some studies in Africa – academic research on the theme 'remains relatively limited – though rapidly growing' (Manby, 2020, p. 2). A noteworthy exception is the work of historian Breckenridge, who problematises the shift from written to biometric forms of registration, or from writing to samples and bits (see section 3.2.2 above). Often writing about the South African context, Breckenridge is particularly concerned about how new biometric models on the continent tend to incorporate credit scoring and surveillance functions (2021, p. 56). In an argument that in some ways echoes Eubanks' concerns about the automation of inequality in (especially) creditworthiness systems in New York (2018), Breckenridge warns that these

[59] The countries were Ghana (Oduro-Marfo & Falconer, 2021), Kenya (Mutung'u, 2021), Lesotho (Pule, 2021), Mozambique (Gaster & Martins, 2021), Nigeria (Okunoye, 2021), Rwanda (Binda, 2021), South Africa (Razzano, 2021), Tanzania (Boshe, 2021), Uganda (Iyer, 2021), and Zimbabwe (Ngwenya, 2021). The writer managed this project on behalf of Research ICT Africa and the Centre for Internet and Society.

trends are problematic given the immortality and irrefutability of such data: 'Biometrics are materially designed to resist the editorial or authorial interventions of their owners. They are machines designed to prevent writing' (Breckenridge, 2021, p. 58). He warns (2014, p. 167):

> *If the current trajectory continues the new ordering that will emerge from this infrastructure will be determined by financial institutions, separating the creditworthy wheat from the financially delinquent chaff.*

Besides research, critical assessments of the risky consequences of digital development processes are rather rare in policy documentation, which somewhat ironically typically fails to explore beyond the instrumental notions common to the first two traditions of digital development research. Potential outcomes and their distribution are only broadly mentioned, undefined, and/or even missing in many policy instruments. These difficulties are evident in development discourse (e.g., in the reports published by development organisations that promote ICTs for development), in which endogenous models are still 'greatly overshadowed' by more exogenous ones that privilege 'external agencies and firm interests in diffusing technologies' (Mansell, 2014, p. 117).

Policymakers' lack of critical engagement with what I designate as digital development risks is also visible in policies on the continent (see section 2.2.3). For example, the AUC's *Digital Transformation Strategy for Africa* (2020-2030) expresses the objective of harnessing 'digital technologies and innovation to transform African societies and economies' by, among other things 'leapfrogging' socio-economic challenges (AUC, 2020). The Commission's 2022 *Interoperability Framework for Digital ID*, similarly, states that 'IDs and, in particular, digital IDs' can introduce a 'wide range of benefits for countries. Some examples include good governance, financial inclusion, gender equality and the empowerment of women, enhanced social protection, healthcare and education outcomes' (AUC, 2022, np).[60] The Framework does not explain why many so-called 'developed' countries in the global North – including some of the countries or aid agencies that supported the drafting of this framework – manage to deliver many of these benefits without any form of (digital) ID, even if only nominally so.

[60] See fn. 27.

3.7 Summary of Part II: a new way for digital development research

Research on digital IDs, which I will investigate empirically, has rarely benefited from comparison to the lessons learnt in studying how (other) ICTs are used for various developmental purposes, and related risks – including, for example, lessons from the three traditions in digital inequality/divides literature. My preceding discussion of digital development processes indicates that, first, critical interrogations of the outcomes of these processes are becoming more common and, second, there is a growing preference for understanding change (and risks) in the tradition provided by endogenous theories, which highlight the contextual factors that impact on how ICTs might have particular outcomes in diverse contexts (i.e., the 'after access' factors). However, the definition and management of these risks is often neglected, as are the risks associated with digital development processes involved more generally, as well as an understanding of the complex contexts in (or on) which digital development processes are expected to operate.

I suggest that digital development risks are not only neglected due to prevailing neoliberal democratic environments that tend to favour more instrumental approaches (Cammaerts & Mansell, 2019), but also because promoting digital 'inclusion' in its various guises is a business prerogative for Internet platforms, digital ID vendors, and other stakeholders in various datafication environments given the crucial value (Willems, 2021) of these (data) markets (Couldry & Mejias, 2019, 2021; Moore & Tambini, 2018). From a developmentality and organised irresponsibility perspective, the distribution of 'expensive and shiny technologies' is often more newsworthy and powerful than deciphering the needs of 'supposed beneficiaries' (Banaji, Livingstone, Nandi, & Stoilova, 2018, p. 437), or addressing complex challenges such as social and cultural inequalities (Van der Spuy & Souter, 2018). These difficulties are compounded by practical considerations regarding implementation and measurement: ICTs and their related outcomes evolve quickly, are context-specific, difficult to measure, and differ from individual to societal levels.

Despite these difficulties, digital development research has the potential to break new ground by working within a perspective that enables a more explicit and critical scrutiny of the definition and management of digital development risks, along with associated responsibilities. This approach acknowledges that digital development processes do not necessarily only contribute to 'good change', but also entail potential risks. Rather than only focus on identifying development benefits (the *good*) – as much existing research attempts to do – my proposed fourth perspective focuses on the risk of collateral *bads* arising from development *processes* themselves (rather than arising from the use of specific ICTs), including digital development risks; the way(s) in which these risks are defined within a specific context; and how these risks are managed (also to facilitate more positive outcomes or rewards).

Research guided by this fourth way – which critically looks at the definition and management of risks associated with digital development processes and why they are important (also for risk beneficiaries) – is important for a number of reasons. As noted in section 1.3, significant resources are spent on digital development processes with apparently limited insight over whether they are likely to meet development objectives (e.g., Friederici et al., 2017) or whether or not their design is suitable for the realities or contexts concerned (as Heeks posits in his concept of the design-reality gap) (2002b). More problematically, such interventions (and the risks they are accompanied by) could exacerbate socio-digital inequalities for risk beneficiaries.

In the next section, I bring together what is learned in this review of the literature with the theoretical directions I outlined in Part I in order to define a conceptual framework for this thesis.

PART III

3.8 Conceptual framework

This chapter's overview of relevant concepts and theories underpins an optimistic view of ICTs to emphasise the fact that the collateral benefits or risks of using them for

development purposes are not a given. Because ICTs and their implications are never fully 'finished', and are malleable and ambiguous (Mansell, 2021, p. 2), there is arguably space for hope. We can, I suggest, understand the unequal distribution of the potential risks of using ICTs (such as digital IDs) for developmental purposes, including digital development risks, by paving a new, fourth avenue for digital development research.

To do so, my conceptual framework weds a **risk agenda** with a **development agenda**. In terms of risks, I adopt a Risk Society theoretical approach (Beck, 1992) to describe the risks associated with digital development processes as uncertain, abstract, unpredictable, manufactured, and dependent on the nature and affordances of specific digital development processes promoted in particular contexts. Drawing on these characteristics and Beck's theory, I define risks as *uncertain outcomes with respect to something we value*, and expand on this definition in the context of digital development processes to define *digital development risks* as the risk(s) of digital development processes causing, contributing to, and/or exacerbating uncertain outcomes with respect to something we value.

My review of the literature and work in the field (Part II) indicated that although critical interrogations of the outcomes of development processes have become more common, digital development risks have not received significant attention. As such, my conceptual framework emphasises the importance of both *defining* and *managing* digital development risks in order potentially to mitigate challenges and encourage the realisation of more positive opportunities from digital technologies in development contexts. However, and with reference to the tools proffered by Risk Society theorists, I realise the difficulty of doing so given the plethora of actors involved in digital development processes. Not only does this potentially enable powerful stakeholders to avoid the responsibility for defining and managing risks (i.e., *organised irresponsibility*), but it may enable some stakeholders to amplify risks for others or to redesignate them elsewhere (i.e., *risk arbitrage*). Among other things, this raises important questions regarding how digital development processes might make things worse rather than better – or how it might introduce or exacerbate inequalities – and where responsibilities for avoiding collateral outcomes might lie.

While some of the concepts developed by Risk Society theorists are useful for defining risks and understanding the difficulties of assigning responsibilities in risk management, the theory is less appropriate for unpacking collateral outcomes and gaining an understanding of the 'something we value' in my definition of risks. In other words, it does not explain what it is that is being 'risked' in digital development processes: what are the changes that digital development processes want to achieve, or what are the developmental objectives that are strived for when investing in digital development processes?

To better understand and unpack these developmental objectives, responsibilities, and potential outcomes, I rely on insights from selected heterodox development approaches. I use Chambers' notion of *responsible well-being* (1997) to define 'something we value' in my definition of risks, which then becomes *uncertain outcomes with respect to responsible well-being.* A focus on well-being incorporates livelihoods and capabilities and thus emphasises individuals' agency and right to choose to lead the kinds of lives they want to lead, but it is qualified by principles of equity and sustainability. It also applies to all, meaning that a responsibility arises to ensure that (individual) well-being does not infringe collective well-being (a notion emphasised by the *ubuntu* philosophy). Given the persistence of neoliberal and/or modernisation notions that influence development, however, I also draw on a developmentality approach, which enables a more critical (yet still constructive) perspective of the *responsibilities* that development actors and others have in the conduct of development, or in working toward well-being by and for all.

Since Chambers does not explicitly provide for the complex interplay between the social and digital dimensions of responsible well-being, I draw on the notion of socio-digital inequalities (Helsper, 2023) to conceptualise the role(s) of digital technologies in these development processes. Defined as 'systematic differences between groups, countries, and regions in the opportunity and ability to engage (or to decide not to engage) with ICTs in ways that facilitate beneficial outcomes across all domains of everyday life while avoiding negative outcomes for yourself and others now and in the future' (Helsper, 2023, p. np.), this concept provides me with useful terminology for theorising inequalities of outcomes and of opportunities. It is also useful for developing an

approach for defining the social and digital dimensions of digital development risks, which is particularly important for my empirical work, as is discussed in Chapter 4.

When unpacking these social and digital dimensions, my conceptual framework recognises that digital development risks will be defined and managed differently depending on whether it is experienced or dealt with at individual, collective, and/or societal levels, and will also have different consequences for diverse individuals, collectives, or societies. To more explicitly theorise these differences – which also relate to the relationships between responsible well-being, socio-digital inequalities, and risks – I add one final (and new) concept to this thesis' conceptual framework, namely *risk beneficiaries*. When individuals or communities become responsible for managing the uncertainty of outcomes associated with digital development processes, as well as for the consequences of others' (including failed or irresponsible institutions') actions or inactions in this regard (as concepts like risk arbitrage and organised irresponsibility signify), I suggest that they become *risk beneficiaries* (as opposed to or in addition to being intended beneficiaries of development). Drawing on participatory development approaches, this concept suggests that these actors are active partners, not passive clients, who become responsible – whether by choice or not – for defining and managing digital development risks.

As such, my conceptual framework's central pillars of development and risks are supported by concepts, including responsible well-being and socio-digital inequalities (development), organised irresponsibility and risk arbitrage (risk) respectively. These are connected by notions of digital development risks, developmentality, and risk beneficiaries.

Drawing on this conceptual framework, this thesis is then concerned with exploring a question, namely: *How and why are digital development risks important in shaping digital development processes?* To explore this theoretical problem empirically, I aim to investigate how the definition and management of the risks that accompany digital development processes, including socio-digital dimensions thereof, are perceived by different stakeholders, and with what potential consequences for responsible well-being. While I will not explore the latter (outcomes) directly, it is suggested that these perceptions shape the experiences of risk beneficiaries and development outcomes more

generally. This leads me to the first elaboration of my central empirical RQ as follows*: How are risks defined and managed in digital development processes?* I return to this question and the operationalisation thereof (including the development of two SRQs) in the next chapter.

3.9 Conclusion

Concerns about godlike technology, medieval institutions, and Paleolithic emotions are receiving increased attention in the global North (e.g., the Centre for Humane Technology's advocacy, section 3.1). But at the same time, and as I have argued in this and the previous chapter, these technologies are promoted for developmental purposes with seemingly little regard for potentially harmful consequences they might have in certain contexts. While this rather cynical realisation might send some down a path of post-developmentalism, or anti-development, in this chapter I argue that more nuanced and realistic perspectives of the risky opportunities that accompany digital development processes are crucial for ensuring that ICTs' affordances are harnessed for good, or responsible well-being, rather than exacerbating or introducing bads, or socio-digital inequalities.

To locate and provide such a perspective, this chapter provided an overview of the relevant theories and concepts that shape my approach to the theoretical research problem and my conceptual framework. In the first part of this chapter, I explored theoretical approaches to ICTs, risk(s), and development, and introduced two new concepts, namely digital development risk(s) and risk beneficiaries. In the second part of the chapter, I reviewed research related to digital development processes. While I found that more critical perspectives and interrogations of the uncertain outcomes of digital development have become more common, I emphasise the need for the construction of a new avenue for digital development research that explicitly examines the definition and management of digital development risks. In the third and final part of this chapter, I set out the conceptual framework which addresses this priority and frames this thesis. The framework weds two central concepts (risk and development), and emphasises the importance of defining and managing digital development risks to

support developmental objectives (defined in terms of responsible well-being and socio-digital inequalities).

Drawing on this framework, I defined my central research question, the operationalisation of which is detailed in the next chapter.

CHAPTER 4: EXPLORING UNKNOWN UNKNOWNS (METHODOLOGY)

4.1 Introduction

In the previous chapter, I developed the conceptual framework which guides my research on digital developmental processes, and that focuses on how digital development risks are defined and managed (section 3.8). I developed an overall theoretical RQ that asks: *how and why are digital development risks important in shaping digital development processes?* I suggested that, when investigating mechanisms that not only shape how ICTs interact with development but that are accompanied by risks, it is crucial to embrace an understanding of risks (and change) as occurring ambiguously, and shaped by both social (e.g., context) and digital (e.g., the design, purpose, and modalities of use) dimensions. This idea functions as an epistemological starting point for this chapter and the investigation of my primary empirical RQ, namely: *How are risks defined and managed in digital development processes?*

Given that there is a tendency to avoid specifying the research philosophies that shape research in much of the digital development research tradition (Heeks & Wall, 2018), it is especially important to be explicit about the ontological, epistemological, and methodological assumptions that underlie my work (Cresswell, 2013). In doing so, I also explain the underlying rationale for crafting my approach and the steps I took to assemble it.

This chapter is constructed as follows. In the first section (4.2), I set out the critical realist epistemological approach that informs the analysis of my empirical RQ, followed by the elaboration of my SRQs (section 4.3). In section 4.4, I discuss how these SRQs were operationalised in the project's research design, before explaining my choice and use of qualitative methods to address the SRQs (section 4.5). I then describe my sampling and data collection strategies (section 4.6), before setting out how I analysed the collected data and how my epistemological positioning shaped this analysis (section 4.7). I conclude the chapter by describing how I approached and addressed relevant ethical considerations (section 4.8).

4.2 Epistemological positioning

Given that risks are connected to *a lack of* (or disputed) knowledge or 'unknown unknowns'[61] (see section 3.3.2), questions about how I treat data and obtain insight into digital development risks are somewhat ironic (as the title of this chapter also implies). This aside, I explain the position from which I addressed my principal RQ in this subsection.

While an investigation of ICTs in terms of materiality and affordances (section 3.2.1) might seem to position my project between constructivist and realist approaches, I situate this thesis in a critical realism paradigm which underpins my understanding of risk. A critical realism approach offers a 'third way' between positivism as 'useful but not true' and constructivism as 'true but not useful' (Heeks & Wall, 2018, p. 2) by arguing that ontology is not reducible to epistemology. It thus steers towards a 'new ontology' (Bhaskar, n.d., p. np.) by seeking to identify possible 'causal' processes when mapping the ontological character of social reality. It does so while embracing ambiguity: it looks for tendencies rather than laws and acknowledges that phenomena might be theory-laden, but not theory-determined (Fletcher, 2016). Critical realists argue that theories proffer partial ways of understanding the world: 'the social world is not closed like a laboratory but open to a complex array of influences which change both temporally and geographically, often in unexpected ways' (O'Mahoney & Vincent, 2014, p. 4).

Once knowledge is gained from this perspective, it is used to inform action (Edwards, O'Mahoney, & Vincent, 2014). This is also where the *critical* dimension of this epistemological position is engaged (Edwards et al., 2014), because knowledge gained should be used to critically engage with the conditions (in my case, perceptions of the definition and management of digital development risks, associated processes, and people's reflections on these processes) that are likely to lead to unequal outcomes (in my case, for socio-digital inequalities, responsible well-being, and risk beneficiaries) (Fletcher, 2016; Heeks & Wall, 2018). Critical realists thus not only seek to explain and critique social mechanisms, processes and conditions, but want to change things for the

[61] This phrase is attributed to the then-US Secretary of State Donald Rumsfeld in 2002, when he responded to requests for evidence that Saddam Hussein supplied weapons of mass destruction to terrorist groups.

better (Ackroyd & Karlsson, 2014) – echoing Chambers' definition of development as 'good change' (2005, p. 184, see section 3.4.1).

Practically, critical realism is concerned with the nature of causation, agency, and structure (Clark, 2008). Thus, consistent with some critical realism approaches, my research was designed to emphasise not only human agency and the relevant contexts within which knowledge is gained (O'Mahoney & Vincent, 2014) and risks are defined and managed, but to understand stakeholders' reflections on potential explanations for the relationship between risks, socio-digital inequalities, and responsible well-being. When applied to my research problem, this means I examine perceptions of and reflections on the potential implications of digital development processes in specific contexts, thus eliciting insight into the agendas and motivations that underlie decisions to adopt, use, or opt not to use certain ICTs while also looking for patterns and tendencies (Edwards et al., 2014).

This approach therefore aligns with my positioning of this thesis alongside studies of the developmental outcomes of ICTs, though (as noted) it is not a thesis about outcomes *per se,* but it is concerned with digital development processes, the risks that accompany them, and scope for policy intervention at a meso or institutional level. I choose this level of analysis given my interest in the reflections and perceptions of stakeholders and institutions (groups and organisations) involved in digital development *processes* with the expectation that this level of analysis would also provide insights into micro (individual) and macro (societal) levels (Serpa & Ferreira, 2019, p. 123).

I set out my empirical research questions in the next section, before explaining how I designed the research and operationalised the questions as well as my methods. In section 4.7, I also elaborate on how data was treated and interpreted in accordance with this critical realist positioning.

4.3 Elaborating research questions

As a reminder, my overall RQ is: *How and why are digital development risks important in shaping digital development processes?*

The primary empirical RQ I want to consider, in relation to digital IDs (as an example of digital development processes), is: *How are risks defined and managed in digital development processes?*

For both of these questions and in line with the conceptual framework I developed in Chapter 3, *risks* are understood as *uncertain outcomes with respect to something we value, namely responsible well-being.* Drawing on this definition, *digital development risks* are viewed as *the uncertainty of digital development processes causing, contributing to, and/or exacerbating uncertain outcomes with respect to responsible well-being.* The use of the term *digital development risks* in my overall RQ enables me to explore to what extent this is a useful construct for critically engaging with development processes and related outcomes. As I explained in section 3.5, I am interested in how these risks are defined and managed, and/or to what extent (if at all) stakeholders are concerned with the collateral consequences of these processes (also for risk beneficiaries). Furthermore, I include the notion of *uncertain outcomes* in these definitions in order to provide for the possibility of positive (i.e., opportunities) and negative (i.e., harms) dimensions of risks and, as I explain below, I will use a socio-digital approach (drawing on Helsper, 2023) to categorise these risks into their social and digital dimensions. I use Chambers' concept of *responsible well-being* (1997) to construct positive (developmental) outcomes by understanding the obligations we have to others (both now and in the future) and their quality of life. *Digital development processes*, in turn, are defined as the design, financing or funding, and/or deployment of ICTs for development purposes. See Chapter 3 for further elaborations of these concepts.

I developed two interconnected secondary RQs (as SRQs) aimed at understanding stakeholders' perceptions of the risks that accompany digital development processes in general and digital IDs in particular, as well as what actions and (policy) interventions are undertaken to respond to these risks. These are:

SRQ1: How do stakeholders perceive of and define risks in digital ID processes?

SRQ2: How do stakeholders manage (mediate and mitigate) risks in digital ID processes?

In SRQ1, *define* is used to relation to reflections and *perceptions of uncertain outcomes in (a) specific context(s)*, or how risks are identified, understood, referred to, engaged with, and/or unpacked, whether explicitly or implicitly (see section 3.3.4). Once risks are defined, it is presumed that stakeholders might want to do something about them (or they might, indeed, choose not to take any action, or to designate the responsibility for taking action elsewhere). SRQ2 is designed to understand how stakeholders manage risks, i.e., *the actions taken or not taken to manage (including mediate and mitigate) the uncertain outcomes of digital development processes in a specific context* (see section 3.3.5). *Stakeholders*, in turn, are understood to include anyone or anything that play(s) some role in digital ID/development processes, including relevant individuals or entities from the public and private sector, technical community, civil society, and both users and non-users of ICTs.

I am particularly interested in how these stakeholders as members of institutions (i.e., at a meso level) reflect on and perceive of digital development processes at an institutional level of analysis. Given my primary interest in institutional-level interactions, however, I only explore users' and non-users' perceptions (i.e., the micro or individual level) indirectly. I focus on this level of analysis given my interest in understanding broader perspectives on digital development risks and the ability to discern possible trends in how these risks are defined and managed at an institutional (meso) level. This does not mean, however, that individual or, indeed, societal factors are not important to this thesis and I refer to these in my analysis. As such, I recognise that institutions are comprised of various actors or stakeholders, opinions, and strategies. My analysis does not attempt to encompass all views, but rather aims to gain a sense of overall views as viewed through the reports of a selection of respondents.

By incorporating, in my analysis, the perspectives of stakeholders occupying different positions in digital development processes, I therefore intend to develop an

understanding of trends discernible in defining and managing digital development risks while emphasising the complexity and multi-dimensionality of everyday negotiations of risks (Mythen, 2004) within these institutions. I, therefore, also focus on various 'types' of stakeholders for different cases, and investigate socio-digital dimensions of risks, including *digital development risks* (defined above). These risks are understood to be introduced, exacerbated, and/or alleviated by the conduct of development, or the actions (development) stakeholders report to take (or fail to take). These actions are purposefully interpreted broadly to encompass stakeholder perceptions of any direct or indirect interventions, including design or policy interventions, that can shape unequal experiences with digital development risks.

This interpretation draws on Helsper's notion of socio-digital inequalities (see section 3.4.3). Rather than consider social and digital dimensions of risks as distinct categories, however, I consider them on a continuum (i.e., *socio-digital dimensions of risks*). This approach reflects the significance of contextual considerations when risk definitions are concerned, as well as the fact that risk perceptions differ depending on the societal, collective and/or individual level at which resultant harms or opportunities (of risk) might be experienced (see section 3.4.4).

As I explain in the next section, I opted for a case study approach to explore these questions. While the processes I investigate are not directly observed, case studies can enable the identification, isolation, and examination of the '*operation* of mechanisms' (Ackroyd & Karlsson, 2014, p. 24). Before I elaborate on the operationalisation of my RQs, I explain my research design and how it was developed in the next section.

4.4 Research design

4.4.1 Case study

The research design I employed to investigate my empirical questions was developed around a case study approach. This design enabled me to apply and will be shown to enable me to refine my conceptual framework to provide (at least partial) explanations

for complex phenomena such as digital development risks in specific, real contexts (Thomas, 2011). This approach demands the in-depth empirical investigation of one or a small number of phenomena to both understand the case(s) and to 'elucidate features of a larger class of (similar) phenomena' (Vennesson, 2008, p. 226).

Given my claim that digital development risks are common in the real-world phenomena of digital development processes, a single-case design – in this thesis, on the use of digital IDs for developmental purposes in Africa – is a useful approach (Yin, 2018) for illuminating relevant processes at different levels. I augmented my case study with a nested case study – on contact-tracing apps in South Africa – in terms which complement my overarching case study. The use of a nested case study enabled me to examine these processes and my SRQs at a different level by focusing on a specific digital development process in a particular context and at a certain point in time, including the socio-digital dimensions of risks involved. As such, it enabled me to consider a variety of aspects of digital development risks at different levels, which can be understood at an institutional level of analysis.

In the next subsection, I explain my case selection and approach to 'bounding' the cases (Yin, 2018, p. 30) while ensuring that the cases serve as 'a case of' (Mair, 2008, p. 179) my research problem, namely, digital development processes and the risks that accompany them.

4.4.2 Casing

Because digital development processes are common in global majority contexts, I could pick from a plethora of potential cases of digital interventions that are accompanied by digital development risks. To contain my choices, I considered a number of cases with reference to parameters imposed temporally, spatially, in terms of levels of analysis, appropriateness to my conceptual framework, as well as accessibility (of the case and relevant data) (Beach & Pedersen, 2018; Della Porta & Keating, 2008; Raign, 1992).

Based on these factors – and guided, also, by topics that piqued my interest while being feasible to deliver (see section 4.8.1 below) – I selected the promotion of digital IDs for

developmental purposes in Sub-Saharan Africa as a subject for a study of how the socio-digital dimensions of digital development risks (the object) are defined and managed in my overarching (or initial) case.

Digital IDs 'for development' in Africa

As mentioned in section 3.2.2., digital IDs 'lie at the heart of the social contract' between the state and individuals (Gelb & Metz, 2018, p. 7). As important tools of governance (Bennett & Lyon, 2008; Breckenridge, 2021; Breckenridge & Szreter, 2012; Dalberto et al., 2021), digital IDs can serve to 'advance particular social goals' (Bennett & Lyon, 2008, p. 13), but can also have problematic consequences. In this regard, the historian Breckenridge has written fascinating accounts of the ways that some African states have used registration techniques to fulfil gatekeeping functions (2021; 2014; 2012). As 'infrastructure of citizenship' (Breckenridge, 2014, p. 8), digital IDs and their analogue predecessors and counterparts have played lamentable roles in directly or indirectly facilitating gross travesties on the continent, from South Africa's apartheid (Breckenridge, 2014; Minkley, 2019) to Rwanda's genocide (e.g., Piton, 2021)[62] – among other examples.

Attempts to digitise certain aspects of identification processes for developmental reasons on the continent are interesting as a case study because many efforts to digitise (parts of) existing, reportedly weak forms of registration tend to ignore both these histories (Breckenridge, 2021) and the significance of identification processes as the 'lynchpin' of (civil) rights and obligations (Szreter & Breckenridge, 2012, p. 1). Like the other ICTs that digital IDs develop alongside (Southwood, 2022) (see section 3.2.1), digital IDs can be understood as 'instruments of power' (Bennett & Lyon, 2008, p. xii) that can introduce, facilitate, alleviate, or exacerbate both positive and negative outcomes (Addo & Senyo, 2021; Dalberto, Banégas, & Cutolo, 2021; Manby, 2020; Martin, 2021; Piton, 2021) depending on the context.

[62] In Rwanda, seemingly innocuous identity registers, coupled with the technologies used to facilitate registration, enabled the identification of Tutsi people, thus playing a rather significant role in one of the most tragic instances of genocide in the past century. In South Africa, identification documents (IDs) like the *dompas* facilitated racial segregation policies and related atrocities associated with apartheid.

For my overarching case, I decided to explore the use of digital IDs for developmental purposes in Sub-Saharan Africa.[63] Identification processes are not new: most societies have developed systems to establish that their populations 'are who they say they are' (Bennett & Lyon, 2008, p. xi) – and thus have access to some public or private services while being obliged to meet certain obligations. Yet the use of *developmental digital* IDs is a more recent development (e.g., Gelb & Metz, 2018). The potential outcomes of digital IDs are still poorly understood in development contexts (Gelb & Metz, 2018) and, unfortunately, these processes' parallels with other digital development processes and related literature (including research into outcomes and consequences of more established processes) are largely under-explored (see section 3.8).

While various actors are promoting developmental digital IDs on the continent for a variety of different purposes due, in part, to the definitional flexibility facilitated by the SDGs (Manby, 2020) (see section 3.6.2), I decided to focus specifically on the ways in which different *development* stakeholders promote various types of digital ID[64] for a plethora of purposes ranging from planning to economic empowerment, depending on their respective mandates or interests. Given my principal RQ, I was particularly interested in how digital development risks are framed in this case.

Timeframe

Since my empirical work is partially aimed at gaining a general understanding of (development) change over time, the timeframe for my overarching case study was loosely constructed to focus on perceptions gathered over the period of time when I planned to do interviews (namely January 2021 to early 2022). While it coincided with the ongoing Covid-19 pandemic, my subject (for this case, at least) was not contained to specific responses to the pandemic.

It was, nevertheless, a particularly interesting time given that the pandemic did not only expose the devastating and highly unequal nature of development processes both within and between countries (Nyabola, 2022; Oldekop et al., 2020), but it accelerated digitisation processes in most parts of the world (Donner, 2020; ITU, 2020; Souter &

[63] For ease of reference, I refer to Sub-Saharan Africa as Africa in the remainder of this thesis.
[64] See fn. 7.

Van der Spuy, 2021). Various stakeholders promoted the potential of ICTs to mitigate the socio-economic implications of the virus (e.g., UNDESA, 2020); with digital 'solutions' featuring broadly in food delivery, disease surveillance, digital payments, and remote schooling, for example (e.g., Donner, 2020; Taylor, Sharma, Martin, & Jameson, 2020). The potential of using digital IDs for diverse purposes during the pandemic was also widely lauded, including for facilitating aid and targeted healthcare, tracking people under lockdown conditions, and/or tracing contact with the virus. Even after most of the pandemic-related restrictions on movement and social interaction were lifted, many of the digital interventions proposed during this time of crisis have remained in place (Chafetz, Zahuranec, Marcucci, Davletov, & Verhulst, 2023; Zahuranec, Chafetz, & Verhulst, 2023).

A potential complication with this case was its breadth. I addressed this concern by nesting or 'embedding' another case within this one in order to enhance my insights into the overarching case. This so-called *matryoshka* (or nested wooden dolls) approach enabled me to travel through macro, meso, and micro levels – although I maintain a principal focus on the meso level – in order to examine the factors that shape perceptions of the socio-digital dimensions of risks. While retaining my purposeful embrace of ambiguity (section 3.5), this approach also enabled me to gain insight into how 'external', macro, and/or global tendencies in development might shape policy developments at various, including local, levels (Chong & Graham, 2013) – and vice versa.

The nested case was (1) situated in South Africa during (2) the Covid-19 pandemic and was particularly concerned with (3) the use of a type of functional digital IDs, namely contact-tracing apps, to respond to the pandemic-related crisis.

In respect of (1), I acknowledge concerns that South Africa has almost become a 'default country to represent all of study "Africa"' (Mohammed, 2021, p. 124). Yet the locations of my case studies (Africa and South Africa) were shaped given both my origins and desire to study and potentially influence a problem (t)here. Despite its popularity as a research location, South Africa is also, as discussed in Chapter 2, an interesting case in and of itself from a development perspective given its high levels of inequality.

The Covid-19 pandemic (2) was not something I foresaw as a temporal parameter for my nested case, but as the crisis evolved, it became (as mentioned above) 'an exceptional moment' (Taylor et al., 2020, p. 9) in time for digital developmental processes while simultaneously being a rather interesting example of globalised risks (Beck & Ritter, 1992). (This is not to argue, however, that the risks associated with digital development processes are comparable or can be similarly conceptualised as the risks associated with a global pandemic, but rather that both could be seen as unique examples of the kinds of risks that Beck was concerned about in his Risk Society theory.) As I explained in section 2.1, I also decided to focus on the first six-to-twelve months of the pandemic given the salience of this period for the rest of the pandemic and state of disaster in the country (and more broadly). Pandemics act as 'an indicator and a test of social and political systems' (Chigudu, 2020b, p. 2) and are, among other things (Chigudu, 2020a, p. 197):

> *… political phenomena, as the declaration of an epidemic is almost always followed by political contests over the attention, resources and priority that said epidemic should receive. They are never only emergencies or only security threats.*

I bounded my nested case study by focusing on the development of contact-tracing apps (3), as examples of functional digital IDs – and focused on how these interventions were developed and used in the first six-to-twelve months of the pandemic. While contact-tracing apps were developed primarily as a public health response during the pandemic, their potential consequences are much broader and thus have interesting implications for perceptions of risks. As mentioned, the digital interventions imposed during the pandemic have had lasting consequences in many countries that extend beyond the crisis and its public health considerations alone. Focusing solely on the health impacts of these digital interventions thus risks missing the ways in which related processes potentially pose risks at both societal (collective) and personal (individual) levels (Chen, 2021; Tisné, 2020).

My nested case study is linked to my overarching case in that it transverses the potential risks posed by these interventions and manages to uncover risks at different levels than does my overarching case. As such, my nested case 'gains its integrity, its wholeness, from the wider case' (Thomas, 2011), and is designed to yield more detailed

insight into certain components of my RQs. By using this nested case study approach, I endeavoured to avoid the 'single-story' problem of case studies (Yin, 2018, p. 58); I did not aim to tell a story of South Africa or some other African country, but rather to tell a story about digital IDs and, more broadly, digital development processes, related risks, and scope for policy intervention in different settings and contexts.

4.5 Method

My principal method in this study is in-depth, semi-structured interviews. I contextualised the insights gained from interviews by drawing upon documentary sources (broadly construed to be from a variety of sources described in section 4.6.2 below) relevant to both of my cases (Yin, 2018, p. 110).

4.5.1 Interviews

Interviews were used as my primary method to explore the ways in which certain stakeholders who can be described as playing significant or central roles in specific digital development processes (as members of relevant institutions) interpret and make meaning of the research problem – i.e., the ways in which they reflect on and perceive of the definition and management of risks in the context of digital development processes. This method enabled participants to share details of their situation from their own, unique perspectives (and using their own words) and served as 'a uniquely sensitive and powerful method' for capturing meaning in detail (Berger, 1998, p. 57). Because I not only wanted to obtain descriptions of the management and definition of risk from stakeholders' specific perspectives, but wanted to also examine how they interpret and respond to these risks (Warren, 2002), I used this method to uncover sense at both a factual and 'meaning' level (i.e., enabling me to read between the lines) (Kvale, 2007).

More specifically, I opted for semi-structured individual interviews. Interview guides containing a basic scaffolding (Kvale, 2007) with specific themes were constructed for

stakeholder groupings to encourage participants to talk about themes of relevance to the SRQs defined in section 4.3 above (e.g., perceptions of the definition and management of risks). The operationalisation of these SRQs in the interview guides is elaborated on in section 4.5.3 below.

Participants were encouraged to share comprehensive descriptions so that I could gain an understanding of how stakeholders define and manage the risks associated with digital development processes in different ways and for the different cases. I worked on being as open and 'presuppositionless' as possible to new and unexpected phenomena by ensuring that the protocols were only semi-structured and retained scope for surprise (cf., section 4.5.1). More importantly, in trying to delve into meaning (rather than just factual depictions), it was necessary to encourage analytical rather than merely descriptive responses (using prompts and other interview tools), despite the difficulty many respondents clearly experienced when faced with such prodding (Berger, 1998). This approach enabled individuals to speak more freely about their issues, challenges, and perceptions, based on personal experience or priorities, and in a rather informal way (Flick, 2009; Mason, 2002).

Some of the interviews were also used to identify documentary sources about relevant policies and policy formulation processes, discussed next.

4.5.2 Documentary sources

While not considered a separate method for this study, I used documentary sources to derive an understanding of the contexts relevant to each of my cases; to prepare for interviews (Bowen, 2009); and to corroborate and compare data from interviews with documentary sources (Yin, 2018). When investigating risks and the experience thereof, documents were particularly useful for identifying important factors that interviewees, who were sometimes reluctant to reveal vulnerabilities or acknowledge responsibility, did not explicitly highlight (Tight, 2019).

As such, documents enabled me to facilitate a dialogue between sources in a way that helped me to gain a more holistic understanding of complex cases (Della Porta &

Keating, 2008; Gibson & Brown, 2009; Plowright, 2011). As a supplementary source, documentary sources were drawn upon as needed but were not subject to a systematic thematic or discursive analysis.

In the next section, I explain how I used my RQs to guide my empirical investigations.

4.5.3 Operationalising the research questions

Operationalising my empirical RQs involved both the construction of interview guides informed by skimming, reading, and classifying relevant content in the documents collected (Bowen, 2009). The latter informed my interview questions, and my interview guides also subsequently shaped my selection and reading of documentary sources, as is elaborated upon below. In keeping with my critical realist positioning, these interview guides were developed in a way that provided necessary structure that could enable me to explicate events, social and digital structures, and processes relevant to understanding risks, as well as the agency of stakeholders and their relevant perceptions (Brönnimann, 2022, p. 2).

A pilot interview guide informed the final interview guides (one guide for each case) that I eventually developed.[65] Based on my experience with the pilot exercise, the interview guides were kept relatively short, with the questions being deliberately phrased in as open and neutral a way as possible. (While not included in the guide, follow-up or prompt questions were asked during the interviews where needed.) Appendix IV contains a list of questions that were included for the overarching case, and Appendix II lists the questions used case. Both of these appendices include notes to explain how each of the interview questions relate to my RQs. For both of my cases, the interview guide questions also included brief introductory questions designed to set the scene, elicit background information about respondents, and encourage respondents to

[65] I tested a guide for the nested case (Appendix I) in an interview with a private sector stakeholder involved with the development of an identification authentication application used to identify food donation recipients during the pandemic. Given movement restrictions at the time (April 2020), the interview was conducted via Zoom. I explained that this was an informal, pilot interview, and assured the respondent of the confidentiality of the discussion.

talk freely about what they know. These were followed by questions more specifically relevant to the RQs.

I also included some questions to gain a broader understanding of my empirical RQ, namely: *how are risks defined and managed in digital development processes?* I did so less for the nested case study than for the overarching case study, which was, by design, less focused on specific examples, and more interested in overarching development *processes* (for which I focused on an organisational level). The interview guide for the nested case study thus only contained two questions (of 11 questions in total) that were relatively broad, while the guide for the overarching case included five broad questions (of 10 questions in total). For the latter, the interview guide contained a number of questions to investigate respondents' experiences with digital development processes in general, and the ways in and reasons for which respondents and/or their organisations might be promoting digital IDs for developmental purposes. I also explored respondents' reasons (agendas) for promoting digital IDs on the continent and tried to ascertain what respondents' perceptions of the motivations behind these digital interventions were. Overlapping questions (asked in both protocols) aimed at revealing the partnerships involved in promoting digital IDs and contact-tracing apps respectively.

These questions also to some extent related to my first SRQ, namely: *how do stakeholders perceive of and define risks in digital ID processes?* To gather more specific input regarding SRQ1, I included questions to explore the notion of risks (not named as such) and how it is perceived and defined by stakeholders. Partly due to my experience with the pilot exercise, I steered away from directly asking questions about potentially laden or confusing words (like risks), and instead enquired about respondents' perceptions of potential impacts, outcomes, or consequences that they planned for interventions to have or tried to avoid, and introduced the notion of risks by asking about uncertain or unintended outcomes. In both guides, the questions relevant to SRQ1 were purposefully broad to gain a general overview of stakeholders' perceptions of processes, related risk(s), and other factors, without being leading or prescriptive.

Finally, in both interview guides, questions were included to elicit respondent observations about the steps they and other actors take to manage (respond to and/or

mitigate) the risks of digital IDs and contact-tracing mechanisms respectively. These questions addressed SRQ2, which asks: *How do stakeholders manage (mediate and mitigate) risks in digital ID processes?* For the overarching case, I included questions in the interview guide to prod respondents about the responsibilities of organisations and development actors to mitigate risks, and asked about governance mechanisms (broadly construed) and policy interventions that exist to mitigate potential harms. The latter question – which aimed to examine perceptions of the scope for policy intervention, legislative frameworks and their enforcement, and/or other measures and mitigations (including design) – was also included in the interview guide for the nested case. These questions were important for exploring whether stakeholders perceived existing governance mechanisms to be useful for the protection of especially vulnerable communities from related risks. For the nested case, I also asked a question to gain general feedback on what the respondents thought they might do differently in the future if they were involved in comparable digital development processes.

My documentary sources were particularly useful for formulating interview questions relating to SRQ2, and I also used them to prepare for individual interviews. Since different types of stakeholders were interviewed who were involved in distinct phases of the digital development processes explored in my nested and original case studies, the guides were tailored for different groups of stakeholders (where necessary) to ensure relevance. For each respondent, I did extensive background documentary research to adjust my questions to their expertise and involvement or role in the digital development process concerned. While all the interviews, therefore, covered the same questions, they did so in different ways by drawing on documentary sources, and I sometimes asked additional questions based on my background research of the respondent and the organisation they worked for.

Appendix V contains an example of one such interview guide used to interview the director of a digital ID advocacy group in Africa (for the overarching case). As can be seen from this example, the number of questions in the guide was expanded (from 10 to 19 questions), but many of the questions were prodding questions to follow up on potential responses. In most cases, they were not needed in the interviews; given the level of expertise most respondents had, they generally spoke without the need for much prodding. Appendix III, in turn, contains an example of how the nested case's interview

guide was tailored for a specific respondent based on background research into them and their organisation.

My choices for sampling and data collection are discussed next.

4.6 Sampling and data collection

4.6.1 Interviews

For both of my cases, the focus of respondent recruitment was broad in order to gather the input of a variety of stakeholders who experienced or played a central or significant (or 'expert') role in the digital development process concerned, as members of relevant institutions engaged in these processes. Given the qualitative nature of the project, a theoretical, nonprobability procedure was used to select participants, and a snowballing technique enabled the identification of further participants during fieldwork. Additional respondents were identified with reference to prior knowledge in the field, from names of individuals and organisations gathered during the literature review and documentary collection, based on advice from colleagues, and via introductions by other respondents. Despite the broad approach to selecting interviews, I actively constructed a balanced sample reflecting different perspectives, priorities, and conflict of interests.

For the overarching case, I focused on interviewing senior or 'expert' stakeholders from the development community[66] responsible for promoting and working on digital IDs for development purposes on the continent, including actors from development and intergovernmental organisations (IGOs), consultants for IGOs and other entities, and relevant non-governmental organisations (NGOs) promoting digital IDs and/or digital transformation on the continent. Most of the stakeholders interviewed continue to or filled fairly senior or expert positions at relevant organisations and institutions – including senior programme officers, economists, or consultants from relevant

[66] This term is broadly defined to encompass not only development actors working for large IGOs, but also NGOs and CSOs that promote the use of digital IDs on the continent.

departments at the World Bank and other UN organisations, senior managers from and consultants to Smart Africa, and individuals responsible for developing humanitarian organisations' responses to digital risks (including the ICRC and UNHCR). Not only is their seniority and experience important as potentially key informants, but many of these respondents were selected because they could offer unique insights into the case study concerned.

While many of these interviewees are based in Africa (and are African), some are also based with global IGOs in Europe and the USA. A breakdown of the sample of 14 interviews for my overarching case, which includes a profile for each interviewee, is included in Table 4.1. Note that the asterisk indicates partial or full anonymity conditions, which is reflected in the text.

Table 4.1: List of interviewees for overarching case.

Name	**Organisation**	**Role (and note if relevant)**
Bharat Nanawati	UNECA	Consultant
Catherine Lephoto	VX Technologies	*Executive Director Sales – Africa for VX Technologies (previously: Lesotho National Covid-19 Secretariat (NACOSEC), Deputy CEO) (also relevant to nested case)*
Delphine von Solinge*	ICRC	Protection Advisor on Digital Risks for Populations in Armed Conflict
Emmanuel Khisa	Smart Africa	Project Manager - Digital ID & E-payments
Hanae Bezad	Smart Africa	Consultant
Jaap van der Straaten	Independent	Consultant – economist (previously: World Bank ID4D consultant)
Jan Krewer*	Smart Africa (etc)	Consultant
Jonathan Marskell	World Bank ID4D	Senior Program Officer
Joseph Atick	ID4Africa	Executive Chairman
Julia Clark*	World Bank ID4D	Senior Economist
Karl Steinacker *(interview not recorded)*	Digital Equity Foundation	Founder (previously UNHCR)
Mawaki Chango	Independent	Consultant
Ralph Oyini Mbouna	Smart Africa	Head of Digital Transformation, Innovation and Services
Valerie Khan*	Digital Equity Foundation	Co-Founder and Vice President (previously: World Bank, WFP)

The most significant challenge that emerged for the overarching case was a lack of focus and depth in terms of context that interviewees could provide. As mentioned, this was foreseeable and addressed through the inclusion of my nested case study.

For the latter, I interviewed mostly senior or 'expert' stakeholders centrally involved in different development phases (broadly construed) of the contact-tracing apps deployed during the Covid-19 pandemic in South Africa. As for the overarching case, these respondents were selected not only on the basis of their seniority or 'expert' positions, but due to the central or important roles they potentially played in the phenomena under investigation for the nested case, or for their unique views and positions in this regard.

Interviewees for the nested case as such included people with technical/design expertise responsible for designing the apps; policymakers and government representatives who promoted the need for and commissioned digital interventions; private sector actors responsible for operationalising the apps; development actors at intergovernmental, global NGO or other level responsible for funding interventions; entrepreneurs involved in financing the apps; and policymakers, organisations and other institutions responsible for promoting adoption and implementation. Given my interest in perceptions of the general risks that accompany digital development processes and the scope for related policy interventions, I also interviewed stakeholders responsible for regulatory and/or policy responses to the apps, including interviewees from the Information Regulator's office (which has a function similar to that of a national data commissioner), and stakeholders who are engaged in commenting on and raising awareness of (the risks of) these interventions (including civil society actors).

While I initially aimed to do 20 interviews for the nested case study across stakeholder groups, I ended up having 16 interviews with stakeholders from government, private sector, academia, civil society, and regulatory authorities. The difficulty of interviewing especially public-sector respondents was partly as a result of the reality of the Covid-19 pandemic and the subject of my research, which meant that many of the people I wanted to interview were involved, during my data collection phase, in pandemic

responses. (I discuss the ethics of interviewing these stakeholders at this time in section 4.8 below.) A breakdown of the sample, which includes a brief job description for each interviewee, is included in Table 4.2. As above, the asterisk indicates partial or full anonymity conditions, which is reflected in the text.

Table 4.2: List of interviewees for nested case.

Name	**Organisation**	**Role**
Catherine Lephoto	VX Technologies	Executive Director Sales – Africa for VX Technologies
Chris Vick	CovidComms	Chairperson
David Lydall	CovidComms	Head of Operations
Debbie Rogers	Praekelt	CEO
Eldrid Jordaan*	GovChat	CEO
Gail Smith*	South African Human Rights Commission	Spokesperson
Gaurang Tanna	Department of Health	Head: Policy co-ordination and Integrated Planning
Jacqui O'Sullivan	MTN	Executive of Corporate Affairs
Jamie Whittaker*	Discovery	Chief Information Officer
Kungela Mzuku	Standard Bank	Innovation developer – Emerging Tech (R&D)
Maria Carpenter*	Discovery	Head of Digital Channels
Murray Hunter	Alt Advisory	Researcher
Pieter van der Walt*	Discovery	Information Officer (Data Privacy Officer)
Sizwe Snail ka Mtuze*	Information Regulator	Part-time Commissioner (since resigned)
Tina Power	Alt Advisory	Senior Associate
Varsha Sewlal	Information Regulator	Deputy Information Officer

In this regard, a few things should be noted with regards to the roles or positions of interviewees *vis-à-vis* the two cases and decisions about temporality in my analysis. First, some respondents gave insights that were relevant to both cases, although they are listed in the relevant appendices under the case for which they were originally interviewed. Second, while I primarily use the present tense for (my) ideas in this thesis and past tense for other research or explanations about the approach followed (as in this Chapter), I also use the present tense when referring to interviewees' ideas or quotations from interviews in my empirical chapters (Chapters 5 and 6). I do so both

to emphasise the interviews' relevance and to aid the following and third point, namely some respondents changed roles or positions either during or after the time periods concerned, and are sometimes quoted both in relation to their interviews with me, and by drawing on documentary sources (including news media or public webinars and hearings) in which they might have been quoted. In Chapters 5 and 6, where I do a first-level analysis of the data, references to and quotations from these respondents' interviews appear in the present tense, while quotations from documentary sources are referred to in the past tense. To avoid potential confusion, some of these instances are indicated in relevant footnotes. (I turn to documentary source collection in the next subsection.)

Interviews were mostly conducted online (due to the pandemic), in English or Afrikaans. Only one interview was conducted in-person. With the respondents' permission, most interviews were recorded. Two interviews were not recorded due to requests from the respondents. In these cases, I took extensive notes. The interviews lasted 55 minutes on average, ranging from 45 to 220 minutes. An especially long interview of 220 minutes in duration was conducted in two parts, on different days, which was quite useful as I could remind the respondent of prior answers and prod them to elaborate or explain where necessary. After completion, all interviews were transcribed using a professional transcription service, checked by me, and then analysed. Afrikaans interviews were translated by me after transcription (I used a different company that did Afrikaans transcriptions), but before analysis. To avoid losing nuance and meaning in this translation process, I retained the original responses alongside English ones to facilitate the analysis.

4.6.2 Documentary source collection

As mentioned, I used documentation to understand contexts, prepare for interviews, and facilitate dialogue between different data sources. Given the plethora of documents available (and, similarly, the diversity of definitions available for documents) (Tight, 2019) for these purposes, I prioritised written, printed and/or electronic documents that have the 'containment of text' as the primary purpose of the medium (Scott, 1990, p. 12).

A broad view of what amounts to relevant texts and documents was adopted (Scott, 2004); I collected a significant number of documents, ranging from media articles to the minutes of meetings and hearings, declarations, assessments, technical reports, civil society reports, press releases and website copy, and social media posts. Because of my interest in policy interventions and risk management strategies (SRQ2), I also collected policies and information about policy formulation processes. Policies, in this regard, were understood as processes that bring certain ideas into practice, rather than as discrete entities (Ward et al., 2016). For the nested case study, I collected social media posts and other official communiques (including official documents, press releases and speeches) to compare with insights from interviews. (As noted in the previous section, references to and quotations from documentary sources are primarily used in the past tense in Chapters 5 and 6.)

I identified relevant documents by considering sources that were relevant or applicable to digital IDs and contact-tracing apps, and published in South Africa (nationally, regionally and/or at provincial level) and/or at the continental level. To reduce the number of documents, I focused primarily on documents pertaining to these themes and, for the nested case, published in the context of the first six-to-twelve months of the Covid-19 pandemic. For the overarching case, I considered documents published since the *UN Sustainable Development Agenda* (UNGA, 2015), given that these goals are said to have 'framed international development policies' since their adoption (Willis, 2021, p. 1).

Because I was primarily interested in documents that were publicly available, I first used Google as a search engine to collect data. For the nested case, I worked with the search terms 'Covid-19' AND 'contact-tracing application (app)' AND 'South Africa', and for the overarching case, I used the search terms 'digital identity' AND 'ID development' AND 'Africa'. Closely related terms or synonyms were also tried in searches (e.g., pandemic, digital ID, ID ecosystems, foundational ID, functional ID) to ensure relevant articles that met the inclusion criteria were identified. Google searches were halted once a saturation point was reached, which was when no further relevant documents could be found.

I expanded the search by reviewing the reference list of the documents found in my Google search (where appropriate), and I also scoured the websites of relevant organisations involved in the respective digital development processes in both cases. For South Africa, for instance, I spent a lot of time going through Discovery Health's (Discovery's) website for press releases and similar statements, whereas for the overarching case I reviewed events and documents hosted on the websites of organisations like SmartAfrica, the World Bank, and ID4Africa. Lastly, some documents were also obtained through serendipitous routes, such as personal recommendations and chance finds (Allmark et al., 2009).

4.7 Data analysis

As explained in section 4.2, my epistemological positioning determines my interest in better understanding reflections on and perceptions of the definition and management of risks. The critical realism approach that shapes this research should enable me to gain a better understanding of how and *why* digital development risks might have certain consequences for digital development processes (see Sturgiss, 2020), as perceived and reflected upon by the stakeholders involved in these processes.

A critical realist approach to data and how it is interpreted means that I accepted that there will be differences between the 'empirical, the actual and the real' (Easton, 2010, p. 124). My goal, when interpreting the data, is to determine whether there are 'causal' mechanisms involved which can explain how and why digital development risks are important in shaping digital development processes. To do so, I use a staged approach to my data treatment and analysis, drawing on an approach proposed for research based on critical realism (Danermark, Ekstrom, Jakobsen, Karlsson & Bhaskar, 2001, pp. 109-110). In Chapters 5 and 6, I undertake a first-level thematic analysis with the aim of explaining and describing perceptions of relevant stakeholders. I proceed to do a second, deeper and analytical phase in Chapter 7, where I unpack different findings in their component parts. Finally, in Chapter 8, I interpret and contextualise these findings in the context of my conceptual framework (Chapter 3) in order to develop my

initial ideas of the objects of study in my conceptual framework with reference to new contexts or ideas (from Chapters 5, 6, and 7).

More specifically, and given my epistemological interest in 'causal' processes, I used thematic analysis to gain a richer understanding of my cases and perceptions of relevant processes contained therein, all of which involved relatively complex phenomena being observed at an institutional (meso) level (Easton, 2010, p. 123). Informed by my review of documents that provide relevant context, this thematic approach helped to derive meaning from the cases by identifying and describing (implicit and explicit) ideas or themes 'in rich detail' (Della Porta & Keating, 2008, p. 31). Some themes were anticipated, while others were identified when analysing the transcripts and in reference to the insights gained from reading the documents collected (Ayres, 2008). Due to my interest in understanding stakeholders' perceptions and definitions of risks, including the socio-digital dimensions thereof, as well as respondents' responses to managing same, I also identified nuances and connections between themes.

These nuances, in turn, helped me to engage critically with the data and to look for possible 'causal' mechanisms, as required by my critical realist positioning. In respect of the latter, the ways in which I developed interview guides provided structure that enabled me to explicate agency, events, relevant structures, and processes (Brönnimann, 2022, p. 2) – as mentioned in section 4.5.3 above. This approach means I recognise that even if I interviewed individual agents or stakeholders, they formed part of institutions with shared interests, goals, and responsibilities (i.e., the macro perspective discussed in section 4.2). Together, also through the development processes they participate in, these stakeholders may change existing social structures and cause or contribute to change over time (Brönnimann, 2022, p. 5). As such, I focus on *perceptions of risks* in my empirical analysis and handling of data because of the need to emphasise individual and collective agency and contextual factors in shaping, defining, and managing risks (cf., section 3.8).

Similarly, this critical realist approach to thematic analysis also acknowledges that only some phenomena in the world are observable. Wiltshire and Ronkainen use the metaphor of a flower viewed from above to explain that reality (in this case the

potential outcomes of digital development processes) cannot always be observed or apprehended directly because it is processed through 'our brains, language, culture, methods and so on' (2021, p. 162): while the flower's petals (the empirical domain) are relatively observable and clear, the rest of the flower (the actual domain) is harder to see. Similarly, while we know how important the soil or even the insects that make it their homes in the flower or its soil are (the real domain), it is almost impossible to directly observe (Wiltshire & Ronkainen, 2021, p. 163) – though no less important to how the flower flourishes or not.

Together, my theoretical and empirical RQs were designed to provide insights into the nuances of these different 'levels', and thematic analysis as a method was useful for identifying both surface (or superficial) and deeper nuances in the data. It not only enabled me to capture the empirical world, but it also allowed me to engage more creatively with relevant themes, concepts, and theories in an iterative manner (cf., Wiltshire & Ronkainen, 2021, p. 175).

While my use of interviews and documentary sources was a useful approach for providing a rich diversity of experiences and perspectives and insights into these processes, it also produced enormous amounts of material to review, transcribe, and analyse (Berger, 1998). This challenge was dealt with by using professional transcription services and NVivo software to aid my analysis.

As a starting point, I used the overarching themes that originated from my (theory-driven) RQs, my reading of documentary sources, and that were contained in my interview guides to code each transcription individually using software (NVivo). As I worked through transcriptions for the different cases, I started refining my codes by identifying patterns and consolidating or removing codes until I was satisfied that my codebooks (one for each case) were telling useful stories relevant to my RQs – informed by a parallel reading of the documents which gave rise to insights into how to interpret my corpus and to organise my themes. While sometimes frustrating in its messiness, this iterative process enabled me to identify concepts, processes, and overarching patterns of experience by which these were manifested (Ayres, 2008).

For the initial case, I identified four overarching themes in my codebook, namely: digital IDs, risks, institutional realities, and specific examples. The first three of these themes were further divided into sub-codes, namely:

- Digital IDs: about digital IDs; digitisation and IDs; and history and development; African context; and motivations and agendas.

  After I started coding, I sub-divided some of these codes on the basis of frequently-occurring groups of themes, namely:

  - History and development (of digital IDs): 9/11; Aadhar; Covid-19; datafication/digitisation; entry of new actors; SDGs; post-WWII migration rules.
  - African context: Africa's digitisation agenda; the role of the AU; and South Africa (to feed into nested case if appropriate).
  - Motivations and agendas: conflicts of interests; dependency structures; dictating agendas; positive outcomes; reliance on foreign expertise; ulterior agendas; and unique challenges.

- Socio-digital dimensions of risks: understanding risks; risk assessments; types of risks; distribution of risks; responses to risks. Again, I further subdivided these codes when appropriate, namely types of risks (related to digital development processes), and responses to risks.

- Institutional realities and PPPs (involved in the digital development processes concerned): the actors; risks and problems; and terms and conditions.

The latter two of these overarching codes proved useful for understanding how stakeholders define the risks that accompany digital IDs as an example of digital development processes (SRQ1), along with unearthing explanations for the variety of factors that can shape the management of these risks (SRQ2). Themes identified within the first overarching code (digital IDs) were, in turn, useful for gaining a general understanding of digital development processes in the context of the case as well as for

answering my empirical and theoretical RQs. They also provided background and context for understanding SRQ1 and SRQ2.

The fourth overarching theme, namely specific examples, was added after I had coded the first few interviews and it became clear that a significant number of interviewees (and documents) were regularly referencing some of the same examples, namely Aadhar, Smart Africa, and the World Bank. I decided to include specific code categories for these examples as I realised it might be interesting to include them as vignettes in my empirical chapters, or it might be useful as a resource for future research.

For the nested case, I identified more overarching themes than for the initial case, namely: the context; digital development processes; Covid-19 digital responses; perceptions of consequences; mitigation strategies; zooming out (linking to overarching case); and potential conclusions. With the exception of the last theme, these codes were further subdivided into:

- Context: existing inequalities; external influences; history; institutional capacities; policymaking processes; and pandemic peculiarities. This theme was useful for understanding the (social) context, as well as setting the scene for the nested case.
- Digital development processes: diverse stakeholder perceptions; PPPs; and the role of big tech. This code was useful for delving into perceptions of risks (SRQ1).
- Covid-19 digital responses: CovidAlert; CovidConnect; and other responses. This code provided context for the specific examples of digital development processes that were deployed for contact-tracing purposes during the pandemic.
- Perceptions of potential consequences: audience; general outcomes; positive outcomes; and risks. This code provided insights for understanding both definitions of risks (SRQ1) and the management thereof (SRQ2).
- Mitigation strategies: government responses; private sector; users; and other actors. This code provided insights for SRQ2.
- Zooming out: agenda-setting; different roles (with sub-themes AUC, civil society, donors, IGOs, private sector, governments); and digital IDs. This code

related to the overarching case study, but also provided insights for the distribution and management of risks (SRQ2).

After constructing these codebooks in NVivo, I moved my coded content to Microsoft Word files (separately), where I again worked through them to reorganise, merge, restructure, rename, trim, and discard (if necessary) quotations. Once satisfied, I used these files for crafting analytical narratives in my empirical chapters. To do so, I decided to identify most interview respondents in my text (unless they opted for anonymity), and also explained their relative roles as and when appropriate to understanding certain responses. In some cases, where there were agreements or disagreements between interviewees, I used descriptive terms like 'some' or 'many' to highlight patterns, commonalities, and differences.

While much of my analysis concerned the interviews, my reading of documentary materials was crucial for informing the analysis of my interview material, including the definition of themes constructed both deductively and inductively (Ayres, 2008). For example, in my overarching case, I found policies and assessments to be particularly relevant for informing my analysis of relevant digital ID initiatives on the continent, as well as to contrast interview responses to published texts. Certain documents were useful, similarly, for indicating how policy and practice differ when it comes to development actors' ostensible commitments to managing risks, as is explored in more detail in section 4.8.2 below.

For the nested case, my reading of documentary sources helped to shed light on public sector initiatives and specifically the positions taken by stakeholders at the forefront of (digital) pandemic responses, namely the DoH, the Presidency, the President (Ramaphosa), and the Minister of Health (Dr Zweli Mkhize):

- For Ramaphosa, I primarily analysed his 'family gatherings' concerned with detailing progress in the national effort to contain the pandemic, but also included a few other speeches at strategic points in time (e.g., his annual state of the nation addresses and his new years' eve message in 2020/1). In 2020, there were 18 family gatherings, in 2021, 14 such meetings, and in 2022, there were

two speeches concerned specifically with the country's response to the pandemic.

- Mkhize and the DoH's official communications were neither readily available nor well organised, especially if compared to the President's, which were all listed chronologically on the Presidency's website. Many speeches were missing from the DoH's website, and hyperlinks unavailable or misdirecting. That said, Mkhize's Twitter account featured daily tweets up to the end of May 2021, when he was implicated in a pandemic-related corruption scandal involving his department and later suspended (see section 6.3.2 b). While realising that Twitter could only provide a small snapshot of the situation, I examined these daily briefings from 15 November 2020 to 24 May 2021 (the last day that Mkhize promoted the CovidAlert app). This involved almost daily tweets in this time period from his Twitter account (whether the tweets were published by him or his aides).

In these instances, I conducted a limited thematic analysis of a selection of texts. This process entailed scanning gathered material for its relation to the themes identified when analysing the interview transcripts. I incorporated references to this documentary material in the Word files that formed the framework of my empirical chapters as appropriate. This was helpful for comparing and contrasting certain stakeholders' risk definitions and risk management processes with policies and certain documentary materials that were gathered. As noted in section 4.6.1, quotations from documentary sources used in Chapters 5 and 6 are mostly referred to in the past tense, while references to and quotations from interviews appear in the present tense.

4.8 Ethics

Situating my empirical research in a tumultuous time for both Africa and South Africa – as well as, of course, for the rest of the world – introduced a number of ethical considerations for the work.

In addition, given the critical realist approach that informs the research, I needed to immerse myself in the cases and keep the context, as well as respondents' perspectives, in mind while also trying to understand the unequal outcomes of risks and critically engaging with them. In the remainder of this section, the ethical procedure I used to gain participant consent is explained and the broader potential ethical considerations that this approach might introduce are discussed from perspectives of positionality and reflexivity, as well as individual risk (Allmark et al., 2009; Kvale, 2007; Warren, 2002).

4.8.1 Participation, minimising harm, and informed consent

I relied on publicly available documentary sources, with the exception of one document (a feasibility study for digital ID in a specific African country, commissioned by an IGO), which was shared with me anonymously by a respondent to illustrate a particular concern of relevance to both SRQs. To protect the interviewee's identity (also given that their work for the project was subject to a non-disclosure agreement), I redacted their name and the name of the organisation concerned. In my analysis chapter (Chapter 7), I write about this instance without identifying any of the parties involved.

Interviewees, in turn, were informed in plain language about the research at various stages of the interview process, to the extent that was reasonably possible (Allmark et al., 2009, p. 49). As mentioned, I conducted most interviews online (with the exception of one interview, which occurred in-person). To allow participants (including those who were less likely to have had previous experiences with interviews) to reasonably assess the possible risks and benefits entailed by participating in my research, I explained the nature and purpose of my research when I reached out to request an interview. Before the agreed interview, I sent respondents a consent form (Appendix VI) that was

developed in accordance with LSE ethical guidance, and which contains an information sheet about the intended research. Respondents were asked to sign this form before or after the interview. For many, I had to follow up to ensure I had consent forms for all respondents.

When the interviews started, the project's purpose was reiterated to respondents, and before starting to ask the questions in the interview guides, respondents were given an opportunity to ask about the research and/or other ethical considerations. I also reminded respondents that they could stop or interrupt the interview at any point, and were not obliged to answer any question(s). I gave them the option of answering some questions anonymously should they so choose. A few of the respondents did request partial anonymity for potentially controversial responses. Respondents were thanked at the end of the interview and in the acknowledgements section of this thesis. Upon completion, I intend to share an executive summary of the thesis and its main findings (as well as the full thesis upon request) with respondents.

For the nested case in particular, I was aware that interviewing stakeholders who were involved in pandemic-related interventions might not only hamper their ability to continue their important work at this difficult time, but that it would be difficult to gain access to stakeholders at a sufficiently high level. As such, I postponed my interviews until late in 2020 and 2021. Many of the interviews I planned for the nested case, in particular, were conducted in the second year of the pandemic, when these individuals had more time at their disposal again. Even then, I did not interview first or key responders. This was less of a concern for my overarching case, where most of the individuals interviewed were not directly working on pandemic responses. For both the nested and overarching case, most interviews were conducted online, meaning there was no need for unnecessary exposure or travel for either my respondents or myself.

Other efforts to avoid any risk of harm to the participants involved adopting mechanisms to gather, store, and maintain data safely by adhering to the university's guidelines and completing LSE's Research Ethics Review. Where participants or other data were intended to be confidential or subject to pseudonym requirements, data was anonymised before storage. In instances where interviewees wanted to remain

anonymous, I used the descriptor 'anon' in-text, and changed or removed descriptive details that could be used to identify them. As mentioned above, confidential answers were used where necessary to inform the analysis while paraphrasing and taking care not to include any identifiable information.

4.8.2 Positionality and reflexivity

My motivation for investigating digital development risks was partly borne from disappointing experiences working as a consultant in the field of digital development and policy in Africa. This exposure had, at times, left me rather frustrated about certain tendencies in development processes (or developmentality) that, I feared, would not only waste limited development resources but, worse, could exacerbate inequalities rather than alleviate them. Was I – as Manyozo also laments – 'perpetuating the spectacle of development' (2017, p. 27) by working in this space? Perhaps. Pragmatically, however, the work not only helped to facilitate this PhD (by enabling me to earn a salary which could be used towards student fees), but also enabled me to gain access to various high-level IGOs and development actors for interviews in a way that could substantially benefit my thesis.

I was aware of the imperative not to let these feelings shape my stance or presuppositions when embarking on this research – nor, indeed, render me predisposed to 'finding' risks (or noticing 'petals', cf., section 4.7 above) as I had encountered in my own experiences in the field. While I might (even if only subconsciously) have developed certain impressions of entities or individuals on a professional level due to prior interactions with them, I intentionally separated my research for this thesis from my work with the aim of realistically engaging with the realities of these stakeholders and institutions and their relative constraints and prerogatives, while also critically engaging with how these processes might be improved. I recognised that most stakeholders involved in these processes must contend with difficult institutional setups and realities that were often out of their direct realm of control (cf., section 4.7 about the role of stakeholder actors in broader processes) – though this awareness did not prevent me from critically engaging with an often-unsatisfactory status quo.

While I could have interviewed more respondents with whom I have worked directly, I decided only to interview stakeholders with whom I had not directly and extensively worked or been contracted by – in other words, stakeholders with whom I had not engaged enough to have developed a predetermined idea that would shape my interview experience and subsequent analysis. In this way, I simultaneously protected my own professional reputation and ability to continue working in the field. In addition to the potential impacts of this consulting role, I was aware that my identity as a white African cisgender woman based in London and studying at the LSE, could paint me as a potential 'outsider' in a way that could impact my relationship with interview respondents (Kvale, 2007) and their social interaction with me, including the possibility that they would think it necessary to provide me with answers they thought I would like to hear (Warren, 2002).

To address these concerns, I included certain introductory questions in my interview guides to put respondents at ease and make it clear that I was not on anyone's 'side' but was simply hoping to gain a better understanding of their perspectives and perceptions of risk. To avoid steering responses, I did not draw on my own experiences when phrasing questions, but rather kept questions as neutral as possible, while remaining open and curious during interview processes (as well as critically aware of my own potential presuppositions) (Kvale, 2007). While I did not endeavour to speak to participants/beneficiaries (and thus potential risk victims) directly, there was a slim possibility that talking about risks or harms (or re-living traumatic experiences) in the interviews might expose respondents to further harm. To counter this possibility, each interview was started with a reminder of the code of ethics I had shared in the consent form (see section 4.8.2 and Appendix VI).

While conducting the interviews, a challenge I faced was how to elicit data and reflections on the definition and management of risks. Some respondents were hesitant to acknowledge that they could be or were impacted by risk(s), or that their actions might expose others to risks – and particularly so in contexts where digitisation is equated with progress or modernity. I was also aware that some respondents might not want to acknowledge their awareness of the existence of certain risks since such knowledge might imply that they had responsibilities to manage identified risks, and/or that failure to do so posed potential consequences. Yet I had to find a way to gain insights

into stakeholders' willingness to engage with risks and related responsibilities. To address this concern, I was careful in how I framed questions about risks. I avoided words that might denote judgment, and purposefully emphasised the potential positive as well as negative outcomes of specific digital development processes.

In my treatment of data, I was aware that the responses provided by respondents would be shaped by the agendas, constraints, and prerogatives of the institutions they work for (see section 4.7 above). To gain a more holistic understanding of responses, I, therefore, compared and contrasted certain insights with documentary data sources in my analysis. There were specific instances, for example, when certain development actors emphasised the steps their organisations took to identify and address risks in order to portray a perception of a responsible entity that truly cares about how its actions might have certain consequences for certain communities. Because I recognised that these responses about risk definition and management would be shaped by institutional agendas and prerogatives that were not explicitly mentioned in interviews, I compared and contrasted relevant insights with written texts to gain a more holistic (and balanced) view of risk perceptions. (As discussed, I differentiated quotations from documentary sources by using the past tense, while quotations from interviewees are cited in the present tense.)

I recognised that all sources of data would be shaped by a host of conditions that needed to be inferred from the data in order for respondents (and documents) to expound the perspectives they have – although this realism was countered with critical engagement with these conditions. While it did not happen often, in one or two of my interviews, respondents would not engage with questions, but stuck to official company lines or rhetoric. In these instances, I interviewed other respondents that (have) worked with or for the same entity to gain more insights about a specific institution's role in the digital development processes concerned.

Conceptually, I was concerned about using theories deriving from the global North to construct my conceptual framework for a global majority context. While acknowledging that the theory of the Risk Society (Beck, 1992), in particular, might have a distinctively 'German taste' to it (Beck, 2006, p. 332), I purposefully moved away from the universalism of the Risk Society perspective by highlighting different perspectives of

risks (Culver, 2011) – and particularly those of Africans. By interviewing diverse stakeholders working at different levels, I hoped to emphasise the complexity and multidimensionality of how stakeholders negotiate risks (cf., Mythen, 2004), while acknowledging that there cannot be such a thing as a common or global understanding of digital development risks and the socio-digital dimensions thereof.

This does not detract from or address the problem that few African scholars theorise from within the continent or draw sufficiently on African voices (Mohammed, 2021). However, where possible and useful, I incorporated African perspectives and concepts (e.g., with reference to well-being and *ubuntu*), and the literature underlying my study is significantly shaped by the work of Africans. I also made a concerted effort in interviewee recruitment to engage African voices to tell my cases' stories.

4.9 Conclusion

In this chapter, I explained the research design and empirical strategy to investigate my RQs. I positioned this work in a critical realism research paradigm, before elaborating two SRQs to use for shaping my research design, which relied upon a case study approach. I defined my initial (or overarching) case, namely the differential risks of digital IDs as examples of digital development processes in Africa, and explained why I chose to nest another case within this one in order to provide further insights into my research problem, namely digital development processes, and related risks in different settings and contexts. I explained that the nested case I chose to explore is the use of contact-tracing apps in South Africa during the first six-to-twelve months of the Covid-19 pandemic, and justified this choice.

I discussed the principal method used to operationalise my case studies – namely in-depth interviews, complemented by my reading of documentary evidence to provide relevant context and a small-scale thematic analysis of certain documents. I explained my sampling and data collection strategies, and also explained how my critical realist positioning informed my reading and interpretation of data, including the thematic analysis of interview data.

In the penultimate section, I reflected on ethical considerations, my personal context, and the potential impact of my position on respondents' well-being.

In the next chapters, which contain my empirical analysis, I discuss the results of this work. I start with the overarching case (Chapter 5) and then move to the nested case (Chapter 6). In Chapter 7, I compile and then analyse the findings from these empirical investigations with reference to the RQs defined in this chapter.

CHAPTER 5: DIGITAL IDs, RISKS, AND A FISHY NARRATIVE IN AFRICA (OVERARCHING CASE)

5.1 Introduction

His face is frozen mid-scream in the photograph. He is kneeling in the ochre African soil, clutching two items in his hands: a folded red hat, and the well-worn, green pages of what appears to be a South African identity document. All around him, index fingers are pointing at him accusingly and hands are lunging for him. The owners of these fingers and hands are invisible and anonymised – the photograph's frame cuts them off at shoulder and chest height. Taken by the photojournalist James Oatway in South Africa on an unknown date, the photograph's official caption reads (Oatway & Skuy, 2021, p. np.):

> *A heavily outnumbered man is saved by producing his South African 'book of life' after being attacked during an 'anti-crime' march that turned into an 'anti-migrant' hunt.*

In May 2008, a series of xenophobic attacks, including this one, left over 60 people dead, thousands injured, and hundreds of thousands of migrants and refugees displaced in and from South Africa (Mahecic, 2008). Many were forced to move to 'temporary safety camps' set up by South Africa's National Defence Force with support from various IGOs. Two months later, Karl Steinacker, who worked for the UN High Commissioner for Refugees (UNHCR) at the time, visited one such camp in Johannesburg – and was summarily taken hostage by the camp's desperate inhabitants (Steinacker, interview, 2021). As one of the first UN workers to visit the camp, the inhabitants – who had been 'chased from townships' and lost their homes and, often, livelihoods – barred him from leaving until he could broker better living conditions for them (*ibid*.).

Besides dismal living conditions (Van Hoorn, 2008), the inhabitants had to contend with at least two challenges, and wanted development actors like the UN (which Steinacker symbolised to them) to 'do something' about it. The first was the more

immediate one related to a tide of xenophobic violence, which had swelled because some impoverished locals had become discontented when, among other things, it appeared to them that refugees and migrants were receiving preferential treatment (often from humanitarian and aid agencies) compared to locals. The second was that many of these refugees and migrants had neither been registered as refugees nor as migrants with UNHCR or the South African government (for reasons explored later in this chapter). They therefore belonged nowhere, had nowhere to 'return to', and no one was technically responsible for helping them. Steinacker explains: 'UNHCR basically shrugged their shoulders and said, "Well, it's not my problem"' (interview, 2021).

The risks of having (or not having) the wrong identification papers – like the man desperately brandishing his rather euphemistically named 'book of life' in Oatway's photograph[67] – have already proven significant in cases that extend well beyond this example (see section 3.2.2). While at first glance such problems might seem to have little direct bearing on processes of digitisation and datafication, these ambiguous contexts are crucial for understanding the digital development risks – which I defined in Chapter 3 as the uncertainty of digital development processes causing, contributing to, and/or exacerbating uncertain outcome(s) with respect to responsible well-being – facilitated by development actors' reliance upon digital IDs. This is especially so since the ostensible promise of the digitisation of identity is often lauded as a panacea for addressing the plethora of problems that result from poor (analogue) identification management practices (a tendency which echoes a concern about technological determinism, explored in section 3.2.3).

For example, an economist at a development entity says that while digital IDs can make things 'easier and more convenient' for people as well as 'more efficient' for governments, it can also make some things 'more messy and cumbersome'. Striking a 'balance', they argue, is important (anon, interview, 2021). Steinacker – a development practitioner who not only 'built refugee camps, closed them, and looked for alternatives', but who introduced biometrics to refugee operations (Digital Equity Association, 2022) over his 25 years with UNHCR – is more sceptical (interview, 2021):

[67] I asked the photojournalist who took the photo, Oatway, about the green booklet in the man's hand. He said that the man was holding a South African identity book: 'if he didn't produce it he might have been killed on suspicion of being a foreigner' (Oatway, Instagram message, 2022).

> *And now comes digital, and here the big promise. Countries which have not been able for forty years to set up a pen and paper registry system, now all of a sudden are told or believe that by introducing technology, that problem can be resolved. Now, for me, it's almost self-evident that that can't be true. There is something fishy in this narrative.*

To investigate this potentially fishy development narrative and its implications for how risks are defined and managed in digital development processes (my empirical RQ), I use the example of digital IDs in Africa in this chapter as an overarching case study to examine how the socio-digital dimensions of risks are defined (SRQ1) and managed (SRQ2) in certain digital ID processes. (Given the broad nature of this chapter's explorations, the next chapter uses a nested case study approach to specifically focus on a more contained type of digital ID used in a particular context.)

This chapter is structured as follows. In section 5.2, I provide an overview of the growing popularity of digital IDs as development 'tools' on the continent, highlighting the events that interviewees list as significant in this trajectory. In the next part of the chapter (section 5.3), I explore the ways in which stakeholders define risks (SRQ1) by examining the risk perceptions of local and foreign stakeholders (including development actors) who work on the continent while promoting or acting in the interest of certain development and/or developmentality agendas. In section 5.4, I explore definitions of the risks that stakeholders highlight as being particularly relevant to digital IDs on the continent (SRQ1). In the penultimate part of this chapter (section 5.5), I examine the ways in which different stakeholders suggest their actions might impact on diverse users' experiences with and of the defined risks, before turning to the actions that various stakeholders say are taken to manage risks (SRQ2). In the final section (5.6), I conclude the chapter by briefly summarising the chapter's findings. These findings are compared and contrasted in greater detail to findings in my nested case, and with reference to my RQs, in Chapter 7.

5.2 Sandy foundations: a history of 'developmental' digital IDs

While it is beyond the scope of this thesis to delve comprehensively into how digital IDs have come to be utilised for development purposes on the continent,[68] many interviewees emphasize the importance of historicising (digital) IDs in Africa in order to understand risk definitions (SRQ1) and management responses (SRQ2). Understanding these motivations and agendas can also, I suggest, help to address my theoretical RQ more generally, which is concerned with how and why digital development risks are important in shaping digital development processes. I return to this question and how my empirical work might provide insights for it in Chapters 7 and 8. In this section, I explore the milestones that interviewees highlighted as far as digital IDs' popularity is concerned.

Risk considerations pertaining to ID management and its potential outcomes, more generally, have a long, if often neglected, history (interviews: Steinacker, Van der Straaten, 2021). More formal systems of ID and registration have their roots in the management of refugees after the first and second world wars and predate digitisation efforts, but are burdened by a legacy that 'beneficiaries' are unlikely to forget, having been used – in addition to more valued applications – as tools that have facilitated oppression, exclusion, and even genocide (Steinacker, interview, 2021). For example, many foundational ID systems on the continent were established during colonial times, and in some contexts with the intention to segregate 'natives' from their colonial 'masters', or to facilitate segregation policies and practices, as in the case of South Africa's apartheid (Breckenridge, 2014). These roots are still visible in many ID systems today, with some interviewees warning that digitisation will do little to address these underlying challenges – and might even exacerbate inequalities for users and non-users and therefore pose negative and harmful developmental outcomes (e.g., interviews: Steinacker, Van der Straaten, 2021).

Steinacker, who founded the Digital Equity Association after his experiences at UNHCR to advise on the 'digital transition of the aid industry' (Digital Equity Association, 2022),

[68] See section 3.2.2. for an introduction to digital IDs, and fn. 7 for the distinction between different types of digital IDs.

explains that some African states entered an agreement with UNHCR in the 1950s to help 'deal with the problem' of a growing number of refugees from decolonised African countries moving around on the continent, often without any form of identification. The 'global deal', he says, was that African countries would keep their borders open and leave the management of refugee populations to UN agencies. To do so, IGOs like UNHCR needed to be able to pinpoint who was a refugee.[69] Because local registry systems were perceived to be unreliable, and African borders porous, UNHCR constructed an approach that was disconnected from local systems, or 'an out-of-space' system of registration that started with pen and paper, and was later augmented with photographs and biometric elements (Steinacker, interview, 2021). As illustrated by the vignette at the start of this chapter (and explored in more detail in section 5.4.3), this disjuncture between local and foreign (often imposed) systems is at least partly responsible for not just tensions, but a number of risks and persistent problems for and between local and refugee communities today. Such a disjuncture can introduce or exacerbate negative and even harmful developmental outcomes (which is relevant to my theoretical RQ), as is explored later in this chapter too.

While one of the purposes of development actors' investments in ID ecosystems was therefore the management of refugees and migrant populations, another was using biometrics for securitisation, especially as far as immigration was concerned. After the September 11 attacks in the USA in 2001, many governments in the global North became increasingly concerned about and with security and population control (Nanawati, interview, 2021). While also introducing risks of technology theatre (McDonald, 2020) (see section 3.2.3) and the traits of organised irresponsibility (see section 3.3.5), Steinacker says less costly and more widely available technology started being 'pushed for security reasons' onto governments in global majority contexts with 'risky' populations, and often as a part of 'development cooperation' projects run by IGOs from the global North (interview, 2021).

Joseph Atick, who is described as 'a founding father of the digital identity community' (2022), identifies 9/11 as a 'negative milestone' since it facilitated the introduction of significant restrictions on freedom of movement. 'We went from the dream of digitising

[69] UNHCR is but one of many IGOs that now rely on digital IDs to facilitate the delivery of its mandate. Another example is the UN Children's Fund (UNICEF), which sometimes uses digital IDs to register births.

the border to the nightmare of shutting down borders,' he explains in an interview (2021). Atick admits that the biometric and identity industry (himself included, at the time) 'benefited enormously' from increased securitisation after 9/11, but adds that this came at the cost of putting 'the technology in the hands of those who I did not want to see controlling the technology, which is basically the national security agencies' (Atick, interview, 2021).

The 9/11 attacks and their global repercussions coincided with a time of increased digitisation of many government services, including identification processes. With population growth rapidly expanding, governments in global majority contexts started relying more on technologies to better target welfare schemes or distribute cash payments, says Bharat Nanawati, a consultant for the UN Economic Commission for Africa (UNECA) and other IGOs. Among other things, Nanawati advises African states when they develop or upgrade their digital ID ecosystems (interview, 2021) by drawing on the experience he gained in developing a digital ID system for India, where a new authority was established in 2009 to assign a 12-digit unique identification number (UID) to all Indian residents. Aadhar, as this foundational ID system is known today, means 'foundation' in Hindi (Perrigo, 2013) and has indeed become foundational for (and the UID a prerequisite to access) most government and many private sector services in the country, from opening a bank account to accessing state benefits or even a Covid-19 vaccine. It is also the first large-scale project to use biometric IDs for the distribution of social benefits (Nanawati, interview, 2021).

Many interviewees mention that India's experience with Aadhar has shaped how development actors regard digital IDs as potential instruments for or enablers of development across other global majority contexts (interviews: Khan, Van der Straaten, anon, 2021/2022). Factors like the relatively fast pace at which people were enrolled for Aadhar, with 'very positive impacts in terms of financial inclusion, social welfare delivery, and broader digitalisation' (Marskell, interview, 2021), are said to have been particularly convincing. It is reported to have been in India and alongside a meeting dedicated to Aadhar, for instance, that a group of individuals from the World Bank started discussing the potential of using digital IDs for, at first, addressing fraud in pension payments (Atick, interview, 2021). Atick, who joined the World Bank in 2010, says there was initially little appetite for using digital IDs as a 'development driver' at the

Bank, but since his small group 'believed' in the potential value of digital IDs, they started exploring possible options. He says they visited many African countries to map existing systems and needs, and finally developed an assessment tool – including a CBA – to 'identify candidates' for digital IDs (interview, 2021). This, essentially, was also the start of the World Bank's Identification for Development (ID4D) programme (examined in section 5.3 below).

While it is beyond the scope of this work to further explore Aadhar and its potential risks in India, it is important to note that the system is not without critique (e.g., Bhandari, 2020; Hickok, Sinha, & Rakesh, 2017; Martin, 2021). This is at least partly why some interviewees say it is problematic that 'the Aadhar solution' (Chango, interview, 2021) has become influential in Africa, where it might not be appropriate for local challenges and contexts. This concern is echoed in related research, in which the so-called 'Aadhar in a box' approach – namely the tendency to view Aadhar as 'an exemplar of developmental digital ID' – has been criticised (Martin, 2021). Jaap van der Straaten, a retired economist who has consulted for various IGOs on digital IDs and related issues, says he has often seen India's approach being touted to African states as a 'quick fix', with little regard of contextual realities or the need to address significant challenges with civil, birth and death registration before introducing digital 'overlays'. (Related risks are examined in more detail in section 5.4 below.) As a result, he argues that Aadhar is a *negative* milestone for digital IDs since it 'caused a lot of disruption in what I would say is a natural process of growth towards the civil registration system' (Van der Straaten, interview, 2021).

At more or less the same time that Aadhar started reaching 'a big scale' (Nanawati, interview, 2021), the UN's 2015 *Agenda for Sustainable Development* was adopted, containing a target dedicated to the provision of universal legal identity (United Nations, 2015). While some interviewees say that the UN's recognition of the importance of legal identity bolstered the digital ID 'movement' (e.g., Atick, interview, 2021), others argue that its failure to include a clear definition of 'legal identity' beyond birth registration has meant that various stakeholders have been able to adopt (or co-opt) whatever definition might suit their unique needs and priorities (Khan, interview, 2021). This view is also supported in research on the theme (Manby, 2020), as was explored in section 3.6.2.

Examples of initiatives that attempt to harness the momentum of the SDGs to promote digital IDs' apparent developmental potential include ID4D, ID2020, and ID4Africa. The latter[70] was launched by Atick in the same year (2014) as the World Bank's ID4D (ID4Africa, 2019a). Atick says he left the World Bank to start this 'movement' at least partially because it could 'move faster' and more freely than the 'bureaucratic processes of big institutions' like the World Bank (interview, 2021). With the exception of the pandemic, ID4Africa is known for hosting large annual meetings for a variety of stakeholders, with private sector actors like digital ID vendors reportedly footing much of the bill. Some interviewees are sceptical of ID4Africa, its agenda, and its practices, criticising it for 'shrewdly' selling 'snake oil' under false (developmentality) pretences (Van der Straaten, interview, 2021):

> *… the idea is ID vendors pay the travel and accommodation and board of people who come to the annual conferences and those conferences are held in five-star hotels. It's an outing for people who work for government and don't have big salaries, et cetera. So of course they're interested …*

In 2016, another initiative, ID2020,[71] was launched with the initial goal of providing digital IDs 'for everyone' by 2020. Perhaps realising that this goal was not feasible, the organisation recalibrated its focus to the promotion of 'better' and more 'ethical' approaches to digital IDs, including through the adoption of a manifesto that acknowledges that digital IDs '[carry] significant risk if not thoughtfully designed and carefully implemented' (ID2020, 2018).

Institutional initiatives like some of these initiatives commonly rely on or promote partnerships and collaborations with private sector actors to implement initiatives or develop 'use cases'. For example, in August 2014, when the then President Goodluck Jonathan became the first Nigerian to receive his MasterCard-branded national eID card, he congratulated the country's corporate partners on reaching an 'important milestone' and developing a 'world-class product'. He also enthused that 'the card builds

[70] See: https://id4africa.com.
[71] See: https://id2020.org.

a window to a social security benefit system and therefore, it is a card every Nigerian should get' (MasterCard, 2014).

While PPPs and similar collaborations like the one between MasterCard and the Nigerian Identity Management Commission (NIMC) might indeed open windows to certain benefits, they also unlock doors to other problems. An economist at a development entity (who preferred to remain anonymous) says that PPPs might offer ways for under-resourced African governments to 'farm out' public sector responsibilities, but private sector actors tend to be more concerned about the number of cards issued (which correspond to potential profit) than with what services are actually delivered by those cards. As a result, they have become 'highly sceptical that [PPPs] could ever be a positive for development'. Indeed, they argue that private sector actors (and biometrics and smart card industries specifically) have not only benefited from the growing enthusiasm for digital IDs, but is guilty of 'pushing bad ideas' in this regard (anon, interview, 2021).

Since the SDGs were adopted, functional digital IDs have become especially popular in the context of digital development processes, and for purposes ranging from banking to identifying beneficiaries for aid or grants to contact-tracing (as is explored in the next chapter). For example, one interviewee says that when she worked for the UN World Food Programme (WFP), she was tasked with finding better ways of managing cash transfers to humanitarian beneficiaries, rather than sacrificing resources to the high commission costs that accompany the services of international money transfer entities (Khan, interview, 2021). Steinacker, similarly, says the 'propaganda' he heard in this space was effectively that it would be in everybody's interest if the finance industry (and partners like MasterCard or Visa) could simply be tasked to do what it does best because of 'economies of scale, low transaction costs, and *blah blah blah*' (interview, 2021).

The Covid-19 pandemic is another event that many interviewees highlighted as a milestone in the development of digital IDs on the continent. Van der Straaten argues that the pandemic was harnessed and even exploited by government actors to 'introduce something that they see as good for the people, good for government, while explaining or phrasing it in a positive way' (interview, 2021). An interviewee who regularly consults on digital IDs and other digital transformation projects in Africa, notes that when he

participated in workshops or events in 2020, many development actors and African policymakers were lauding the 'great opportunity' the pandemic purportedly offered for digital transformation: 'I think it reveals how in the end we are so far away from seeing digital solutions as a tool to actually solve problems than as a means in itself,' he explains (anon, interview, 2021).

Besides instrumentalism and the 'fetishism around digital technologies' (anon, interview, 2021), other interviewees say that they have noticed growing concern on the continent about the fast pace at which digital 'solutions' were being rolled out during the pandemic. They also say that few stakeholders or policymakers seemed to be engaging with this development critically (again raising concerns about technological determinism). This was especially prevalent where digital IDs (and its various applications, explored in Chapter 6) were concerned. For example, Emmanuel Khisa, Project Manager for Digital ID and E-payments at Smart Africa, explains that Covid-19 not only led to increased appetites for digitisation on the continent, but heightened interest in digital IDs as a potentially central component of digitisation processes (interview, 2021).

While the turn to digital IDs as a result of the pandemic might have caught some off guard, it also made critics raise their guard. Atick notes that CSOs 'saw what happens when governments deploy digital passports, when they deploy sanitary passports, when they start doing tracking applications. They saw how fast that can be launched and it created the bells of alarm everywhere'. He regrets that these risks have seemingly caused increased polarisation in the field, with supporters and opponents now drawing their respective 'battle lines', and some donors withdrawing from the field as a result. Atick says he fears that such division might lead to ignorance of the benefits of digital IDs while neglecting ways of potentially mitigating risks: 'it wasn't like that before; the lines were much more blurred' (interview, 2021).

Interviews with other stakeholders indeed indicate that the lines are blurred, and that diverse stakeholders have very different perceptions about the perceived benefits or drawbacks of digital IDs being used or promoted for developmental purposes. In the next section, I delve into how these contradictions and digital development risks can shape perceptions of developmental outcomes. I start by exploring why defining the

risks that accompany digital development processes in general is difficult, before turning to how the socio-digital dimensions of risks associated with digital ID processes in particular are perceived by different stakeholders.

5.3 Digital development risk as a hot potato

Many interviewees argue that risks pertaining to or associated with digital development processes are vague and difficult to understand since ICTs are ambiguous, intangible, and novel (cf., section 3.2).

For example, an interviewee from the International Committee of the Red Cross (ICRC) complains that the risks that accompany ICTs are more 'blurry and fuzzy' than most 'traditional' and 'offline' risks (anon, interview, 2022). When a mortar attack occurs in a village, for example, they say that 'it's kind of easy for us to see that the mortar was the source of the humanitarian consequence in which people were being killed, injured, or displaced'. Unlike such 'analogue' risks, risks associated with technologies are regarded as 'much more fluid', 'complicated and way too technical', meaning that it can be difficult for development actors to prioritise such risks – and especially in contexts where 'analogue' risks seem to be less abstract and might appear to be more immediately threatening.

With humanitarian and development services increasingly being digitised, however, interviewees acknowledge that it has become crucial to find a way to respond to these ambiguous risks that span social and digital dimensions (see section 3.5), despite the complexities involved in doing so. The ICRC, for example, is reportedly considering what it means to offer 'protection' in socio-digital spaces, how it can ensure that it 'does no harm' due to its growing reliance on ICTs for service delivery, as well as how it might identify which communities are likely to be more susceptible to risks in order to protect and empower them accordingly (anon, interview, 2022). Ensuring that humanitarian workers 'put things together' and experience 'the click, like with Playmobil' of how

'digital' risks compare to the 'analogue' risks that practitioners are more accustomed to, is a task the ICRC is therefore reportedly trying to address (anon, interview, 2022).[72]

Turning to the specificities of the African context, another challenge that complicates this complexity is an apparent hesitancy to engage with or acknowledge and admit the likelihood of risks. Interviews indicate that this reluctance is likely shaped by twin -isms, namely Afro-optimism and technological determinism, and is further aggravated by developmentality (both directly and indirectly). These factors, which complicate perceptions and considerations of digital development risks in Africa and potential consequences, are examined in the remainder of this section before turning to digital IDs and related digital development risks.

First, prevailing narratives of technology's 'big promise' (Steinacker, interview, 2021), or technological determinism (cf., section 3.2.3), complicate stakeholders' ability to reflect realistically about potential risks. For example, in February 2022, Dr Amani Abou-Zeid, the Commissioner for Infrastructure and Energy at the AUC, participated in a public meeting to promote the Commission's release of new policy frameworks related to data governance (cf., section 2.2.3 for a discussion of these frameworks). When she was asked by a member of the audience how she planned to address the 'downsides' of ICTs, she replied (Abou-Zeid, 2022):

> *When the human race discovered fire, they discovered that it can help, but it can also burn your hand … Every time there is something new, some people get sceptical. But when you look at it, the benefits are far more than the problems.*

Abou-Zeid is not the only policymaker to embrace the positive potential of ICTs while dismissing 'the problems' as less significant. In an interview, a consultant argues that African policymakers tend to 'genuinely believe' that technologies like digital IDs can 'leapfrog development' (cf., section 3.4.2). He explains that many African organisations that promote the use of ICTs for development assume that 'digitalisation is good – and that's it' (anon, interview, 2021). This optimism is also present where digital IDs and their

[72] The ICRC, for example, is developing a 'digital emblem' to serve as an online iteration of their red cross/crescent emblems. The emblem will indicate when/where humanitarian actors' online or digital operations (e.g., hospital websites) demand special protection under international law (ICRC, 2022).

potential uses for developmental purposes are concerned. Van der Straaten says that while he believes digital IDs can have developmental benefits, they have become too much of a 'fashion' in the past decade in Africa to enable actors to critically engage with accompanying risks: 'We've seen a sort of wildebeest migration with craziness about ID and people thinking they could change things forever with digital ID' (interview, 2021).

This 'wildebeest migration' of technological determinism is to some extent at least facilitated by the digital agenda promoted by some IGOs. The World Bank, for example, launched its ID4D programme in 2014. It not only regards identification as 'a key enabler of many other SDG goals and targets' (World Bank, 2019a), but has argued that the '[ID4D] agenda has the transformational potential to help overcome some of the most pressing development challenges in Africa' (World Bank, 2017). This developmentality agenda (see section 3.4.3) apparently leaves little space for facilitating engagement regarding the potential risks of digital IDs, with some interviewees acknowledging that risks are sometimes intentionally deemphasised because Bank employees or contractors are under pressure to convince African governments to adopt certain ICTs for developmental purposes. A senior programme officer working on ID4D, for example, explains 'there wouldn't be any momentum around this [the ID4D/digital ID] agenda' if they focused too much on the risks when trying to convince policymakers to adopt a specific approach (anon, interview, 2021):

> *Could you imagine any politician that would be excited if you spent 50% of the time talking about the good and 50% talking about the bad?*

Besides being shaped by digital developmentality agendas, perceptions of related 'bads' are also clouded by prevailing sunny sentiments on the continent. Coupled with long-lived yet persistent optimism about the developmental promise of ICTs in general and of digital IDs more specifically, some stakeholders appear to want to avoid 'hot potatoes' (anon, interview, 2022) or risky topics at a time of prevailing 'Afro-optimism' (anon, interview, 2021). Many interviewees note that there is a tendency in African policymaking circles to challenge negative attitudes about what, not too long ago, some still called 'the hopeless continent' (The Economist, 2000) (cf., the introduction to section 2.2). They say that because local policymakers display a growing preference for more optimistic narratives about Africa, it can be difficult to insist on mediating risks in

a context where focusing on the 'negative side of things' is frowned upon (anon, interview, 2021). Most of these types of sentiment fail to engage with some of the more positive dimensions of risks (e.g., opportunity for growth), and tend to therefore equate risks with harms.

Some of the African organisations established to promote 'digital transformation' on the continent apparently try to challenge negative narratives while enabling the development of a 'uniquely African' digitisation agenda – albeit somewhat ironically with the support of international development funding and the use of foreign consultants (interviews: anon; Bezad, 2021/2). For example, Smart Africa[73] has appointed an advisory board which consists of various African heads of state, the Secretary-General (SG) of the ITU, and private sector entities like Google, Huawei, and Orange, among others.[74] Rather than elaborating on whether Africa's agenda should be optimistic or more sceptical when it comes to datafication processes, the organisation's head of digital transformation, Dr Ralph Oyini Mbouna, says one of Smart Africa's primary objectives is simply to enable Africans to 'develop our own agenda' (interview, 2022).

Smart Africa is not the only entity to emphasise the need to develop 'an African agenda' for digitisation and digital IDs more specifically – and, by implication, one that focuses on Africa's *positive* potential and tends to equate digitisation with progress and development (Mbouna Oyini, interview, 2022) in line with dominant development narratives (cf., section 3.4.2). However, many interviewees express concerns that doing so might be easier said than done, as foreign actors tend to play an outsized role in defining development agendas on the continent. One consultant says agendas are 'very much shaped by donors', who 'can decide to grow or not to grow an institution' (interview, Bezad, 2021), while another argues that development actors' ability to shape agendas happens more implicitly (interview, anon, 2021).

This 'foreign influence' is visible in policy instruments on the continent too. While digitisation-focused policy instruments on the continent often purport to set uniquely African visions and agendas for digitisation (cf., sections 2.2.3 and 3.6.3), many of these

[73] Smart Africa was founded in 2013 by the former Secretary-General of the ITU, Dr Hamadoun Touré, to promote the use of ICTs to 'transform' the continent (Smart Africa, 2022).
[74] See: https://smartafrica.org/the-board-2/ for a complete list.

instruments are developed and drafted with significant foreign involvement via direct or indirect 'support' mechanisms. For example, Smart Africa developed a blueprint for digital IDs in 2020 that was drafted by a European consultancy and was funded by the German Federal Ministry of Economic Cooperation and Development (BMZ) and the *Gesellschaft für Internationale Zusammenarbeit* (GIZ) (2020a). The tendency to rely on foreign and/or consultant expertise is potentially problematic in a context where many stakeholders call for 'African' narratives and agendas on digital development in general and digital IDs more specifically. Not only are (policy) 'ideas' and norms thus 'imposed from the outside' (Van der Straaten, interview, 2021), but some interviewees fear the continent might risk being taken advantage of. Based on his experiences at Smart Africa, Khisa warns that Africa's failure to define appropriate digitisation priorities for itself has meant that it has become susceptible to exploitation by external actors (interview, 2021):

> *… we are basically on the menu for anybody. We are on the table. Anybody who wants to, can come in and figure out for us what is good for us, because we don't have an agenda.*

In addition to having an agenda imposed by external partners with their own interests, the failure to define appropriate digitisation priorities in places that lack sufficient regulatory safeguards (see section 5.5 below) can lead to exploitation in 'new' data markets, as present in Africa. In a complaint that echoes allegations that Cambridge Analytica, for example, used Kenya as a testing ground for developing skills to shape and manipulate elections via social media (Ekdale & Tully, 2019), one interviewee argues that foreign actors use African contexts for experimentation with 'new' ICTs, including digital IDs (anon, interview, 2022):

> *… the global South, I feel it's more a testing ground. It's where we learn, it's where we collect data, it's where we experiment around different psychological models and so on. And ultimately, we do that because we want to take it to the global North.*

In the next section, I explore how stakeholders define the socio-digital dimensions of the risks that accompany digital ID processes (SRQ1) in these testing grounds.

5.4 Stakeholders' definition of risks

While the risks that are associated with digital IDs can be unpacked in various ways, it is useful to return to my proposal for a fourth way for digital development research (cf., section 3.7), which builds on lessons from existing literature on digital development/ICT4D and related 'divides'. Drawing on this proposal, I steer away from rigid constructions of where or how risks – which I have defined as uncertain outcomes with respect to responsible well-being – are assumed or expected to occur, although I acknowledge (in line with findings from the third tradition) that 'demand'-side problems require special attention (cf., section 3.6.3). To emphasise various dimensions and levels of risk experiences, I unpack the socio-digital dimensions of risks associated with the deployment of digital IDs by considering how risks interact with the technologies and infrastructures involved, what the roles and responsibilities of different stakeholders and institutions might be, and how the contexts concerned shape these risks and how they are defined and/or managed.

To do so, I first explore 'digital' dimensions of risks in section 5.4.1 before turning to 'social' (or contextual) dimensions of risks in section 5.4.2. It is important to keep in mind that risks are – as explained in my conceptual framework (see section 3.8) – overlapping and not rigidly contained to these categories. Rather than view these dimensions as separate categories, it is useful to regard risks as lying on a continuum between social and digital dimensions, and shaped by whether it is experienced and/or defined by risk beneficiaries at an individual, collective, and/or societal level. In keeping with the Risk Society's definition of risks as unpredictable and ambiguous (cf., section 3.3.2), I explore examples of digital development risks that lie near the middle of that continuum (since they are particularly ambiguous and difficult to contain to one or the other approach) in section 5.4.3, which also examines a specific example of risks experienced by risk beneficiaries at a collective or broader level, namely the risks faced by refugees and migrants.

This approach is not without its problems and difficulties, as will become clear from the discussion that follows. Overall, however, it indicates that the ways in which

stakeholders define risks (SRQ1) associated with digital ID processes tend to be vague and inherently dependent on the respondent concerned (as well as their organisation and its interests). Interestingly, while I noted in Chapter 3 that risks have positive and negative dimensions, primarily negative dimensions are highlighted by the respondents I interviewed.

5.4.1 Digital dimensions of risks

Despite significant investments by various IGOs in the past decade, a large proportion of Africans still lack proof of identification (cf., the introduction in section 3.6). Steinacker says that while many stakeholders blame a lack of resources or capacity on the continent for these 'digital ID gaps', the relative lack of progress made is rather because it can be in the interests of both the users/non-users and the institutional environments involved to retain and even nurture these gaps (interview, 2021).

While I examine why individuals might choose not to have digital IDs in section 5.4.2 below, I first explore why digital development processes are sometimes purposefully 'loose' and imperfect (Steinacker, interview, 2021), as well as how decisions about the choice of specific technologies or foundational infrastructure for digital IDs can introduce certain risks in and of itself. These risks include the institutional arrangements put in place to deliver, implement, and maintain digital IDs, as well as related challenges like mission creep, vendor (or technology) lock-in, and corruption. I examine these risks in this subsection before turning to risks relevant to how digital IDs interact with the social contexts in which they are deployed.

The ways in which digital IDs are designed can play a significant role in how they are used or not used (a factor which illustrates the close interaction between digital and social dimensions of digital development risks, given that digital skills are typically addressed as a part of social or demand-side factors). The risk of exclusion can be facilitated, for example, by designing digital ID systems that are 'too advanced for the level of skill of the population' (Mbouna Oyini, interview, 2021) or that are ill-suited for contexts where most people have feature rather than smartphones. At the start of the Covid-19 pandemic, for example, Smart Africa issued an emergency call for proposals for

'digital solutions' for 'governments to tackle the coronavirus' and help 'save lives' (2020b). Mbouna Oyini, whose department conceptualised the call and was responsible for reviewing applications, says some of the applications received were futile because they were inappropriate for African audiences. Reflecting on one example of a proposal for a contract-tracing mechanism (which is also relevant to Chapter 6), he recalls (interview, 2022):

> *And I think it was a nice, beautiful solution, but I'm like: 'My friend. When you look at the population in Africa, the uptake of smartphones is only 15% at most, at best 20%. Let's say 20%. So all your solution is only going to touch is 20% on the population on the continent, while Covid is touching everyone.'*

Besides ill-conceived design, the risk that a specific technology might malfunction or become dated and/or obsolete is also frequently mentioned by interviewees (e.g., interviews: Kent, Khan, Van der Straaten, 2021/22). Van der Straaten, for example, argues that 'even if you manage at some point to enrol the total population, within a few years it will be outdated'. The result, he argues, is heightened exclusion risk (interview, 2021). Other interviewees point out that proposing quickly outdated, superfluous, and/or ineffective systems can indirectly serve the interests of some stakeholders. Vendors, for example, might exploit system failures or inefficiencies to sell multiple systems to institutions or to contractually 'lock-in' partners to long-term relationships (Khisa, interview, 2021). An interviewee who worked with Lesotho policymakers to develop digital responses to Covid-19, says a part of the challenge is that many policymakers struggle to 'unpack contracts' or comprehend 'hidden costs' (Lephoto, interview, 2021):

> *A lot of African governments have got themselves embroiled in long-term digital contracts with companies like IBM which have literally bankrupted certain countries, right? And it's very, very sad to watch.*

Other interviewees suggest that, especially where the reliance on (mostly foreign) vendors for the provision of digital ID infrastructure is concerned, countries risk being contractually bound to systems that are ill-suited for their purposes or contexts, or to them paying more (also in less readily quantifiable currencies, like data) than they bargained for. The risk of creating dependency relations, or vendor lock-in, has broader

(social) implications when it leads to individuals also being 'locked into' a system, warns Van der Straaten, who says that the digital ID infrastructure 'sold' on the continent as a part of many digital development processes is pushing not just governments but also individuals 'from the frying pan in the fire' (interview, 2021). This is especially relevant in a growing number of cases on the continent where governments have made the possession of a form of digital ID a prerequisite for accessing a variety of services, leading to exclusion risks coupled with the exacerbation of other (often analogue) inequalities (as is explored with the example of Ghana below).

Digital development processes more broadly can also facilitate corruption risks when they are accompanied by kickbacks (or inducements) for some actors. One interviewee says that there is an 'unwritten rule' in many large development contracts and related PPPs on the continent where 'brown envelopes' (bribes) are required for awarding contracts: 'In some countries it's very, very obvious. The Minister will tell you upfront: "I want 30% for myself or nothing"' (Lephoto, interview, 2021). Often, these costs are passed on to end-users. While not digital in nature, one interviewee mentions the example of PPPs concluded to deliver passports in the Democratic Republic of Congo (DRC): 'I think the passport costs [US]$150, and half of that fee goes to a Belgian company, and the other half goes to the bank account of one of Kabila's relatives'[75] (anon, interview, 2021).

The potential consequences of these risks are especially relevant in social contexts (including risks of exclusion due to unaffordability) and are discussed next.

5.4.2 Social dimensions of risks

Risks that extend beyond the infrastructure or technology itself to how digital IDs are used (or not used) in social contexts, are typically enabled or exacerbated by entrenched inequalities that interviewees say are 'trickier' (Kent, interview, 2021) to address than risks pertaining to the technology itself. Similar to demand-side challenges commonly understood to complicate the adoption and equitable use of other ICTs (like the

[75] Joseph Kabila Kabange is the former President of the DRC.

Internet) (see section 3.6.2), these challenges include a lack of proof of citizenship or identity needed to register (e.g., birth certification), cost and affordability, (digital) literacy, cultural norms or fears, and perceptions of risks that accompany having and/or using digital IDs (e.g., privacy concerns). (As noted, many of these risks overlap with risks that are listed in the previous section, and I use this distinction informally in order to aid the analysis and not to imply a rigid distinction between the social and digital dimensions of digital development risks.)

Most interviewees agreed that the risks of digital IDs often become more pronounced because of social conditions or barriers that have an impact on people's unequal take-up of digital interventions (or decision to not do so). 'I'm not always convinced that the technology is more an issue than what documents are required to apply,' says Kent (interview, 2021), for example. Documents, in this case, generally refer to documentary proof of citizenship, like a birth registration certificate – the possession of which is often easier said than done in an African context, but is a prerequisite for registration for many digital IDs today. Many Africans do not have these foundational documents for a variety of reasons: some African countries have histories that still play a role in poor ID penetration (Breckenridge, 2014; Van der Spuy, Bhandari, Trikanad, & Paul, 2021); civil, birth and death registration services are difficult to deliver in many contexts, but even more so in low income countries; relevant institutions in many African countries are poorly resourced and managed; many Africans have lost their ID documents due to strife, terrorism, conflict, and/or displacement; and, as is explored later in the next section, some people have purposefully discarded or waylaid their ID papers in order to remain less visible in formalised (government and taxation) systems or to avoid other risks and/or responsibilities (interviews: Steinacker; Khan; anon; Van der Straaten; Kent; 2021/22).

Some interviewees point out that development actors tend to neglect these and other demand-side challenges and seem to operate under the assumption that adding a digital 'solution' would resolve these challenges, as was mentioned in the introduction of this chapter. This common but 'fishy narrative' (Steinacker, interview, 2021) – which is exemplified by a tendency to downplay foundational challenges while focusing on the 'promise' of digitisation – also has its roots in the hypes discussed in section 5.3 above. More importantly, it begs the question of whether people want to be registered (or

'visible' to the state) in digital ID ecosystems, or whether they perceive participation itself as a potential risk. Interviewees' views about this question are mixed and sometimes rather contradictory.

On the one hand, some interviewees say that many Africans opt to *not* be counted as a choice that enables them to avoid things that they might perceive as risks (e.g., recognition of minority status to terrorist groups), or the obligations and responsibilities that come with formal recognition (e.g., the need to pay bribes, or high costs of applying for an ID). Steinacker says that choosing to be excluded from a digital ID system – and thus not being 'on the radar' of governments or others – effectively amounts to a risk mitigation strategy for many people. He recalls working with refugees fleeing from an area in Nigeria that had been ravaged by a Boko Haram insurgency, and most of whom had no form of identification on them. He says he realised, at the time, that many of the displaced people chose to rid themselves of any form of identification as a 'daily survival' mechanism (interview, 2021):

> *... if you are known, if you are registered in one way or the other, it means either you have to pay taxes or fees or whatever, or you have to pay bribes. But if you have no papers, you still have to pay bribes, but they are lower or they can be negotiated for this or the other.*

Similar to the case of vendor lock-in and corruption risk examined above, Steinacker says that IGOs like UNICEF, which has worked for decades to improve birth registration on the continent, have only made incremental progress in their task because many Africans are not incentivised to register, do not see the value of being registered or included in ID systems, or might even see it as a risk: 'If there is nothing in it for them, why should they go for it? Or even worse, what if issuing a birth certificate means *disadvantage*?' (interview, 2021).

On the other hand, some interviewees argue that being included, 'counted', or rendered 'visible' in digital ID ecosystems – even if this involves the collection of personal and biometric data as prerequisite – is often of critical importance as there is 'something in it' for (some) people. Many people therefore *want* to be registered, even if their inclusion is dictated by circumstance and there might not be much room for (informed) choice in

the matter. Valerie Khan, who co-founded the Digital Equity Foundation with Steinacker, explains that not being identified can have 'horrible' consequences, including not having access to benefits, not being able to vote, or not being able to send your children to school (interview, 2021). A senior programme officer at the World Bank's ID4D is similarly sceptical when asked about people who do not want to be registered. Pointing out that they would 'like to meet those people', they argue that it has become increasingly difficult to 'operate in the society' without having some form of legal identification (anon, interview, 2021).

In some sense, therefore, it seems that not being identified is not always a choice that most would make voluntarily, meaning that the introduction of digital IDs for development(ality) purposes can also introduce the risk of adverse inclusion. Khan points out that rather than focus on exclusion, policymakers should consider what it is that people might inadvertently be exposed to by being effectively compelled to participate in a system. Using the example of Rwanda, where paper IDs captured ethnicity and arguably helped to enable a genocide (e.g., Piton, 2021), she points out that in some cases, being registered 'isn't very good for you' (interview, 2021). (Many interviewees pointed out that a data minimisation approach, where only the necessary data is gathered, has become a recognised risk mitigation strategy to counter this risk.)

Besides privacy risks (explored again later in this subsection), *not* being registered and identified can also introduce the risk of 'compounding' exclusion risks (Kent, interview, 2021) and, therefore, exacerbating socio-digital inequalities. This risk is especially prevalent when Africans who lack basic documentation and who therefore cannot register for digital IDs are prevented from accessing services that require a form of digital ID as a prerequisite (e.g., welfare, healthcare, or communication services). Their conditions therefore become worse rather than better when digital IDs enter the fray. A digital ID consultant who primarily works on the continent says this risk is becoming more prevalent as societies in the global North and majority world alike are increasingly 'stacking' various services on top of the 'foundation' that should be provided by a (national) ID system (anon, interview, 2021). The resultant integration of various systems, and the building of more and more 'stacks' of functional ID (from banking to the provision of social benefits to vaccine passports) on top of registration systems that are already excluding people for a variety of reasons, can thus exacerbate or 'compound'

hardship and inequalities. In these cases, 'life just stops when you don't have the ID', explains Van der Straaten, who describes this situation as the risk of 'putting one's eggs in one basket' (interview, 2021).

For example, in September 2022, Ghana's National Communications Authority (NCA) ordered service interruptions for people who had failed to register their SIM cards, for which a national ID card, the so-called Ghana Card, is required (NCA, 2022). (See an example of a text message sent to subscribers in fig. 5.1 below.) However, getting the Ghana Card is only possible for citizens who have a national birth registration document. In a LinkedIn post reflecting on the development, a local consultant pointed out that the integration of different services (like telecommunications services), and the NCA's decision to not allow analogue alternatives to the Ghana Card, means that especially poor and marginalised Ghanaians are more likely to be 'cut off' from essential services, from the ability to earn a livelihood using a phone, or even from 'losing money' that might be on apps (Akuetteh, 2022). The NCA did later reverse the decision, although only temporarily at the time. (See fn. 57 for more context about the situation in Ghana.)

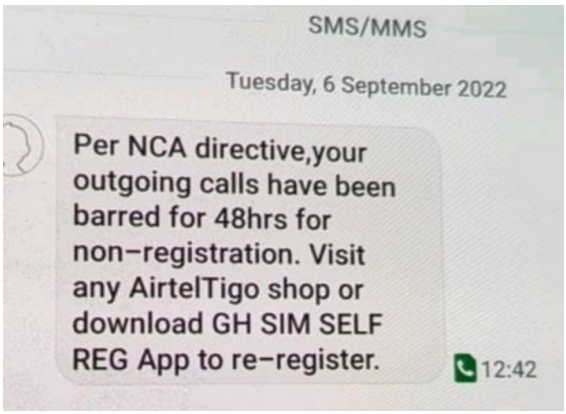


Figure 5.1: Screenshot of text message sent by a telecommunication provider in Ghana. Source: Akuetteh (LinkedIn), 2022.

This example illustrates how closely related risks pertaining to the technology itself (or the digital dimension) are to the social dimension of digital development risks. A seemingly technical choice to make one service dependent on another (e.g., having

access to a birth certificate), in this instance, can pose exclusionary consequences in contexts that are problematic for 'non-technical' reasons (e.g., administrative delays).

Given the complexity and relevance of exclusion challenges, especially on the continent, some interviewees say they have found the tendency of civil society organisations (CSOs) to primarily focus on denouncing the privacy risks associated with digital IDs curious and even frustrating. Nanawati, for example, suggests that privacy is 'a non-issue' for many poor people in global majority contexts because 'a poor person will be more interested in having a subsidy from government than protecting his name or address or identity' (interview, 2021). Kent, in turn, points out that concerns about some of the privacy risks of digital IDs in African contexts tend to derive from activists in the global North who have 'more privileged backgrounds' and draw on that 'ideology' to make certain assumptions of what should matter in African contexts (interview, 2021). As a result, they point out that CSO perceptions of risks tend to focus on privacy rather than exclusion risks, which are often more relevant in global majority contexts. They note that while it might not always be acknowledged, 'there's an ideology at play here' (anon, interview, 2021).

Atick, in turn, complains that CSOs tend to oppose digital IDs in their entirely rather than engaging in more constructive dialogues about how to improve them, or how to put in place 'guardrails' that can mitigate the risks that accompany these systems. This is at least partly why he is concerned that CSO pushback about the rollout of digital IDs on the continent, especially since the Covid-19 pandemic, has led to IGOs and policymakers becoming more hesitant about embracing digital IDs. In Kenya, for example, various court challenges have led to the rollout of a contentious digital ID project (the *Hudumba* number) being halted on separate occasions (Van der Spuy et al., 2021). Atick worries that 'the good side of the project' has been shelved as a result of 'unreasonable' critique and pushback, and its future is 'in doubt' because politicians become risk averse after 'too much pushback' (interview, 2021).

Atick argues that 'total opposition' to digital IDs is short-sighted because adoption (and ICTs more generally) is inevitable – although the ways in which these technologies are developed can shape more beneficial developmental outcomes (interview, 2021). Marskell agrees, arguing that the 'concept of choosing not to be digital' is not really

feasible: 'I think it's a *fait accompli* that the world is digital' (interview, 2021). This echoes the risk of adverse inclusion explored earlier in this subsection, namely that the choice to use digital IDs, or to be registered or not, is often not effectively a choice. With an increasing number of public or essential services only being available to those who have (digital) IDs, or even being 'stacked' on top of foundational digital ID systems, most Africans cannot afford to not participate or use digital IDs.

However, for some Africans who are in particularly difficult situations (e.g., areas of strife or conflict), as mentioned above, non-registration (even if it means potential exclusion from essential public services) is an important way of mitigating or avoiding risks like their personal data falling into the wrong hands and/or being misused in the future. Others may also choose to not be registered because they do not want to be liable for responsibilities that come with being 'counted' (e.g., taxation). At a user level, non-participation is therefore highlighted as a risk mitigation strategy (Steinacker, interview, 2021). (Given that user perceptions were not investigated in this research, it is beyond the scope of this work to delve into this finding in more detail at this stage.)

In the next section, I unpick this ambiguity of risks by considering specific examples that span risks related to the social and digital dimensions of digital IDs and related risks.

5.4.3 Data, refugees, and the ambiguous dimensions of risks

The development, implementation, and maintenance of digital ID infrastructure also introduce risks related to the overzealous collection of data; the potential misuse of data; and/or the use of data for purposes for which it was not originally collected. In respect of the first challenge, Khan, who has also worked on projects for organisations like Smart Africa and ID4D, says there is a growing demand and appetite for owning more data, especially in contexts where it appears to be easier to get away with harvesting data. She argues that this 'whole colonisation' is a consequence of the 'data is the new oil' rhetoric popularised by some actors on the continent in the past decade. An 'ugly example', she says, is the case of WFP (whom she used to work for) reportedly refusing to deliver food to Yemen unless people in the country would share their personal data – data which the

organisation arguably had no strict need for in order to be able to deliver on its mandate (interview, 2021).

The question of who is entitled to Africans' data has become a particular concern where refugees are concerned. Based in the history of refugee management after World War II (see section 5.2), many IGOs insist on maintaining their own, separate (digital) ID systems that apply only to some populations, like refugees or migrants. This can cause significant disjuncture in or with national systems. Steinacker explains that because IGOs like UNHCR can afford more sophisticated ID systems, the 'gap' between what UNHCR does and what countries do becomes bigger. As a result, refugees tend to be 'very well registered' and supported, while at least some local populations can be in comparably difficult circumstances with little to no support. This disconnect can create strife between local and refugee populations – as seen in the vignette from the introduction of this chapter – but is further problematic in that different systems do not communicate with each other and data is not shared between development actors and national governments that will, as a result, struggle to integrate refugees or to understand challenges or needs, or indeed to plan for their populations.

In Uganda – which hosts the largest refugee population in Africa today (1.52 million refugees in January 2023[76]) (European Commission, 2023a) – the government reportedly demanded access to data collected by aid agencies like UNHCR in the process of registering refugees in their country from the mid-2010s. Steinacker, who was working for UNHCR at the time, says the organisation repeatedly denied these requests as it, 'like any bureaucracy', was 'protecting their turf'. In 2015, the Ugandan government reportedly declared that it would, going forward, manage refugee registration processes itself without the 'help' of international development actors – who would nevertheless still be expected to deliver food and other support. A subsequent audit by WFP indicated that not only did the digital ID technology selected by the government to facilitate the registration process fail to work properly, but refugee numbers (used to calculate food and aid donations by development actors like UNHCR and WFP) had been significantly inflated by even registering 'whole Ugandan villages' (rather than only stateless refugees). To prevent development actors from wholly withdrawing from the country

[76] This was before renewed strife in Sudan in April 2023, which might have increased the numbers of refugees fleeing from the country.

and risking refugees being left without essential services, including food, a settlement was eventually reached to enable UNHCR to co-manage verification exercises (Steinacker, interview, 2021).

Besides incidents like this one risking 'a major blow to national sovereignty' (Steinacker, interview, 2021), they can also lead to institutional clashes and discrepancies, like risks of 'assistance shopping' and 'baby swapping' in cases where citizens might have the perception that migrants or refugees have access to more support or assistance than they do:

- Baby swapping occurs when refugee and local families arrange among themselves to register their babies as refugees in order to gain more access to refugee benefits: 'people will do a lot of tricks to get on that list of privileged foreigners' (Steinacker, interview, 2021). This is at least partly because there is often envy about what 'foreigner' refugees have access to in terms of services or benefits, and especially in impoverished or deprived areas where local populations are also struggling, albeit in different ways. 'The eligibility [for humanitarian aid] is not whether you're poor or not,' Steinacker explains. 'The eligibility is whether you are a foreigner or not, whether you're [a] refugee or not.'

- The discrepancy between refugees' and locals' access to assistance services can be aggravated by competition for scarce resources in contexts where refugees or migrants also try to work and integrate into local societies. This not only creates incentives for assistance shopping – for locals to pretend to be refugees in order to also gain some relief – but can ignite tensions between local and refugee populations, or even becomes 'fodder' for local politicians (Van der Straaten, interview, 2021). These tensions can 'boil over' and have disastrous consequences (Steinacker, interview, 2021), as seen in the vignette in this chapter's introduction.

The risks introduced by such discrepancies not only relate to differences between how locals, refugees, and migrants are treated, but also include broader systemic and institutional differences between the often-sophisticated systems developed by

international development actors, and the systems developed or inherited by national governments. With many African countries already struggling to register their own populations, they rarely have surplus funds to spend on registering foreign populations. Since one UNHCR objective is to prevent refugees from being deported, the organisation steps in to issue refugee IDs. These IDs might have the country's logo on it to 'sweeten the deal', but data collected in refugee registration processes will typically belong to UNHCR (Steinacker, interview, 2021). As was also seen in the Ugandan and South African examples, UNHCR and national ID systems rarely exchange information about these 'different' populations and their respective needs.

Besides the risks posed by these digital development processes for beneficiaries and other local populations, incongruencies like the ones between refugee and local systems can shape a growing insistence on data localisation on the continent (which is tied to the development of an African agenda on digital transformation, discussed in section 5.3). This tendency is visible in continental policy frameworks too: for example, in the AUC's *Interoperability Framework for Digital ID* (see section 3.6.3), one of the ten guiding principles adopted by AU Member States emphasises the need to 'guarantee the sovereignty of Member States, ensuring data sovereignty. Notably, digital ID data belongs to, and remains in the control of Africa' (AUC, 2022). The other principles, to a large extent, echo the (World Bank) *Principles on Identification for Development* (see section 5.5.1 below).

The insistence on hosting data locally, where it can remain 'in the control' of the continent, introduces contextual or geographical risks ranging from the provision of electricity to power cuts, and to the impact of conflicts in neighbouring countries, which is especially relevant when data centres are located near borders (Khan, interview, 2021). The climate crisis and/or the environmental impacts of locating data centres on the continent – which are particularly relevant to understanding *responsible* well-being both now and in the future – are not mentioned by any interviewee. Not only the collection and ownership of data (and data centres) are problematic, however, but also the environmental impacts thereof (and data centres in particular), and the potential (mis)use of data. In contexts where technological determinism is rampant, governments can have unrealistic expectations of digital IDs' affordances – and are often especially taken by the securitisation options that became more prevalent in digital ID discourse

after 9/11. Atick, for example, explains: 'The first thing that comes to their mind are the movies, James Bond and the applications. They see these things with the iris, the hand, the face and all that' (interview, 2021). Kent, similarly, says that some countries become 'overzealous' in attributing various potential applications to digital IDs: 'like a hammer, where everything you see is a nail' (interview, 2021).

The overzealous collection of data can introduce various risks if data might 'fall into the wrong hands' (Nanawati, interview, 2021) in the future. This is why, Steinacker says, an organisation like UNHCR is 'extremely reluctant' to share data centres and sets (as in the case of Uganda). Explaining that 'the point, of course, is [that] you can't get the ghost back into the bottle' (*sic*), he stresses that the potential consequences of misuse or breaches can be catastrophic, especially where the work of some development actors is concerned (interview, 2021):

> *You can be very upset about bureaucracy wherever you are, but no bureaucracy in the UK or in South Africa can basically put you or your family at the risk of let's say starvation or no longer being eligible for healthcare or anything. Aid agencies have this power.*

This power has existed, and been abused, even before IDs were digitised (e.g., Aly & Roth, 2004). In South Africa, the ID or permit system (*dompas*[77]) was instrumental in furthering and enabling racial segregation policies under the apartheid regime (Breckenridge, 2014). And in the same year that South Africa had its first democratic election, the misuse of ID data (particularly ethnic categories on ID cards, a practice that was reportedly inherited from Belgian colonists) helped to facilitate one of the most tragic travesties of the past century in Rwanda (Fussel, 2004; Piton, 2021). Steinacker, who was based with UNHCR on the Tanzanian border to receive refugees in 1994 during and after the genocide, says that while digital IDs have more applications (and pose more promises) than their predecessors, 'obviously, paper identity cards were absolutely sufficient to kill a million people in three months' in Rwanda (interview, 2021).

[77] This Afrikaans portmanteau translates to 'dumb pass' and refers to the identity document black people had to carry with them to prove their right to work and live in a particular area during apartheid (cf., fn. 62).

Based on these and other historical experiences, one anonymous interviewee says digital IDs can be a 'catch-22 thing', where the potential benefits of these ICTs today could lead to unexpected risks in the future: 'giving them [beneficiaries] a digital ID could be like a death sentence' (anon, interview, 2022).

5.5 Risk management approaches

As explored in section 5.2, the turn to and enthusiasm for digital IDs are partly fuelled by development narratives touted by various stakeholders on the continent since the adoption of the SDGs. The definitional flexibility of SDG 16.9 is a contributing factor (Manby, 2020); enabling not only a variety of initiatives to promote digital ID interventions 'for development', but shaping how development actors perceive of, define, prioritise, and/or take steps or actions to manage, mediate, and mitigate related risks (interviews: Khan; anon, 2021/2) (i.e., considerations that relate specifically to SRQ2).

In the remainder of this section, I explore some of the steps, actions, and strategies relied upon or taken by interviewees to address (or designate and dodge) risks. As noted in section 3.3.5, I acknowledge that risk management processes can assume different guises and are potentially targeted at different levels of a digital development process, including preventative, anticipatory, corrective, and/or resilience approaches. Given my interest in organised irresponsibility and risk arbitrage – which also presumes the avoidance of these approaches – I am interested in measures and processes highlighted by respondents, as well as their perceived outcomes. Some of the interviewed stakeholders try to manage the risks that accompany digital IDs through policy or design, some advocate for the wholescale avoidance of digital IDs in their entirety, and others adopt risk mitigation rhetoric while doing seemingly little to actually assess or address risks.

In the remainder of this section, I first examine the policy landscape, including perceptions of relevant developments at particularly a continental level, before turning to implementation (or failure thereof). I then look at the ways in which the design and

conceptualisation of digital ID systems are purported to act as potential risk mitigation mechanisms, before examining some examples of approaches and strategies adopted by three organisations that are advocating for the use of digital IDs on the continent, namely Smart Africa, ID2020, and ID4Africa.

5.5.1 Policy mechanisms

Echoing concerns mentioned in Chapter 2, many interviewees are wary of Africa's policy environment (or lack thereof) and its ability to mitigate the risks of digital IDs; criticising it for moving too slowly compared to the rest of the world when it comes to, for example, data protection. 'We're totally lagging behind,' complains Mbouna Oyini (interview, 2021). Many interviewees mention the example of the AU's Malabo Convention, which was adopted in 2014 but (as mentioned in section 2.2.3) it took almost a decade for it to be ratified by enough countries (15) for it to enter into force.

Despite such delays, there appears to be more appetite, at least at a continental level, to nurture policy environments for supporting the implementation and development of digital IDs. For example, in its *Digital Transformation Strategy* of 2020, the AUC identified the introduction of digital IDs as a key priority that, it argued, could both help to realise SDG 16.9 and act as an enabler of other SDGs (AUC, 2020). In an apparent attempt to operationalise this priority, the Commission appointed a taskforce in 2021 to help develop an 'interoperability' framework for digital IDs. The taskforce consisted of regional economic communities (RECs), development actors and IGOs (e.g., UNECA, GIZ, and the World Bank) – or, as one interviewee comments, the 'usual suspects' in digital ID processes (interview, Van der Straaten, 2021). The framework, which sets out 'a vision' to enable 'all African citizens to easily and securely access the public and private services they need, when they need them, and independently of their location', was adopted by AU Member States in February 2022, but was yet to be published over a year later (see fn. 27). A taskforce was, however, put together in late 2022 to start implementing and domesticating the framework.

A further challenge highlighted especially by local interviewees relates to the influence of foreign agendas on local policies like the AUC's recent digital-focused frameworks (interviews: Khisa, anon, 2021) (cf., section 2.2.3). An example is the (global) *Principles on Identification for Sustainable Development*, which contains ten principles to support the digital ID 'development agenda' by improving the 'coverage, quality and governance of identification systems that protect rights and facilitate access to services' (African Development Bank et al., 2017). An ID4D employee boasts that the normative vision provided by the principles is even influential in countries where the ID4D team has not been directly engaged (anon, interview, 2021). (As noted in section 5.4.3, the *Principles* are also quite similar to the principles included in the AU's interoperability framework.) While the *Principles* have been endorsed by a number of IGOs and other entities,[78] many interviewees have the impression that their implementation is primarily driven by the World Bank (interviews: Khan; anon; Van der Straaten; 2021).

In South Africa, for example, the Department of Home Affairs (DHA) published a draft identity management policy for consultation in December 2020. In a sub-section, the draft policy proposes principles that are said to be 'influenced and derived from the World Bank principles on identification for sustainable development' (Department of Home Affairs, 2020, p. 31). In the draft policy, the *Principles* are described as having been 'facilitated by' the World Bank and the Centre for Global Development (an organisation that is also based in Washington DC and known to work with ID4D). The ID4D team, however, seems to shy away from this attribution and prefers to be couched as but one of many neutral partners in the initiative (cf., African Development Bank et al., 2017).

The role of development actors in setting African agendas is also visible in other policy menus. An interviewee who helped to establish a national data regulator in Africa, argues that since 'the antecedents of all our laws still strongly shows our colonial masters', new policy instruments on the continent are indicative of a tendency by African institutions' rather futile attempts at pushing back against 'the colonialisation of our laws'. An example, they say, is the imposition of adequacy requirements and of principles similar to those in the EU's GDPR (anon, interview, 2022):

[78] See: https://www.idprinciples.org.

> *… you have this recolonisation of the African continent by virtue of the imposition of legal principles, be it Francophone legal principles, or be it Anglophone legal principles with an emphasis on the GDPR.*

Be that as it may, even with the existence of principles, its implementation is critical – though often lagging, as is explored next.

5.5.2 Enforcement and oversight

One interviewee speculates that it is ironic that the development actors responsible for promoting the imposition of 'their' values on African soil tend to shirk responsibility for their own digital development processes (anon, interview, 2021). Echoing concerns in research on the topic (Hosein & Nyst, 2013; Taylor & Broeders, 2015), another interviewee who has worked extensively as a consultant by advising governments and other entities about digital IDs on the continent, says it is problematic that the SDG agenda is 'supported' by IGOs that appear to be 'above the law' and unaccountable to, in particular, national data protection laws (anon, interview, 2021):

> *All the data collection that we see from WFP, from UNHCR – and all of them are by no means compliant with any rules and any of the preaching they do. And they wouldn't give up on it because it's a power game.*

Besides development actors and impunity, the enforcement of policy mechanisms discussed in the prior section is also difficult when it comes to other stakeholders who might be less above the law. Many interviewees point out that African policy frameworks – which go some way towards identifying some of the risks of interventions like digital IDs – still need to be domesticated and, indeed, implemented (interviews: Mbouna Oyini, Atick, Steinacker, Khan, 2021/2). This might be easier said than done, as was evinced in the case of the Malabo Convention and its almost ten-year delay in ratification. Mbouna Oyini, who used to work for the telecommunications regulator in his home country, Gabon, before joining Smart Africa, points out that while African policies are often very well written, the 'biggest challenge we face is in the execution of the policies' (interview, 2021).

In the next section, I turn to the actions of the stakeholders often responsible for the 'imposition' of these policies and principles, namely development actors.

5.5.3 Risk management by design

Even if actors like the World Bank might acknowledge that they downplay the risks of digital ID processes, respondents often argue that they try to manage and mitigate potential harms in the ways they design and prepare for these interventions. Marskell says that countries will adopt digital ID systems 'anyway', and organisations like the World Bank can 'help them reduce the risks' (interview, 2021). One way in which they say they do so is by promoting 'human-centred design' and safety-by-design features, which also enable organisations that might find it difficult to have 'tough' conversations about potential risks to instil safeguards 'directly' and by default into the technical design of ID systems they encourage countries to adopt (Marskell, interview, 2021).

To do so, however, development actors need to gain and/or have a realistic understanding of potential risks (in specific contexts) that might need to be managed through design and other measures. Indeed, the World Bank's operational guide for practitioners – which is aimed at actors responsible for implementing digital ID ecosystems, and potentially with World Bank support/loans – acknowledges that developing a system 'that meets developmental goals is a multifaceted challenge in any context, including mitigating potential risks to privacy and inclusivity, as well as system sustainability' (World Bank, 2019a, p. 5). In addition to identifying a list of general risks (exclusion, privacy and security violations, vendor or technology lock-in, and unsuitable or unsustainable technology and design choices), the guide highlights general challenges that it says are particularly prevalent in low-and middle-income countries. These include weak civil registration systems, limited connectivity and other infrastructure, lower literacy levels, lower government capacity and/or trust, poor procurement, and insufficient cybersecurity capacity (World Bank, 2019a, pp. 7–8).

Marskell says that the ID4D team 'does a lot to identify and mitigate the risks', even if he acknowledges that it might not always be sufficient. Besides its general practitioner

guidance and its work with governments, Marskell points out that World Bank project appraisals, which are done before every project the Bank finances, contain a section elaborating on various types of risks (interview, 2021). He says that much of what the organisation does, however, happens behind closed doors and on condition of confidentiality, making it difficult to elaborate on or disclose (interview, 2021):

> *We have very tough conversations with governments, and these are not things that we publicise, because in order to get into the room with governments to talk about these things and to be taken seriously, I think there's got to be an element of trust and confidence that these are things that won't be in the public domain.*

While not unique to the Bank, a former consultant who was responsible for doing digital ID project appraisals is sceptical about the value and depth of published documents (anon, interview, 2021). Not only do they say 'risk assessments' conducted by most development actors about digital ID projects tend to be 'brief' or 'one-sided' (i.e., from the perspective of the agency or government who commissioned the research), but these assessments are typically delivered on too tight a budget or timeframe to realistically reflect upon the existence and definition of risks and the responsibility for managing them. The result, they argue, is that most consultants only tend to do a 'tick-boxing' exercise when they undertake country 'risk assessments' (anon, interview, 2021):

> *They [the development actors] just didn't spend a lot in resources and efforts to get both sides of the thing: 'Are we really doing something that makes sense?' That they're afraid to answer that question is just suspicious; it's not healthy. It's really not healthy.*

The consultant also argues that these 'assessments' dedicate too little consideration to (social) risks that extend beyond pure economic costs (anon, interview, 2021). Where CBAs are commissioned (cf., section 3.7.2 a), more specifically, 'benefits' tend to relate to claims about economic growth, but 'the evidence for it is just lacking'. Costs, in turn, are often construed as direct financial expenditure and tend to lack adequate reflection upon other or indirect risks and potential harms 'that come with these systems'. Using one country assessment (which was never published) as an example, they say (anon, interview, 2021):

> *So, the CBA for [a specific country in Africa] tells us that its advantageous to do an ID system for these reasons – for the savings. It says there are no costs other than what the system costs, but the negative externalities of the system have not been covered in the analysis.*

In a World Bank 'country diagnostic' for Nigeria, for example, one chapter explores the potential fiscal impact of introducing a form of digital ID in the country, while acknowledging that it is an 'illustrative' case (World Bank, 2016). In the analysis, the 'magnitude of fiscal impact' caused by the existence of multiple (often overlapping) digital ID systems in the country is assessed by considering the 'unit cost of identity per person' (the capital and operating expenses of setting up and running the relevant infrastructure), the number of identities (the target number of residents or beneficiaries), and the life-cycle cost of the identity programme (the product of the cost of identity per person and the number of identities that it plans to retain). Using various assumptions to derive figures for the country, the authors write that the fiscal impact of identity programmes in Nigeria is USD 4.3 billion, and argue that a more integrated system (i.e., a system where one, rather than multiple digital ID systems, exist) 'can offer significant cost savings to the fiscal burden of the government' and could even 'be offset by savings in government efficiency' (World Bank, 2016). The analysis considers neither negative externalities nor risks.

While hesitant to breach non-disclosure agreements that they concluded with an IGO with 'deep pockets', a consultant says the CBAs they had to do for some countries were either never published in full, or they found that much of the critical context, background, analysis, and warnings about risks that they carefully provided were redacted or edited out before the appraisal documents were published. They complain (anon, interview, 2021):

> *Why can these people not be more nuanced, more sophisticated, when they look at the pros and cons of doing this other than focusing on something which basically boils down to the substitution of labour?*

To illustrate their concern about the paucity and 'flimsiness' of these 'assessments', the consultant shared a copy of a (final) draft project assessment document they prepared for a major development actor who was investigating the possibility of proposing a digital ID 'solution' for an Africa country. While a detailed comparison and analysis of what was redacted from the report published by the entity concerned, compared to their original draft, is not feasible without disclosing the consultant's identity, it is clear from the interview and the shared documents that there are significant differences between the two versions – and differences that extend beyond mere proofreading, editing and/or layout changes. Among other differences, the original draft was almost three times as long as the report published by the IGO, and contained much more detail about potential contextual challenges and risks than the published report. Rather than infer more nefarious interpretations for why seemingly important content is stripped from these appraisal assessments, the consultant says they believe the reason for 'simplifying' the narrative is, quite straightforwardly: 'people at [the organisation], don't like to have to read long elaborate documents. They themselves want it simple' (anon, interview, 2021).

It is perhaps unsurprising that the practices of certain IGOs working to promote digital IDs for development is drawing increasing scrutiny from CSOs for, among other reasons, failure to take sufficient steps to understand or mitigate potential risks before roll-out. In September 2022, a group of over 70 CSOs, activists, and academics addressed a letter to the World Bank in which it urged the Bank 'and other international organizations' to stop promoting 'harmful models' of digital ID. In the letter, signatories refer to 'mounting evidence' that reveals the 'harmful impact' of digital IDs on human rights, especially when 'new or upgraded systems' are 'arbitrarily de-linked from legal status' and systems are adopted that 'enable surveillance, exclusion, and discrimination against vulnerable and marginalized communities' (Privacy International et al, 2022). The World Bank did not issue an official reply.

In the next section, I turn to some examples of how CSOs and other stakeholders propose to use guardrails and other risk management efforts for dealing with these 'hot potatoes'.

5.5.4 Other risk management efforts: guardrails and principles

Smart Africa, which was introduced in section 5.2, has a project dedicated to promoting digital IDs in Africa. Its digital ID blueprint (Smart Africa, 2020a), provides high-level principles, 'the required institutional arrangements', and 'an initial roadmap' for creating 'an effective framework for safe and trusted cross-border digital interactions in the future' – one which, employees say, prioritises the aforementioned 'African agenda' (Khisa, interview, 2021).

While having an African agenda should not necessarily preclude defining and managing risks, the risks associated with becoming 'Smart' – or connecting, innovating and transforming, in Smart Africa parlance – remain unclear. Despite the blueprint containing a section on risks (Smart Africa, 2020a), interviews with some of the organisation's employees indicate that Smart Africa seems to have made limited effort to define or manage the potential risks and outcomes of its work or digital ID interventions on the continent (anon, interview, 2021). One employee acknowledges that the 'rhetoric' of risk definition and management at their organisation, and elsewhere, tends to amount to little more than a tick-box exercise (anon, interview, 2021):

> *… the rhetoric around it is just that 'yes, we always make sure that no one is left behind', but you know the rhetoric. I mean, the reality is that we don't have a mechanism to do it.*

Other ID advocacy initiatives have been more proactive on the risk management front. Both ID2020 and ID4Africa – initiatives mentioned in section 5.2 above – have attempted to engage more actively in trying to define risks of or 'guardrails' for digital IDs (Atick, interview, 2020). ID2020's website, for example, hosts a 'risk appetite statement' which argues that the organisation would have to be willing to take 'significant' risks in order to 'move the world of digital identity forward'. It identifies three types of risks – resource, reputational and stakeholder risks – and argues that stakeholder risk, namely the risk of causing harm to intended beneficiaries, is the most important risk to the organisation. At the same time, the statement emphasises the evolving and often-untested nature of technology involved, and argues that

'opportunities that maximize the greater good – whether measured on the macro or micro scale' must be weighed against risks (Kunzle et al., 2021):

> *We are walking a path as yet untrodden, and must be able to let things fail in controlled ways in order to learn and move forward.*

ID4Africa, in turn, has become known for the gatherings it hosts for private and public sector actors to meet and discuss (and sell) digital IDs (see section 5.2).[79] During the pandemic, it pivoted to host a range of webinars, including a series of discussions on the 'dark side of digital ID' and how to mitigate the related risks (ID4Africa, 2021). Atick says the organisation now spends a significant amount of its time promoting the erection of 'guardrails for digital ID' (interview, 2021). He argues that the guardrails for digital IDs should extend beyond the (World Bank) *Principles* which, he says, 'are not enough'. Arguing that 'left to its own devices', digital ID systems are driven by too many nefarious motives to support developmental objectives in a positive way, Atick says he expects governments and the digital ID community 'to basically work together, to create the guardrails; and the guardrails have to go beyond the Principles' (interview, 2021).

5.6 Conclusion

In complex, ambiguous African contexts where people are reduced to clutching the worn pages of identity documents as if they are a lifeline (or, aptly named, a 'book of life'), what can or does digitisation (and 'development') mean? More importantly, when development actors propose digital IDs as potential panacea for these and other challenges, how do they define and manage the risks that may accompany these digital development processes, as my empirical RQ asks? And how and why – as my overall question asks – do related digital development risks shape these digital development processes?

[79] Before its in-person meeting in May 2023, for example, ID4Africa sent an email to subscribers to note that it had secured 'a record-high 1700+ delegates registered, of which 800+ are from governments. Not only have registrations exceeded all categories, but the enthusiasm, diversity and incredible engagement from African government officials forecast an unforgettable experience!' The sponsors it listed for the event were primarily European and US-based identity infrastructure providers like HID, In Groupe, and Thales.

In this chapter, I explored the use of digital IDs as an example of digital development processes at a continental level. I started by first examining why and how digital IDs have become popular development tools by reviewing certain milestones highlighted by interviewees, which also indicated that different agendas for promoting digital IDs can introduce or exacerbate diverse risks which, in turn, shape potential consequences for risk beneficiaries. I then turned to stakeholders' definition of risks (SRQ1) associated with digital ID processes. In the final section, I examined various efforts to manage these risks (SRQ2), however poorly defined I experienced them to be in the first place.

My thematic analysis indicated a rather problematic tendency among the development actors I interviewed to avoid, shirk or reallocate the responsibility to define and/or manage digital development risks (i.e., risk arbitrage). Given that many African contexts lack adequate regulatory safeguards or enforcement capacity, this indicates that the responsibility for managing risks is avoided or designated elsewhere (and often away from the development actors at least partly responsible for introducing these risks in the first place). My findings indicated that the responsibility to deal with or manage these risks often effectively lands at the feet of risk beneficiaries, whether explicitly or implicitly.

The next chapter provides me with an opportunity to ascertain whether the paucity of risk definitions and related management processes I experienced at this broader level, and discussed in this chapter, are also present when I look at more specific examples of digital IDs, and with what potential consequences. To do so, I look at contact-tracing interventions as examples of functional digital IDs, and focus specifically on examples of these interventions that were developed and implemented at a national level during a unique period of time (during a state of disaster declared as a result of Covid-19) in one country, South Africa. In this nested case, the ways in which policymakers relied upon digital interventions to respond to aspects unique to the pandemic, and for reasons ranging from perceived necessity to the need to either appear to be proactive or to distract subjects from policy failures, are examined. While Chapter 5 and 6 are based on a first-level thematic analysis of my data, I separate the composite construction of the relevant cases provided in these chapters into component findings and dimensions for a second-level, critical analysis in Chapter 7 (cf., Danermark *et al.*, 2001, pp. 109-111).

CHAPTER 6: USING TECHNOLOGY TO 'FIGHT A PANDEMIC'[80] (NESTED CASE)

6.1 Introduction

In early 2023, while taking a break from writing in the dreary hallways of Datahouse in Technopark (see Chapter 2), I visited the Kgalagadi Transfrontier Park, a vast wildlife area in a northern corner of South Africa that extends across some of the country's borders to include neighbouring conservation areas in Namibia and Botswana.[81]

One morning, I met a local game ranger who belongs to the ≠Khomani San or Bushmen[82] community – indigenous people known for their hunter-gathering culture and vast knowledge of the environment. While crouching on an ochre sand dune to point out the tiny tracks of a juvenile puffadder,[83] the ranger and his quiet Kalahari home seemed worlds removed from the risks that define this chapter: the Covid-19 pandemic, and the promotion of certain digital technologies in response to the pandemic. But the ranger said the ≠Khomani community were also touched by the ravages of the pandemic, least of all because the park was closed for tourists during many of the lockdowns in Botswana, Namibia, and South Africa. When a Covid-19 vaccine eventually reached this remote part of the world, the ranger was not too taken with it; he told me that the ≠Khomani people already had plenty of natural remedies on their sandy doorsteps, from the watermelon-like *tsamma* (*citrullus lanatus*), the root of which is used for stomach ailments, to the hallucinatory *malkop-ui* (Afrikaans slang that translates as 'crazy-head onion', or *dipcadi glaucum*), which, when ingested, can make animals and humans wander listlessly in circles and 'do strange things'. When I asked the ranger about the mobile phone that was visibly peeking out from one of the breast pockets of his khaki uniform, he said he sometimes buys the costly WiFi bundles available in the park's larger

[80] Ramaphosa (2020h).
[81] With an area spanning almost 40 000 km^2 that remains largely untouched by cellular reception, the rather-disconnected Kgalagadi is an obvious choice for taking a break from a project that focuses on the consequences of connectedness and ICTs.
[82] The guide preferred to refer to himself as a Bushman (*Boesman*) rather than *San*, a term which is also commonly used to refer to his people.
[83] One of South Africa's most lethal vipers.

rest camps. But, he added, he's not too invested in his phone, or, more precisely: 'I'm not so deep in my phone' (*ek's 'ie so diep innit 'ie*), since he has seen how it 'causes problems for the people' (*dit maak probleme virrie mense*). Not unlike the *malkop-ui*, I could not help but think.

Even this remote part of my country was therefore not that removed from the problem that defines this chapter. (Although this might indeed be a case of seeing every problem as a nail when you are holding a hammer.) Having, in the previous chapter, examined the definition and management of risks that accompany certain digital development processes, namely digital IDs, in an overarching, African context, I turn to my nested case study in this chapter, which considers the use of a specific type of digital ID, namely contact-tracing apps during the Covid-19 pandemic in South Africa. This chapter therefore recalibrates the broad focus that defined Chapter 5 to a narrower example of risks at a smaller, country-level dimension. In particular, this chapter enables me to further explore some of the lessons learnt and questions raised in the previous chapter, including: the relevance of understanding (historical) contexts into which digital development processes are injected; the difficulty of defining the risks associated with these processes (and a tendency to avoid the responsibility to do so); the role of partnerships in these processes; and the ways in which stakeholders manage – or fail to manage – these risks. Together, these findings, which are analysed in Chapter 7, also enable me to make certain claims that go some way to answering my theoretical RQ, which is concerned with how and why digital development risks are important in shaping digital development processes.

Given the potential legacy of decisions taken and digital interventions introduced during the initial stages of the pandemic, this chapter focuses primarily on the first six-to-twelve months of the state of disaster (from March 2020), but where important or relevant, I also incorporate references to incidents or developments that happened thereafter.

While it might be difficult today to recall the sheer confusion, uncertainty, and (at times and for some) terror that characterised this period of time (and South Africa's two-year state of disaster more broadly), it is important to do so for the purposes of this chapter. The first part of the pandemic arguably has a lot to say about what it is that people reach

for in a time of crisis, and how stakeholders define and mediate associated risks. More specifically, the digital interventions that were proposed and implemented in this rather exceptional time to respond to various dimensions of the pandemic were the outcomes of a period in time when normal rules might not have applied and some 'leeway' might have been granted (Section 27, 2020). While contact-tracing apps were developed primarily as a public health response during the pandemic (see sections 2.3.2 and 4.4.2), their potential consequences are much broader than public health considerations alone, and have already proven to be more long-lasting than the pandemic. As such, they are interesting examples of the design, financing or funding, and/or deployment of ICTs for development purposes.

In the first part of this chapter (section 6.2), the digital interventions that stakeholders chose to rely upon or at least promote during the state of disaster associated with the Covid-19 pandemic, are examined alongside potential motivations interviewees proffer for turning to certain interventions. The latter is important for also understanding how stakeholders perceive of or plan for potential outcomes of these processes (a consideration which is also relevant to my theoretical RQ). I then turn to definitions of the risks associated with these interventions (section 6.3) (SRQ1). In the last part of this chapter (section 6.4), the actions and steps stakeholders take to manage the defined (or other) risks are explored (SRQ2). As noted, I analyse, compare and contrast these findings, together with findings from my overarching case, in Chapter 7.

6.2 Background: digital interventions 'to combat' Covid-19

In early April 2020, President Ramaphosa published disaster regulations that among other things facilitated the use of ICTs in pandemic responses (cf., section 2.3.3), including for contact-tracing. Some interviewees said that government's turn to digital contact-tracing mechanisms at this early stage of the pandemic was driven by necessity: in one of his 'family gatherings', Ramaphosa said that policymakers have had to 'utilise various tools in our coronavirus toolbox to fight this virus' (2020h).

This also extended to testing, tracing, isolation, and containment efforts. Manual contact tracers were quickly 'completely overwhelmed' (Wolmarans, 2020 in WC Provincial Parliament, 2020) as the potential scope of the pandemic and the speed at which the disease was spreading became more apparent (cf., section 2.3.2). Gaurang Tanna, the National DoH's Head of Policy Coordination and Integrated Planning (and the person eventually responsible for government's digital interventions during the pandemic)[84] explained in an interview at the time (cited in Hunter, 2020):

> *… we knew very soon we'll probably face a similar problem to other countries, and manual contact tracing will not keep up, and in fact, we already saw signs of it early on in the pandemic. So we were always hunting for a solution that we could use to try shift some of the work we have to do onto technology.*

Digital interventions for contact-tracing were considered crucial for shifting some of the load from healthcare workers 'onto technology', thereby 'improving' the government's ability to respond to the pandemic and preventing the health system from being overwhelmed (Tanna, interview, 2022). While DoH employees are careful to emphasise that digital interventions were never meant to replace manual tracing efforts (Tanna, interview, 2022; Hunter, 2020; Section 27, 2020), Tanna did seem to ascribe life-saving potential to these interventions. Without providing any sources or data for his argument, he argued in a news interview in the first few months of the pandemic (Nortier, 2020):

> *Every 100 infections we avert with this technology we save two lives. And those two lives matter. It's a fairly low-cost intervention and it's the least South Africans can do to help us fight Covid-19.*

Besides perceived necessity, interviewees pointed to a general tendency towards technological determinism (cf., section 3.2.3) in the country as a possible reason for government's reliance upon digital interventions during the pandemic (interviews:

[84] Tanna worked on these projects for much of the part of the first twelve months of the pandemic, but by the time I interviewed him in February 2022, he had resigned to take up a position at a global foundation. I use quotations from my interview with him (i.e., after he had left the employ of the DoH) in the present tense, while I use earlier quotations attributed to him and drawn from other sources (i.e., while he was still working in an official capacity with the DoH) in the past tense. (See section 4.6.1.)

Hunter, Pienaar, anon, 2021/2). In a report on contact-tracing efforts in the country, a civil society activist and researcher, Murray Hunter, also argued that 'at its heart' these efforts were 'arguably borne from technological "solutionism"' (Hunter, 2020).[85] While technological determinism in South Africa predates the pandemic (cf., section 2.2), some interviewees say that it was especially pronounced in this time. For example, when Milani Wolmarans, the DoH employee who was initially responsible for finding digital 'solutions' for contact-tracing (before Tanna replaced her), was asked about digital contact-tracing efforts at a provincial Covid-19 committee meeting in July 2020, she said that the app was 'a very innovative technology that was developed in a laboratory development environment' (cited in WC Provincial Parliament, 2020). She added, somewhat confusingly (*sic*):

> *In terms of the automated system, I would say that is more for a fourth industrial revolution technology in the contact tracing system that are being that is being deployed or, you know, where we are using machine learning and chat bots as part of the process and the technology that's part of the solution.*

This kind of rhetoric, or what one interviewee refers to as 'mumbo jumbo' (Hunter, interview, 2021), might signify not only a lack of understanding of the technology concerned by the policymakers responsible for developing it, but the 'significant pressure' policymakers were said to be under to 'to show that it was engaging in tech-based responses' (Alt Advisory, 2021) to the pandemic. Some interviewees argue that this became more pronounced after the WHO issued a guidance note in June 2020 in which it recognised the potential for digital development processes to 'play a role in enhancing' manual contact-tracing efforts (e.g., Hunter, interview, 2021). If that is the case, however, policymakers also seemed to have missed a disclaimer in the same document warning that such interventions have to be 'effectively integrated into an existing public health system'. The WHO also lamented that there is still a significant dearth of evidence of the impacts and efficacy of using digital interventions for contact-tracing (WHO, 2020, p. 4):

[85] Hunter was interviewed for this thesis (interview, 2021) and also published a report on contact-tracing in South Africa (2020). I use quotations from our interview in the present tense, while quotations from his report are used in the past tense. (See section 4.6.1.)

> *Although several countries and areas have deployed digital tools for their COVID-19 response, there is currently limited evidence to evaluate the effectiveness and impact of these tools. As such, digital tools should not be considered as 'single solutions' for contact tracing, but rather as complementary tools.*

Some respondents argue that local stakeholders seemed to 'fetishize' not just anything digital (Hunter, interview, 2021), but tried to 'learn from' what countries of primarily the global North were doing to respond to the pandemic. Various interviewees refer to an apparent desire and pressure to 'keep up with' what countries in the rest of the world, from China and Singapore to Germany, were doing as far as digital responses to the pandemic were concerned (interviews: Lydall, Mzuku, Hunter, Sewlal, anon, 2021/2). One interviewee explains that this might be because there is a tendency for South Africans to 'look to the north, and specifically to the North-West, to provide solutions to a lot of our problems' (anon, interview, 2021). Others are more sceptical, arguing that the 'government wanted high-level Chinese or Soviet surveillance systems' – even if they 'didn't succeed because of their inability to implement' such systems (Vick, interview, 2022).

Besides technological determinism, some interviewees say that technology theatre (cf., section 3.2.3) was also a driver of government's reliance on digital interventions during the pandemic. Chris Vick, the chairperson of CovidComms SA, a volunteer network of communications experts that collaborated during the pandemic to produce and distribute reliable information in digestible formats in the country, says that government communication in at least the first year of the pandemic was largely aimed at creating the perception that 'the state was in command even when not in control'. He argues that the primary audience for this message was the country's middle class (Vick, interview, 2022):

> *The state was very keen to create that perception that it was on top of the situation. And I think that mattered most, as you say, among the middle class, among the people who were on Twitter.*

Other civil society and private sector interviewees are similarly concerned that government officials might have been appropriating digital interventions to distract the

public from perceived failures in the country's pandemic response (interviews: Hunter, Power, 2021/2). And some distraction might indeed have been necessary as pandemic management evolved from crisis management to 'new normal' (ITU, 2021; WEF, 2020). By June 2020, South Africa had the fifth highest number of total Covid-19 cases in the world (Ramaphosa, 2020d), and public unrest and dissatisfaction with strict lockdowns were broiling (Naudé & Cameron, 2020). Some interviewees suggest that the government was becoming 'desperate' to project an image that seemed more proactive and productive, especially at a time when sentiments toward it were increasingly negative (interviews: anon, Vick, 2022). Digital interventions potentially offered a more positive image of policymakers' pandemic responses even if, by admission of the former government official who was partly responsible for developing the app, these interventions were 'a bit of a gamble' (interview, Tanna, 2022).

Whether policymakers justified 'gambling' with digital interventions (Vick, interview, 2022) in order to distract the population from 'the absence of a solution to a complex problem' (McDonald, 2020), or were quite simply under too much pressure to assess the need for and potential value of such interventions, is difficult to determine. Official communiques from senior government actors, however, are tinged with optimism about the promise and potential of technology to solve Covid-19-related challenges.

It is curious to note, for instance, how and when Ramaphosa's speeches referred to the need for utilising technology in general (between March and August 2020) and contact-tracing interventions in particular (between mid-August and December 2020). For example, on 12 July 2020, when the country had 12 000 new daily cases (at least those that were tested for and known), Ramaphosa warned in a speech that the pandemic 'storm' was 'upon us'. He implored South Africans to use WhatsApp to support contact-tracing efforts, emphasising a 'collective responsibility to bring down the rate of infection' (Ramaphosa, 2020g). He also mentioned ongoing efforts to digitise contact-tracing on at least two other occasions (Ramaphosa, 2020e, 2020h). A month later, on 15 August 2020, Ramaphosa said that 'a ray of light is visible on the horizon', while also hinting at the impending launch of a contact-tracing app: '…in the coming days, we will announce a powerful new tool to support our digital contact[-]tracing efforts' (Ramaphosa, 2020f).

This ray of light was, apparently, Covid-Alert SA, the country's official contact-tracing app. In the next section, I describe both this app and CovidConnect, a WhatsApp-based information service about Covid-19 which later acquired contact-tracing capability (and which preceded CovidAlert).[86]

6.2.1 CovidConnect

Launched in April 2020, CovidConnect remains operational today and started as a WhatsApp and text message (SMS) channel used to provide more reliable information about Covid-19, along with self-assessment and risk-assessment services (Mkhize, 2020a). Initially, the service enabled the government to deal with disinformation about the pandemic – a significant problem that was highlighted in many of the daily press releases from the DoH since March 2020 (e.g., DoH, 2020). As Tanna explains (interview, 2022):

> *… we started the WhatsApp channel with an intent to be the source of globally relevant information. So, in other words, to start pushing information out to the population, through a trusted source. There wasn't a trusted source at the time …*

By July 2020, CovidConnect's service offering and mission had expanded to include a form of digital contact-tracing. To do so, it invited users who received a positive Covid-19 diagnosis to inform contacts and the DoH without disclosing their identity (Mkhize, 2020a). To facilitate these interactions, the government worked with a local non-profit, Praekelt.org – with which it had previously collaborated for other WhatsApp-based health support mechanisms (Razzano, 2020, Voigt, 2020) – as well as other local entities to support on an implementation front (BCX, 2020). The partners' decision to use WhatsApp as a platform is described as 'sort of an obvious choice' primarily driven by the need to ensure that any contact-tracing intervention would be able to reach a large population, or, as one interviewee said, 'get to scale' (Tanna, interview, 2022).

[86] While these are discussed separately in the remainder of the section, it should be noted that the app is perceived to be a 'part of' CovidConnect, described on government websites as 'the official Covid-19 digital support service' (SACoronavirus, n.d.).

Tanna says the DoH had 'up to 40% of (positive) cases engaging the WhatsApp process' at its zenith, arguing that CovidConnect was not only 'effective' but 'a very African solution for Africa' (interview, 2022). In an earlier news interview, Tanna was quoted as saying that 'the service was so well utilised that the WHO borrowed it for global use' (Nortier, 2020). According to Praekelt.org's website, CovidConnect is 'the most popular WhatsApp service in the world', having reportedly enabled the DoH to connect to over 6 million citizens and health workers, thereby 'empowering officials with the information they need to make informed and effective decisions during these critical times' (Praekelt.org, n.d.). Unfortunately, there is no updated data available that indicates the uptake or the extent of usage of CovidConnect, nor does there appear to have been an assessment of these interventions' outcomes.

Despite the potential benefits of using WhatsApp to reach a larger part of the population, CovidConnect's contact-tracing elements were limited to known contacts alone, requiring infected individuals to remember or know who they have been in contact with (Alt Advisory, 2021). CovidConnect therefore 'wasn't solving the problem' since its contact-tracing capabilities were constrained by design, and Tanna's team at the DoH apparently 'knew that the next obvious step for us beyond the WhatsApp process was the app' (Tanna, interview, 2022) – i.e., CovidAlert.

6.2.2 CovidAlert SA[87]

In early April 2020, as the world-wide death toll from Covid-19 related causes passed 100 000 victims (The Guardian, 2020), Discovery Limited, a major financial services company based in South Africa, started work on a contact-tracing app. It was not the only non-state entity to do so, but it eventually became the one that government opted to work with in launching 'its own' contact-tracing app (Tanna, interview, 2022). CovidAlert is therefore a significant focus of this chapter, although insights from stakeholders involved with unsuccessfully trying to develop alternative digital interventions for contact-tracing are also referred to when relevant.

[87] The app was also referred to as COVID-Alert SA or Covid Alert by different stakeholders. For the sake of consistency, CovidAlert is used throughout this thesis. While CovidAlert remains downloadable from app stores, it is no longer operational.

With almost 3 million insured health members or customers, Discovery Health (a subsidiary of Discovery Limited) is the largest medical scheme in South Africa (BusinessTech, 2021). According to interviewees who work for the company, when the pandemic reached South Africa, Discovery's leadership were concerned about how to keep their members healthy (a failure to do so would naturally cost the company). The company therefore reportedly opted to invest in digital contact-tracing mechanisms given the capacity restraints the DoH were operating under (anon, interview, 2022). One Discovery employee explains that the pandemic compelled the company's digital teams to consider novel and digital ways to keep their members safe (anon, interview, 2021):

> *We're sitting at home and we're all thinking, "Oh my God, how do we keep our members healthy?" Okay, so we've got access to technology. We've got capability in-house that we can lean on …*

The company first tried to 'do its own thing' (anon, interview, 2022) while examining digital approaches that various other countries had adopted for contact-tracing, as well as its experience in developing products for its own customers (and their smartphones) (anon, interview, 2022). While its potential user base was originally its own members, this approach shifted to a broader audience when the company realised that enabling its insured members to contract-trace only within its own customer basis would be counterintuitive. As one senior employee closely involved in the development and implementation of the app notes, Discovery realised that: 'If we're going to do anything, we need to spend money and do it for the country' (anon, interview, 2021).

While Discovery was working on its intervention for contact-tracing, Apple and Google had started rolling out their own contact-tracing EN framework (see section 2.3.2).[88] In a press release issued at the time, the companies said that they hoped 'to harness the power of technology to help countries around the world slow the spread of COVID-19 and accelerate the return to everyday life' (Apple, 2020a). They would allow certain apps made by national health authorities to use Bluetooth technology in the background

[88] When I tried to interview someone from these organisations, I was told by an Apple company representative that they 'rarely give retrospective interviews and aren't planning any around this subject either' (Howorth, personal communication, 2022).

(when apps are off-screen) as long as such authorities used Google and Apple's EN application programming interface (API) (Veale, 2021).

A Discovery employee says that the Apple-Google partnership was similar to what Discovery was trying to do in 'caring for' the 'whole country' rather than just its insured health members (anon, interview, 2021). They posit that Apple and Google must have realised that they would have to help contain the pandemic if they wanted a 'world to sell devices to'. Perhaps coming to similar realisations about their future in South Africa's health market, Discovery pivoted its approach in order to benefit from the EN framework's capabilities. A Discovery employee explains that Google and Apple held 'a strong card' because failure to use the EN framework would pose 'a very massive problem with battery life' and had already led to people uninstalling contact-tracing apps in other countries (anon, interview, 2021).

The DoH launched CovidAlert on 1 September 2020, seven months after the first Covid-19 infection was first traced in South Africa. In a press release to announce the app, Minister Mkhize stated that it was developed 'at no cost to the Department, through a partnership with world-class developers at Discovery, Apple and Google' (Mkhize, 2020b). The Director-General of Health, Dr Sandile Buthelezi, was also quoted as saying that the app would provide 'additional armament to achieve suppression of the virus and prevent outbreaks' (Mkhize, 2020b), while Tanna noted in a news interview at the time that CovidAlert is 'a crucial public health intervention' (Nortier, 2020).

After the launch of the CovidAlert app, Ramaphosa promoted it in almost all of his public statements related to the pandemic (or family gatherings) for the remainder of the year. On 16 September 2020, he did so in substantial detail: he talked about the safety and privacy of the app ('the app is completely anonymous, it does not gather personal information, nor does it track anybody's location') as well as incentives to encourage download ('the app has been zero-rated by mobile networks, so you can download it without any data costs'). He issued a call for 'everyone who has a smartphone in South Africa' to download the app, and noted that people without smartphones could still use another (digital) intervention, CovidConnect (Ramaphosa, 2020g), ignoring the fact that it requires WhatsApp to run. Two months later, in a speech on 11 November 2020, Ramaphosa lamented what he called 'coronavirus fatigue' and then repeated his detailed

description of the app while imploring people to download the app. He also emphasised the importance of using technology 'to fight the virus' (Ramaphosa, 2020h).

Ramaphosa seemed to stop promoting digital contact-tracing efforts in at least his speeches more or less when he started to talk more about the procurement, availability, and distribution of vaccines in early 2021. In the fourteen (14) family gatherings he hosted in 2021, he only mentioned the app once, and in a rather perfunctory manner (Ramaphosa, 2021).

Similar to Ramaphosa, the (now former) Minister of Health, Dr Zweli Mkhize, referred to the DoH's digital Covid-19 responses on a daily basis, at least until shortly before he was placed on special leave on 8 June 2021 for his alleged involvement in major pandemic-related corruption committed under his leadership (discussed in section 6.3.2 b below). In almost all of Mkhize's daily Twitter updates on the state of the pandemic (detailing the number of infections, deaths, and recoveries), he referred to the app and implored South Africans to use the app to protect themselves and their communities (e.g., Mkhize, 2020a, 2020b, 2021) (see an example in fig. 6.1 below):

> *Use the COVID Alert SA app to protect yourself, your loved ones and your community. Start using this privacy preserving app today. Add your phone to the fight! Download the Covid Alert SA app now!*

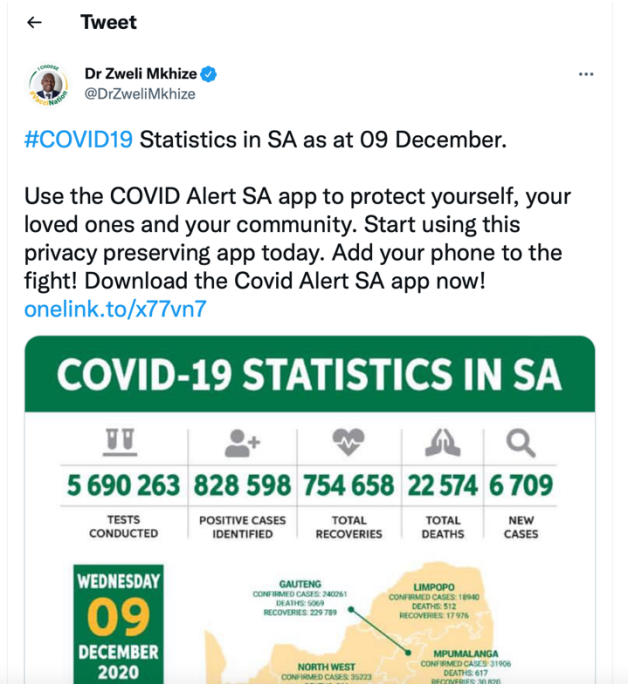


Figure 6.1: Example of a tweet from Minister Mkhize promoting CovidAlert. Source: Mkhize, 2020b.

No updated data is available regarding the uptake or the extent of usage of CovidAlert, and there does not appear to have been any assessment of the intervention's outcomes, even from a public health perspective. The limited data that is available indicates that usage and download numbers never quite reached any of the thresholds for which the stakeholders involved were reportedly hoping. Shortly after the app was launched, Tanna claimed in an interview that it had been downloaded by 600 000 people in the country. He added that the team was aiming for 10 million downloads, a goal which he predicted 'can be achieved in a week' (Nortier, 2020). That goal was not reached, and neither was an adjusted goal for half that number of downloads (5 million) (Alt Advisory, 2021). Official numbers for the app were last mentioned in December 2020, with Tanna noting in a webinar at the time that 'more than a million people' had downloaded the app as at 1 December 2020 (Section 27, 2020).

When other stakeholders who were involved in the development of CovidAlert were interviewed in the first quarter of 2021, they generally deflected questions about outcomes in general and usage numbers in particular. A spokesperson from MTN, a mobile network operator (MNO), notes in an interview that 'nobody has access to any

numbers' (O'Sullivan, interview, 2021). Similarly, and in another interview, one of Discovery's employees says that while they had hoped to reach 65% of the population, they did not manage to do so: 'we're off', he said (anon, interview, 2021). Other stakeholders involved in developing the app seemed to be wary of sharing further or more recent specifics of download rates given that the government had not been sharing usage data either.

A report from Research ICT Africa (RIA), published in September 2022, analysed the extent to which people in South Africa were able to use 'digital substitution' to 'mitigate the negative (health and economic) effects of the pandemic and lockdowns' during the second year of the pandemic (2021).[89] Results of the demand-side study were rather granular, but indicated that that only 5.4% of men and 4.3% of women of the whole sample[90] used the CovidAlert SA app (Banya et al., 2022, p. 22). The authors wrote that 'the majority of South Africans did not use the app but relied on conventional news sources to get information about COVID-19' (Banya et al., 2022, p. 46).

Having discussed the digital contact-tracing processes and stakeholder perceptions of why they were introduced, I now turn to stakeholders' definitions of the risks involved with these interventions.

6.3 Defining the risks of digital contact-tracing interventions

Similar to my experience in the overarching case study (Chapter 5), few stakeholders involved in the development of digital interventions during (and in response to) the state of disaster seem to be comfortable with risk language and they thus rarely define potentially harmful outcomes as risks or even as concepts that are sometimes used as synonyms of risks (like threats or harms). Not only do interviewees tend to define risks

[89] By the second year of the pandemic (2022, when the RIA study was conducted), the government no longer actively promoted the app and its usage might therefore have been different to the first year of the pandemic.

[90] The study includes a nationally-representative mobile phone survey of 1 400 randomly selected respondents and the findings of six focus groups of men and women from urban and rural areas. The authors explained that, after weighting the data, the results indicated that inference could be made to the general population (Banya et al., 2022, p. 8).

alongside mitigation strategies (cf., section 6.4), but they do not distinguish between risks that relate to the technologies themselves and risks that relate to the partnerships responsible for developing and implementing these interventions. This made it somewhat difficult to identify and organise risks using the socio-digital dimensions of risks approach that was used for my overarching case. In addition, and similar to what was observed in Chapter 5, only the *negative* dimensions of these risks are emphasised by respondents.

Despite these difficulties, I unpack risks pertaining to these digital development processes in this section using a socio-digital dimensions approach as defined in section 3.5. In doing so, I acknowledge that the definition of risks depends on contextual considerations, and differs depending on the societal, collective, and/or individual level at which resultant harms or opportunities might be experienced by risk beneficiaries. In the pandemic context, for instance, relying upon these digital interventions as a way to mitigate certain aspects of Covid-19 and related lockdowns might result in interesting outcomes at all of these levels.

Unlike in the previous chapter, I start with ambiguous or cross-cutting risks in this section – i.e., those elements of risks that have both social and digital incidence and implications. I then explore digital dimensions of risks in section 6.3.2. While I focus on the institutional environment that led to the introduction of these digital contact-tracing mechanisms as a part of digital dimensions, many of the risks expressed naturally has broader implications. To consider these, I turn to the social (or contextual) dimensions of risks in section 6.3.3.

6.3.1 Cross-cutting/ambiguous risks: alternatives and opportunity costs

Many interviewees anecdotally refer to (failed) experiences with the practical functionality of CovidAlert (e.g., interviews: Hunter, Sewlal, Vick, anon, 2021/2), and explain that the app seemed to give either belated warnings of potential exposure or to issue warnings when a user had not even left her or his house, for example. The few reviews available on Apple's app store for CovidAlert seem to echo this perception as to the perceived efficacy of this intervention. One reviewer wrote that they had had '6

notifications of exposure. 4 of those are on days where the only place I went was a store and for less of 15 minutes. And now 1 of my newest exposures was a day I didn't even leave my house…' (*sic*) (see fig. 6.2).

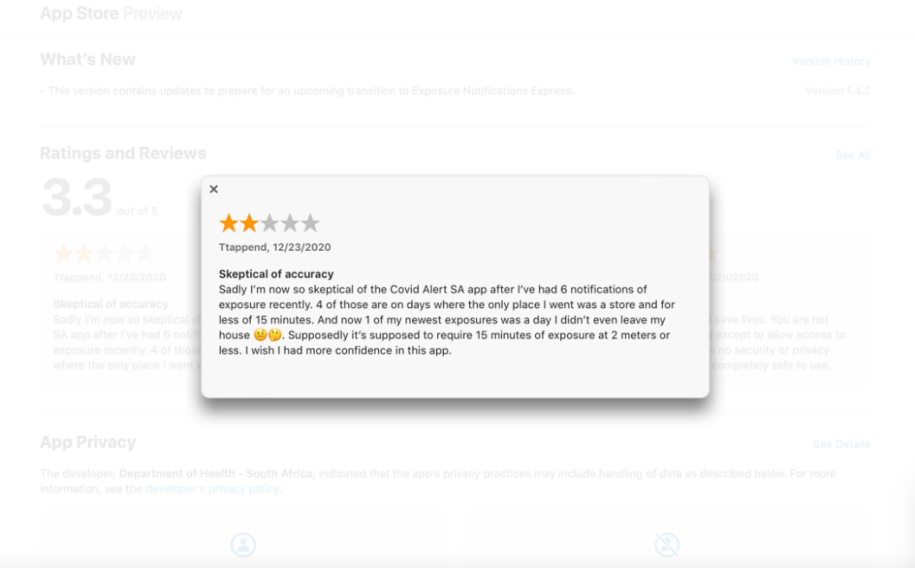


Figure 6.2: A review on the CovidAlert app review page on Apple's app store. Source: Apple app store.

Besides concerns about whether the app works accurately enough to warn about realistic exposure risks, some interviewees argue that interventions like CovidAlert, despite being 'a bit of a flop', at least 'built a consciousness' about the need to be careful about 'where you went and how you behaved. It was like a constant reminder' (anon, interview, 2022). Government officials like Tanna share this view, noting that while this kind of intervention 'may not have been as effective as we wanted it to be', every bit helped, and it was therefore worth the try (interview, 2022):

> *Perhaps the other thing to add is health interventions, public health interventions, certainly do not need to have 100% effectiveness for you to roll out. … There's some of the best vaccines in the world, for example, that don't have much more than 40, 50% efficacy, yet we use them because they help in reducing the extent of disease…*

Yet others are more sceptical of the consequences of investing in these digital development processes, and the collateral outcomes of decisions to do so. By choosing

to invest time and resources in and attention to these digital contact-tracing interventions, other pandemic responses were arguably neglected. Hunter, for instance, is especially concerned about the potential benefits the country might have 'missed out on' because it decided to allocate resources to these digital interventions as opposed to alternative options or responses (interview, 2022). Vick said something similar in his interview, lamenting the fact that the government did not rather invest in things like education about how to wash your hands or make a mask (Vick, interview, 2022).

This neglect of other aspects important in the pandemic response is particularly problematic given indications that the pandemic exacerbated digital and intersectional inequalities in the country. For example, the mentioned RIA study indicated that about 40% of South Africa's black population reported that the transition had a negative impact on their lives given that they do not use the Internet (Banya et al., 2022, pp. 17–18), while mapping Internet usage by geographic location and gender also revealed significant disparities in the country. The authors wrote (2022, p. 45):

> *The increasing digital divide not only exacerbated the existing income disparities and the knowledge gap but also led to information disparities. People who were not connected to the Internet did not get timely information about COVID-19 risks, were more susceptible to contracting the virus, and had a higher probability of death because of it.*

Hunter is also concerned about opportunity costs, noting that while people seem to be more interested in discussing the specificities of these 'untested' interventions, including how privacy-preserving they are, they tend to be distracted from and/or to neglect more fundamental questions about the need for, relevance, significance, or even outcomes of these interventions in the first place: 'it's not clear that it's doing us any good. And I'm a bit worried for a couple of reasons that it might actually be a net negative' (interview, 2021). He refers to, for example, Ramaphosa's use of not-insignificant amounts of 'airtime' in his 'family gatherings' to convince people to download and use the app – time, Hunter argues, that could have been better used to remind people about the need to wash their hands regularly or to cover their noses when wearing masks, for instance. With reference to CovidAlert, in particular, Hunter explains (interview, 2021):

> *… the app has played what I assume is an out-sized role in public policy decisions that were being made, like the knock-on opportunity costs, but also in the public discourse, that we spend a lot of time talking about an app that a lot of people can't use.*

These opportunity costs are particularly problematic given perceptions that the interventions were not living up to expectations, even if such expectations were low to start with. As such, the fact that the app was seemingly not trusted as an intervention to 'help save lives' (Tanna, interview, 2022) is not only problematic from a design perspective, but has broader implications given the opportunity costs of investing in digital interventions at the potential cost of other, potentially more useful things, including education or awareness about protective measures.

In the next section, which is concerned with the digital dimensions of risks, I primarily focus on the partnerships involved at local and foreign levels to develop and deploy these interventions.

6.3.2 Digital dimensions of risks

The PPPs and other collaborative arrangements that underpin both CovidConnect and CovidAlert indicate that the government (or the DoH, at least) was more likely to opt for partners with whom it had a pre-existing relationship (like Praekelt.org, with whom the DoH already had other projects), or large foreign platforms (like Meta, Google and Apple) (Razzano, 2020). The unique conditions of crisis (discussed in section 6.3.1) might have introduced some 'leeway' as far as these partnerships were concerned (e.g., Singh in Section 27, 2020), but interviewees still express concern about a lack of transparency and public consultation as far as the PPPs that were eventually responsible for the implementation of interventions like CovidAlert and CovidConnect are concerned, and, thus, the potential that these vague partnerships could introduce new or exacerbate existing risks pertaining to the interventions. In an interview, Hunter explains (2021):

> *I guess it's crisis policymaking, which predictably leads to all kinds of bad things and wrong decisions, and leaves little room for all the things that we need where decisions are made.*

Other interviewees note that the lack of consultation is problematic when these systems might leave a legacy beyond the state of disaster. 'We believe that because we were able, during the pandemic, to showcase the strength of digital and the strength of technology,' one interviewee responsible for a digital social grant system asked, 'why can't you do that for every service within government?' (anon, interview, 2021). Similarly, in a webinar that took place in December 2021, when Tanna was asked whether the DoH had the intention to 'leverage assets' like CovidAlert elsewhere, his response was unequivocally affirmative (Section 27, 2020). Tanna said, at the time (*ibid*.):

> *I think it would be silly not to leverage the assets we've built now, of course, with careful consideration to actually benefit other problems: TB, HIV, non-communicable diseases.*

In an interview that took place more than a year after the webinar, Tanna is more circumspect about the potential of these interventions. He says that while he no longer believed CovidConnect or CovidAlert necessarily had 'utility value' beyond the pandemic, these interventions showed the government 'how, using technology, we could be engaging our citizens. Or at least a strata of our population that had access to technology' (Tanna, interview, 2022).

While I turn to the risks pertaining to individual (or citizen) use of these technologies in section 6.3.3, the remainder of this section first looks at definitions of risks related to the dependence on technology owned by foreign platforms, before turning to risks perceived to accompany local partnerships involved in the design and development of the interventions. These risks are primarily, therefore, relevant to an institutional level.

a) Foreign institutional environment

Both CovidAlert and CovidConnect relied to some extent on foreign platforms to function. Whether these solutions would be suitable for the problems unique to South Africa seemed to be less of a concern or consideration (Lydall, interview, 2022). When interviewees do mention the potential outcomes of foreign interventions that they were adopting for local use, they tend to acknowledge the impracticality of such contact-tracing mechanisms before justifying the decision to nevertheless forge ahead with them. Tanna, for instance, notes that 'even many of the first world countries failed dismally in doing contact-tracing, and so South Africa wasn't the exception' (interview, 2022). Debbie Rogers, who serves on a WHO technology advisory group in addition to running Praekelt.org as CEO, says: 'I know that it hasn't necessarily been successful everywhere, but it shows potential to do that' (interview, 2021).

For CovidConnect, for example, WhatsApp was apparently chosen because, various interviewees argue (interviews: Tanna, Rogers, Pandor, O'Sullivan, 2021/2), it is perceived to be 'effective'; there are no ready (local) alternatives to it; there was no time available to develop something else; alternative messaging platforms like Telegram or Signal do not have the penetration that WhatsApp has in the country; the government (with private sector partners) had prior experience of working with WhatsApp for similar interventions; South African users are already familiar with the app (as opposed to needing to train people to learn how to use a new one); and users tend to be reluctant to download new apps due to monetary or 'real estate' (available space on device) constraints. Rogers explains (interview, 2021):

> *… we weren't aware of another platform that kind of gave us better cover, better leverage, that had a better footprint in South Africa. So, it was not necessarily the inabilities of the system to scale up, but it was really the context factors that played a major role.*

Both Tanna and Rogers acknowledge the potential limitations of using WhatsApp to develop CovidConnect, most of which relate to the demand-side or social dimensions of risks. Potential risks most often highlighted by interviewees relate to exclusion (given coverage concerns with WhatsApp); security and privacy concerns; and concerns about

its (in)efficiency (cf., Alt Advisory, 2021; Hunter, 2020; Voigt, 2020). Despite the acknowledgement of these risks, CovidConnect remains operational today.

The developers of CovidAlert, in turn, seemed less perturbed about contextual factors and the potential risks of relying on technology that would only be available on smartphones given the app's reliance on the EN framework developed by Apple and Google. Tanna told a webinar audience in December 2020 that the DoH had been 'lucky' to have developed its app when the framework was already available, and boasted at the time that South Africa was 'probably the first country in Africa to have implemented it' (Section 27, 2020). He later acknowledges that this excitement was despite uncertainty about the framework's untested track record, given that 'very few countries were implementing it' and those that were, 'really struggled taking it to scale' (Tanna, interview, 2022).

Many of the stakeholders involved in developing CovidAlert and CovidConnect acknowledge that the reliance on 'a solution that has been defined for us in Silicon Valley' (Mishra, interview, 2021) also came with risks. While explaining the reality of resource deficits that local companies deal with in developing interventions, Rogers says that 'a huge question' that became especially apparent during the pandemic is how 'the development community' can 'take advantage of' the skills and resources of big tech companies in a way that can 'actually benefit the masses, doesn't tie governments into ridiculous contracts they can't commit to, doesn't increase inequality' (interview, 2021).

Related to the risk of being tied into unreasonable contracts is that of vendor lock-in, which is frequently mentioned by interviewees. Many of the interviewees involved in developing the interventions mention that, because of their dependence on foreign large platforms, changes in terms and conditions or underlying code can significantly impact local services. An employee explains that Discovery has even had to make expensive adjustments when geopolitical factors that are 'completely out of our control' have broader repercussions (anon, interview, 2021):

> *… And then Huawei has the disagreement with the American presidency and decides to separate from Google and Android. Now what? So as Discovery, we're kind of like, "Okay, I guess that means we have to have a Huawei application now."*

Even for large and well-resourced entities like Discovery, these changes can be 'extremely onerous' (anon, interview, 2021). For NGOs, on the other hand, they can be devastating. While not a digital intervention that was closely examined for the purpose of this thesis, GovChat's experience with Meta in 2021 is interesting as far as the risk of big tech lock-in is concerned, coupled with regulatory responses thereto. GovChat uses WhatsApp's business platform (WhatsApp API) to enable citizens to communicate with various government departments. During the pandemic, it was not only used to enable citizens to communicate about Covid-19 symptoms and related information, but also to facilitate the distribution of a Covid-19 relief grant, for instance. In July 2020, after GovChat was informed of WhatsApp's decision to 'off-board' its services because it was allegedly breaching some of the company's policies (Gavaza, 2022), GovChat complained about Meta's practices to South Africa's Competition Commission, arguing that Meta was abusing its dominance and contravening South Africa's competition law provisions.

In an interview with GovChat's CEO, Eldrid Jordaan, the (then ongoing) case is described as a 'David versus Goliath' matter, where WhatsApp was accused of only threatening to offboard GovChat once it had 'millions of users' unless it registered (and paid for) more business accounts rather than using the same one for all of GovChat's services (Jordaan, interview, 2021): 'It's a principle matter. You cannot allow Big Tech to continue doing what they're doing.' When South Africa's Competition Tribunal eventually issued a press release in April 2022 announcing its ruling in the case, it found in favour of GovChat and was scathing about Meta's actions (Competition Commission, 2022):

> *WhatsApp essentially has* carte blanche *to impose a convoluted and complex web of terms and conditions; amend them as it pleases without even notifying the users of its platform; and require full compliance with all terms, known and unknown, even where unilaterally amended terms are incompatible with the basis on which a user has committed itself to the platform and developed its offering and technology. It can even impose onerous new terms on a whim …*

While CovidConnect is built on the same WhatsApp API that landed GovChat into trouble, Praekelt.org is reportedly more careful to meet WhatsApp's policies. At the

same time, Rogers says that entities like hers are always concerned about having so many of their services (including CovidAlert) 'tied in to' an organisation like Meta, for example, which could 'just decide to open everything up' [as opposed to keeping in encrypted]. And then we have all these programmes on WhatsApp and we can't use WhatsApp anymore, because it wouldn't be right from a privacy perspective' (Rogers, interview, 2021).

Besides the reliance on foreign technology and platforms for these services, local partnerships are also relevant in risk definitions, as is explored in the next subsection.

b) Local institutional environment

Apart from big tech, details of PPPs and other institutional arrangements closer to home are disappointingly vague. Despite the willingness of some stakeholders involved in developing CovidAlert to talk about the process of developing the app, the nature of the arrangements put in place to do so, including respective obligations (or who approached whom first), remain somewhat opaque and tricky to piece together from interviews, news items, and webinars. Not only does it therefore take some effort to unravel the complex contractual obligations of different parties involved in delivering these interventions (Hunter, interview, 2021), but the responses provided by interviewees are sometimes rather contradictory.

For example, employees within the Discovery team responsible for developing CovidAlert seem to have different views about whether Discovery chose to work with the government because they 'always wanted to do it with the country' (anon, interview, 2021), or were compelled to do so in order to be permitted to use the EN framework (Mishra, interview, 2021).[91] Similarly, while Discovery employees argue that they first approached the government to volunteer to help develop the app (interviews: Mishra, anon, 2021/2), the government official responsible for the app said that the DoH was referred to Discovery by Apple (Tanna, cited in Nortier, 2020).

[91] As noted in section 2.3.2, Apple and Google would only permit applications from national health services to use the EN framework and to be registered in app stores.

While this example might not say much in itself, it is important to try to understand the origins and terms of the arrangement between Discovery and the DoH as there were alternatives for digital contact-tracing interventions that the DoH could have opted for – and ones that might have been more suitable for the context.

For example, at more or less the same time that Discovery was working on its app, a group of volunteers roughly affiliated to the University of Cape Town (UCT) were also working on their own contact-tracing intervention, COVI-ID.[92] Given the low penetration of smartphones in the South African context, the intervention specifically catered for communities with limited access to smartphones through its use of QR codes. As one of the volunteers leading the initiative, Kungela Mzuku, notes, 'it's one of the best ways to ensure that something [like contact-tracing] becomes much more widespread' (Mzuku, interview, 2021). Mzuku says the COVI-ID team consulted numerous corporates (including Discovery) as well as government officials to try to convince them to adopt this more inclusive intervention, but with limited success: 'it was almost a closed gate' (interview, 2021).

This essentially meant the end for COVI-ID, which was eventually acquired by a US-based NGO, Pathcheck, but not without much disillusionment among the multiple volunteers that developed and tried to launch the app. Mzuku suggests that government officials might have been wary of the fact that the app was not only free, but also open source:

> *We thought people would be much more open to doing it [using COVI-ID] because you don't have to spend much money besides just building it, but the fact that it was free I think worked against us.*

Considering digital interventions like CovidAlert and CovidConnect, it therefore seems that the government preferred to opt for partners they had either worked with before or had pre-existing relationships with, or that were well-established in the country. Rogers, for example, notes that where Praekelt.org would normally spend three years to conclude a contract for a digital intervention similar to CovidConnect, things moved

[92] I joined and participated in certain Slack channels of COVI-ID when it was being developed, but did not use any shared documents from these deliberations in the research.

much faster during the pandemic. The fact that Praekelt.org already had established relationships with the DoH as a part of its other service offerings that existed before Covid-19 was something the organisation 'in some ways' could 'take advantage of' (interview, 2021).

To implement CovidConnect and CovidAlert, the government also took advantage of large corporates and existing partnerships, including Discovery. An employee of the latter explains that after a request from the government to help increase CovidAlert's adoption, many corporates encouraged their respective customer bases to use the app (anon, interview, 2022). MNOs, for example, sent out text messages to subscribers to encourage downloads, 'put up posters in their stores' (Tanna, interview, 2022), and also zero-rated the use of the app (meaning that using the app would not cost precious data – a significant concern in a country with relatively high data costs). A Discovery employee argues (anon, interview, 2021):

> *The process and the relationship that was created between Discovery as a corporate and all the other corporates and government, is unbelievably beneficial to our country. Only good will come of that.*

Not all agree that only 'good' has been the result of these relationships, however. One interviewee says that, while PPPs might be part and parcel of 'living in a third world country that has such huge first world tendencies', a lack of coordination means that 'every individual corporate is putting their money into what they deem appropriate … Tiger Brands [a major South African food and beverage company] spend all their money on feeding schemes,' for example (O'Sullivan, interview, 2020).

Knowing the reasons why Discovery, in turn, spent their money on CovidAlert is somewhat difficult to unravel as the role that the company played in funding, developing, and managing CovidAlert was arguably understated in official communications about the app. While Discovery's CEO, Dr Ryan Noach, was quoted in company documents as being 'delighted [for Discovery] to play a pro bono role' in developing the app 'in partnership' with the government (Discovery, 2020a), neither the app itself (DoH, 2020c), the download page on app stores (Apple, 2020b), nor the DoH's website (DoH, 2020b) make any mention of the fact that the development of the app

was funded or even supported by Discovery (see fig. 6.3 and 6.4 below). The only mention of Discovery's (and Apple and Google's) role in CovidAlert seems to be buried in the app's privacy policy, which noted that Discovery, Google and Apple 'developed the app software on behalf of' the DoH and continues to '[provide] any necessary technical support services' (DoH, 2020d).

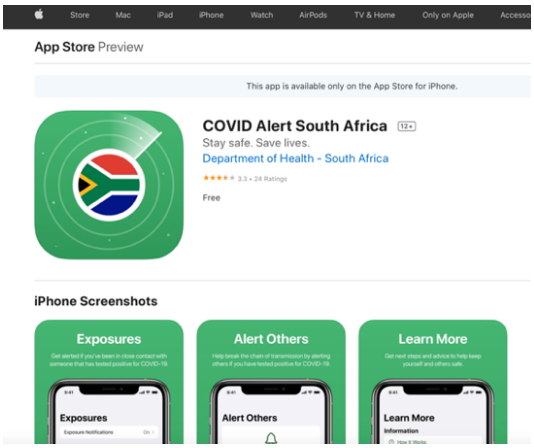


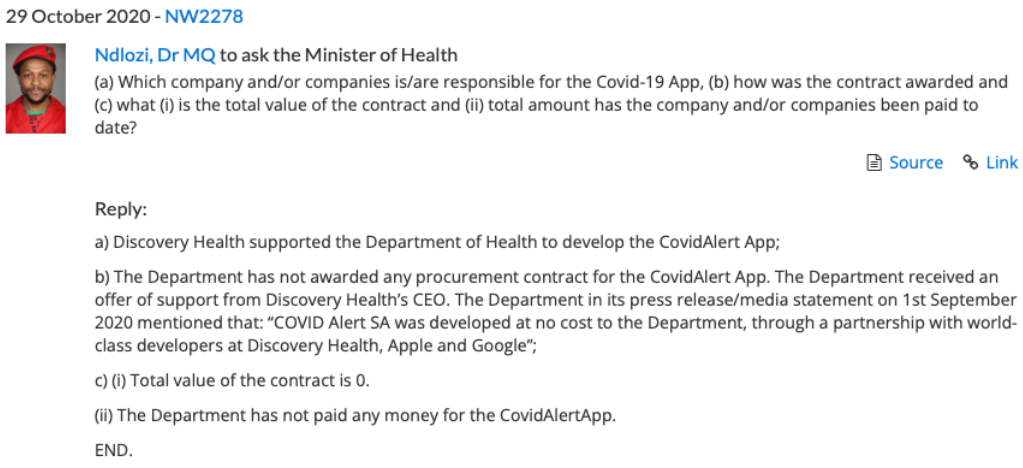
Figure 6.3: Developer details ('Department of Health – South Africa') on the App Store. Source: Apple app store.

Figure 6.4: The identification of DoH on the CovidAlert app itself, with no mention of Discovery. Source: CovidAlert app.

Therefore, when the app was launched, 'it wasn't entirely clear for quite some time that this was directly developed by Discovery,' says public interest lawyer Tina Power in an

interview. 'It seemed like it was a DoH thing' (interview, 2022). Like some other interviewees (e.g., Lydall & Vick, interview, 2022), Power indicates that 'there's probably quite a few people who don't know that there is that link' between the DoH and Discovery (interview, 2022).

She is not the only one to question the link. In October 2020, a member of an opposition party, the Economic Freedom Fighters (EFF), prodded the PPP that delivered CovidAlert by asking in a written parliamentary question for more details about the contract responsible for same (see fig. 6.5 below) (Ndlozi, 2020). In reply, an unknown government official provided a written response noting that Discovery 'supported' the DoH to develop the app after an offer from the company's CEO, that no procurement contract was awarded to do so, that the total value of the contract was zero South African Rand (ZAR), and that no money had been paid for the app (*ibid.*). No mention was made of Google and Apple's role in the DoH's response, and no further correspondence seems to have been exchanged publicly on the matter.



29 October 2020 - NW2278

Ndlozi, Dr MQ to ask the Minister of Health

(a) Which company and/or companies is/are responsible for the Covid-19 App, (b) how was the contract awarded and (c) what (i) is the total value of the contract and (ii) total amount has the company and/or companies been paid to date?

Source Link

Reply:

a) Discovery Health supported the Department of Health to develop the CovidAlert App;

b) The Department has not awarded any procurement contract for the CovidAlert App. The Department received an offer of support from Discovery Health's CEO. The Department in its press release/media statement on 1st September 2020 mentioned that: "COVID Alert SA was developed at no cost to the Department, through a partnership with world-class developers at Discovery Health, Apple and Google";

c) (i) Total value of the contract is 0.

(ii) The Department has not paid any money for the CovidAlertApp.

END.

Figure 6.5: Parliamentary question from an opposition party (EFF) about the procurement of CovidAlert. Source: Ndlozi, 2020.

While zero ZAR might have exchanged hands for the app, this does not mean that interventions like CovidAlert did not require investment nor deliver some benefit and have some costs (cf., section 6.3.1 about opportunity costs). Hunter argues that CovidAlert, for instance, demanded 'a huge investment of maybe not finance, because

it's not clear that these guys paid for these things', but 'someone's money and everyone's time' (interview, 2021). That 'someone' is Discovery, which, with a more optimistic interpretation, earned some public relations points as a result of the partnership, but at a more sceptical interpretation was paid in user data and lobbying power.

In respect of the first, optimistic interpretation, a Discovery employee notes that the company's 'proactive and very positive' response to the pandemic, evidenced by interventions like CovidAlert, 'received a lot of acclaim'. He adds: 'I think we made a very positive community contribution in this context, which also escalated our brand a bit' (anon, interview, 2022). Other interviewees suggest there might be more indirect benefit for Discovery in the partnership than public praise, however. Hunter, for instance, argues that 'Discovery is not the friend of data protection' (Hunter, interview, 2021), while others were convinced that the company would be using the data it gathered through the app to improve its own services (Vick, interview, 2022):

> *... they've got more actuaries than the rest of corporate South Africa combined. You can guarantee they've been mulling those numbers, looking at where people go, what they do, what they eat, when they go out, when they don't go out. I mean, they've got a map of our movements for a year. You know, that's incredibly valuable.*

Vick argues that the country's largest private health insurance company might also have been trying to 'buy brownie points' through exercises like this one because it was trying to influence the DoH's proposed national health insurance (NHI) proposal – which Discovery had been opposed to: 'Discovery are the fiercest opponents of NHI. I mean, they are genuinely worried it's going to kill their business' (Vick, interview, 2022).

While there is little evidence to suggest there was more direct benefit for Discovery in developing CovidAlert, interviewees point out that it has become prudent to interrogate the conditions of these partnerships. For instance, Catherine Lephoto, who served as the deputy CEO of Lesotho's National Covid-19 Secretariat (NACOSEC) during part of the pandemic, mentions the 'unwritten rule' of 'brown envelopes [bribes] exchanging hands' (interview, 2021). And in the case of the DoH in general and ex-Minister Mkhize in particular (Myburgh, 2021b, 2021a; Van Wyk & Myburgh, 2021), corruption is a valid

concern, as the Digital Vibes scandal (which revealed significant state-sponsored corruption in the context of Covid-19 procurement contracts and more)[93] indicated.

While the Digital Vibes scandal does not appear to have any direct bearing on the digital interventions developed during Covid-19, including CovidConnect and CovidAlert, it raises questions about the DoH and Mkhize's allocation of resources and partnerships, especially as far as digital interventions are concerned, during the crisis. As the journalist who first broke the story, Pieter-Louis Myburgh, asked during a webinar (Van Wyk & Myburgh, 2021):

> *… what else is hiding in the Department of Health finances during that period when he [Mkhize] was the Minister of Health? … are there any other Digital Vibes that we don't even know about yet?*

While the government stopped promoting CovidAlert as actively as they had before May 2021, it remained operational and downloadable from app stores for almost another year (until April 2022).[94] One aspect of the obscure arrangement between Discovery and the DoH was reportedly that Discovery would hand over the management of the app (and data potentially collected by the app) to the DoH after three months (Malherbe, 2020) – i.e., by late 2020 – but this had not even happened by March 2021, according to one senior employee. Discovery was apparently frustrated that the government 'moved on and left us kind of stuck holding the baby' (anon, interview, 2021).

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[93] In May 2021, an investigative journalist revealed that during the first six months of the pandemic, the DoH reportedly paid approximately ZAR 80 million (almost EUR 5 million, as of May 2022) to a private company, Digital Vibes, for so-called Covid-19-related communications services. The costs of these services were not only inflated, but many were never rendered, and significant amounts of money were also paid by Digital Vibes to family members of Mkhize for a range of expenditures that had nothing to do with Covid-19 – e.g., setting up a nail salon and making purchases from a luxury clothing store (Myburgh, 2021b, 2021a). Mkhize eventually resigned from his position in August 2021. Two weeks after his resignation, Babita Deokaran, the whistle-blower and chief witness in investigations into DoH misdealing under Mkhize's leadership, was gunned down outside her house in Johannesburg (Williams, 2021). While one of the suspects arrested for her murder confessed that the assassination had been ordered by Mkhize, the suspect later retracted his confession (Mdluli, 2021). Mkhize has been cleared of wrongdoing in the case of the Digital Vibes contract by the Executive Ethics Committee responsible for reviewing these corruption allegations (Merten, 2022), and was a popular candidate for the ANC leadership in late 2022.

[94] As mentioned (fn. 89), the app still remains downloadable but no longer appears to be operational.

When Discovery's information officer was contacted after the state of disaster ended in April 2022 to determine what had happened to the app's management (and the data gathered by the company), an eventual reply noted that Discovery's 'contractual obligations' had ended in October 2021 (anon, personal communication, 2022). No mention was made regarding the fate or status of the data potentially collected by the app. As of April 2022, the app showed the notification 'the app will migrate to Exposure Notifications Express and will no longer work' (DoH, 2020c), but still remained available for download from app stores.

Vick – whose volunteer organisation, CovidComms, was focused on trying to improve government communications strategies during the state of disaster – says the government's apparent tardiness in assuming control of the app might have been because the government in general, and DoH in particular, was otherwise preoccupied with both the Digital Vibes scandal and debates about NHI (Vick, interview, 2022). Vick's colleague, David Lydall, suggests that government's apparent loss of interest in CovidAlert was more likely because it simply did not know what to do with the data it was gathering (Lydall, interview, 2022):

> *I think the primary reason why government stopped using it wasn't due to adoption or non-adoption. I think it was because government didn't have the capacity to make use of the information.*

In the next section, I turn to how actors' ability to use (or not to use) the information and data gathered by these interventions could potentially introduce risks that are especially susceptible to contextual shaping.

6.3.3 Social dimensions of risks

Given the more contained nature of the nested case study that forms the subject of this chapter, it is perhaps unsurprising that interviewees are more precise about defining specific risks that accompanied the digital contact-tracing mechanisms deployed during the pandemic. Most of these had individual and/or communal aspects, rather than institutional ones. These are privacy and, to a lesser (though no less important) extent,

exclusion risks. For instance, many policymaker references to and marketing material for CovidAlert tended to highlight its 'privacy-preserving' nature, while the 'anonymity' of the app was also frequently emphasised in official communications. As is explored later in this section, there was much less emphasis in the same communications of other, arguably more imminent risks (given the context), like exclusion risks.

The tendency to emphasise privacy risks – which can also mean that the responsibility for managing these risks is typically shifted or assigned to an individual level – have interesting implications for risk arbitrage (section 3.3.5) and how and why risks shape potential outcomes (and is thus relevant to my theoretical RQ) for risk beneficiaries (section 3.5), as is discussed in the next chapter.

Stakeholder s' definitions of each of these risks are discussed separately in the remainder of this section before turning to risk management.

a) Privacy risks

The need to protect privacy – a constitutionally guaranteed right in South Africa (section 14, Constitution of the Republic of South Africa, 1996) – was frequently and repeatedly highlighted in pandemic-related communications from the DoH (e.g., Mkhize, 2020a), the Presidency (e.g., Ramaphosa, 2020f, 2020h), and even other government departments. For example, at a press conference in April 2020, Stella Ndabeni-Abrahams, at the time the Minister of Communications and Digital Technologies, said that while the government does 'respect that everyone has a right to privacy', the pandemic was a reminder that 'individual rights do not supersede the country's rights' (cited in Schectman, Bing, & Stubbs, 2020).

Other stakeholders involved in the development of both CovidConnect and CovidAlert also frequently invoked the interventions' privacy safeguards to encourage usage. In a news article published after the release of CovidAlert, for example, Minister Mkhize was quoted as saying that one of the reasons why the implementation of the app was delayed was 'to ensure that it passes the legal muster and adheres to legal prescripts relating to personal information, confidentiality and individual and data privacy' (Voigt, 2020).

When he spoke about the app in an official capacity, Tanna similarly emphasised the need for government to tread 'a fine line' between not only privacy and efficacy, but privacy and public health outcomes (Section 27, 2020). In a webinar hosted by a public interest law centre, Section 27, a few months after the app was launched, Tanna said that contact-tracing is 'bound to be a dilemma between privacy and health systems' response and containment efforts' (Section 27, 2020). In our interview, he again stresses that his team at the DoH felt it important to develop 'a piece of technology that was privacy conscious' (interview, 2022):

> *... the trade-off we made was to give a tool to the population that is privacy conscious, so they're not worried about their privacy, or at least, let that not be one of the reasons why people don't want to get it on their phones.*

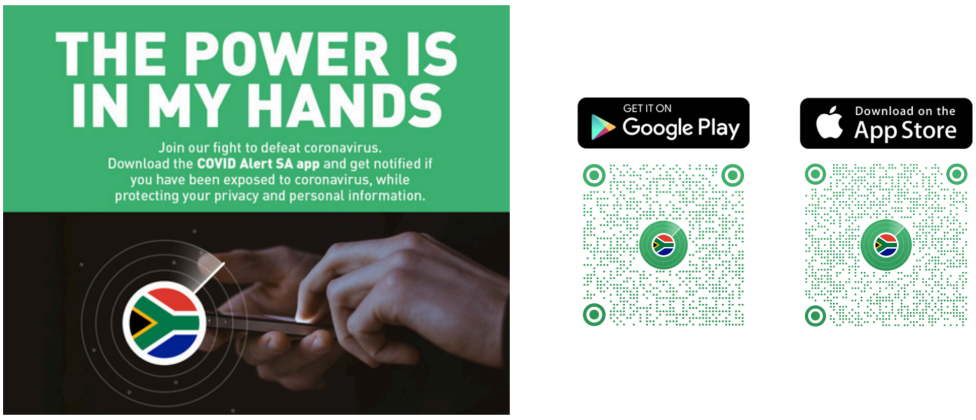

Figure 6.6: Example of promotional material on DoH website for CovidAlert. Source: DoH website, 2020.

Despite a focus on privacy risks in official communications (see fig. 6.6), privacy was not what most interviewees are concerned about as far as the risks of the app are concerned (e.g., Alt Advisory, 2021). While some are reportedly critical of the risks of centralising data in CovidConnect (Voigt, 2020), even privacy activists indicate that CovidAlert did not realistically pose significant privacy risks from a technical perspective. Hunter, for instance, says that he did not think either intervention was particularly powerful, especially the 'data that Discovery holds about app users' or should 'be taken seriously' (interview, 2021). Indeed, some remained concerned about Discovery's role and management of the app. For example, in the RIA study (mentioned in section 6.2. b) –

which among other things found that about 6% of people with Internet access did not use the app because they were concerned about privacy risks – respondents were specifically concerned about 'entrusting health information to vested private sector entities like the medical insurer Discovery instead of the government' (Banya et al., 2022, p. 23).

Some interviewees say that this focus on privacy risks and the mitigation thereof might have derived from the amount of (media) attention that was given to the same in the context of the pandemic at a global level (Hunter, interview, 2021). In the first few months of the pandemic, the introduction of various digital contact-tracing 'solutions' in diverse contexts – from China to Israel to the UK – led to concerns from civil society and other stakeholders about the privacy-related risks that potentially accompany the gathering of location-based data (e.g., Taylor, Sharma, Martin, & Jameson, 2020). As a country with a particularly fraught history of state surveillance (Duncan, 2008), and a DoH that has a somewhat chequered history with the safeguarding of patients' data (Bateman, 2019), concerns about potential privacy risks were 'far from theoretical' (Hunter, 2020), although some still say it was misplaced. When MTN was asked by the DoH to send daily texts to South Africans containing important updates and information, for instance, it reportedly received numerous complaints from citizens. 'I had one journalist who tried to say that MTN was nationalising people's cell phones… I had to say: "Look, dude, calm down. It's like an SMS a day. Seriously." I don't know why people get so worked up about it,' says Jacqui O'Sullivan, MTN's communication and reputation management executive (interview, 2021).

MTN was not the only company to have faced complaints and criticism as far as privacy concerns were concerned. One of the Discovery employees who worked on the development of CovidAlert notes that, at least initially, there were 'a lot of vocal opponents' concerned about the focus on 'tracking, tracking, tracking' (anon, interview, 2021). Such concerns might have lessened with time because 'Covid fatigue set in' (Tanna, interview, 2022); because people realised 'there's not that much in there' that 'would be that sexy' (Hunter, interview, 2021); or even because commentators might have had compassion for the 'impossible' situation policymakers found themselves in during the pandemic, leading to them 'maybe glossing over some of the stuff that needs to be said' (*ibid*.).

Having considered stakeholders' definitions of privacy risks and the actions that were taken (or not taken) to respond to these risks, the next section considers definitions of exclusion risks, which are not mentioned as often by interviewees despite their potential relevance for the context.

b) Exclusion risks

Given limited usage numbers (dated as they might be), it is surprising to note that official communications about CovidAlert and CovidConnect tended to place much more emphasis on privacy risks (and their mitigation) than on exclusion risks. While most of the stakeholders interviewed – and especially those who were closely involved in the development of digital interventions for contact-tracing – acknowledge inclusion challenges, they tend to argue that related risks were less significant than, for example, privacy risks. This is perhaps not surprising: in an earlier interview for another project,[95] a senior official from South Africa's Human Rights Commission (SAHRC) expressed her frustration about the apparent disproportionality of attention given to certain risks in a context where more life-threatening inequalities are more pressing (personal communication, 2019):

> *The greater proportion of our complaints emanate from individuals and groups experiencing ongoing systemic exclusion and deprivation of basic rights protected by our Constitution … However, the greater focus of the media and public seems to be on social media posts and 'Twars', with little or no recognition of the greater injustices occurring off social media. Or for that matter, the fact that most South Africans are not on social media.*

The reasons why privacy risks (and the mitigation thereof) are seemingly prioritised both in official documents and by interviewees imply the prevalence (and difficulty) of exclusion risks in and of themselves. Some interviewees argue that the government tends to service 'those that make the most noise' (O'Sullivan, interview, 2021) – typically people who are active on social media (Mzuku, interview, 2021). As noted in section 6.2

[95] The project was one the writer worked on to investigate platform-related 'harms' in various countries, including South Africa. The report was not published.

above, communications experts Vick and Lydall argue that Covid-19 messages and interventions were specifically aimed at the middle class (interview, 2022). As a result, interventions like CovidAlert 'actually just serves, not just the economic elite, but kind of an information elite' (Hunter, interview, 2021). Digital and communications interventions during the pandemic therefore might have neglected the audiences that relied most on it. As Vick notes (interview, 2022):

> *… we were seeing all this middleclass-English, high-level medical communication going out, and absolutely nothing to people who didn't have access to basic information on how to wash your hands properly, for example.*

The fact that a significant number of South Africans were unable to 'use technology to fight the virus' (Ramaphosa, 2020h) seemed to be of little importance to many of the stakeholders involved in developing these interventions. In a media interview, Tanna noted that CovidAlert 'goes far enough in providing information about privacy', but conceded that 'it could say much more about why people should make the choice to opt in' (Voigt, 2020). This statement implies that South Africans indeed have the choice, ability or means to 'opt in' to interventions like CovidAlert, the contact-tracing app. It arguably neglects that while many people might prefer to be visible (e.g., by using the app) in order to gain access to various social protections and benefits (Hunter, interview, 2021), socio-digital inequalities in the country (cf., Chapter 2) mean they do not have the same opportunities to engage with these technologies (Gillwald, Rens, Van der Spuy, & Razzano, 2020; Hunter, 2020; Razzano, 2020).

Some tended to justify the unequal opportunities to engage with these interventions by arguing that these interventions were meant to be but one part of a multidimensional response to the need for contact-tracing, and that there were alternative means of engaging un- or underserved communities. In various media interviews and public engagements, Tanna said that even if these interventions could only serve a small segment of the population, it would help by alleviating at least some of the pressure that was experienced by manual contact-tracers (Section 27, 2020; Voigt, 2020). Rogers agrees, and refers to the example of a maternal health app which her organisation, Praekelt.org, is also responsible for (interview, 2021):

> *… if you create some new-fangled fancy thing where somebody can do something all by themselves, and then this other woman has to go into the clinic and spend seven hours at the clinic to do the same thing, that definitely increases inequalities. What I would like to see is if 60% of the women can use the digital tool, then the 40% who have to, go to a clinic and get care. And so, I think it's kind of a balance between those two things.*

Finding that balance is what Tanna says he hoped the DoH would achieve with its *digital* contact-tracing efforts (interview, 2022). As he also notes, he had previously argued that CovidAlert and CovidConnect were intended to supplement each other in order to fill gaps which other contact-tracing efforts supposedly would not fill. Private sector actors tended to justify primarily serving a specific, economically active, segment of the population – the 'elite' or 'the rich in the country', as Hunter and Rogers respectively define that segment (interviews, 2021). 'You target your economically active population because you know they'll have phones and will know about technology,' explains one Discovery employee (anon, interview, 2022). While talking about the Lesotho context, Lephoto similarly recalls that when the country wanted to roll out digital vaccination passes (namely VXPASS) using the services of a US company, VX Technologies, it decided to first prioritise the roll-out for health workers and 'economically active' people because (interview, 2021):

> *… you're not aiming to get the entire population of a country on VXPASS. It doesn't make sense. There's no need for that. A person sitting somewhere in a remote village whose life just revolves around farming in their area does not need VXPASS because that person does not need to travel to urban areas, does not need to cross the border …*

While some interviewees suggest there is a need for 'just accepting that society's unequal' (Tanna, interview, 2022), or that the farmer in her remote village might just not be served by certain interventions, others say that digital interventions can still be pushed 'as far towards them as possible – as is physically possible while using digital tools' (Rogers, interview, 2022). Others indicate that this goal might be self-defeating given how and by whom these interventions were designed by (and for) in the first place. In other words, if the interventions are not conceived or designed in an inclusive way, or

if the government's choice of partners leads to the creation of interventions that primarily serve certain populations, or if the agendas, priorities and interests of these partners shape which audiences are more likely to be served by digital interventions, exclusion risks are more likely.

For example, before Discovery joined forces with the government in order to have access to the EN framework, the intended audience of its proposed app was its insured customers (anon, interview, 2021) – or, as Hunter jests, 'people with deep pockets and expensive medical problems (interview, 2021). But even once the app was launched 'for everyone in South Africa who has a Bluetooth-enabled smartphone' (DoH, 2020b), Discovery still tried to encourage specifically its members to download and use the app. Noach, Discovery's CEO, said in a press release at the time that the company hopes 'our clients will be among the first to join the app community' in order to harness 'the technology at our fingertips' (Discovery, 2020b).

While CovidAlert was accessible only for people who do have technology – and specifically smartphone technology – 'at their fingerprints', it also requires people to have disposable income to download an app, and sufficient digital skills to use such an app (Power, interview, 2021). And it was designed by a team that is used to developing digital interventions for a specific target audience. As an employee explains (anon, interview, 2021):

> *The [audience] that Discovery typically has is at the top end … So we know that. We're absolutely aware of it and that means that the devices that we build for are top-end, it's high-end smartphones.*

A few interviewees are critical of the decision to opt for digital interventions that were potentially exclusionary by design (Power, interview, 2022) – especially because there were alternative options that some interviewees argue were more explicitly designed to promote inclusion, like COVI-ID (cf., section 6.3.2 above). Instead of considering potentially inclusive alternatives, digital interventions like CovidAlert could have been 'based on the wrong sort of sample groups' (Lydall, interview, 2022). For both the technologies introduced and the communications strategies adopted, Lydall says that the actors who were engaged by the government to develop Covid-19 interventions were

more used to 'working with South Africans with means'. As a result, the interventions were 'not necessarily correctly geared to talk to the right communities' (*ibid*.) and risked further increasing 'the divide between the haves and the have-nots' (Vick, interview, 2022).

Another consequence of the ways in which privacy risks were emphasised by policymakers, while exclusion risks were arguably neglected, is that the responsibility for managing risks associated with these interventions (and, arguably, the pandemic more generally) is often designated to individuals. As I will explore in more detail in Chapter 7, this also provided policymakers with an opportunity to reassign some responsibility (thus displaying symptoms of organised irresponsibility, cf., section 3.7.2). In the next section, I turn to exploring how stakeholders attempted to mitigate these risks.

6.4 Risk management approaches

Investigating the actions stakeholders took to respond to risks associated with the digital contact-tracing processes (SRQ2) is somewhat tricky because respondents tend to conflate risks with responses thereto. For example, respondents often refer to risk management processes (e.g., the privacy policies used by apps) to talk about why risks are 'dealt with' or not relevant. Despite the tendency to conflate risk definition with its management, in this section I make an attempt to separate these factors from each other by identifying common themes that correspond to risk mediation efforts that could be identified from interviews and documents. As in Chapter 5, I recognise that risk management measures can be targeted at different levels and stages, and often depend on how risks were defined in the first place (section 6.3). Similarly to my overarching case, I use predefined categories to account for a variety of types of responses adopted by diverse stakeholders involved in the development and promotion of digital development processes. These include transparency and public participation (or lack thereof); policy mechanisms; enforcement and compliance; and mitigation by design.

6.4.1 Public participation and transparency

The pandemic and related crisis conditions significantly complicated stakeholders' ability to shape perceptions of how to mediate risks pertaining to the contact-tracing interventions. Interventions like CovidAlert and CovidConnect were designed, developed, and implemented during a time of crisis, accompanied by exceptional pressures for many of the stakeholders involved in developing them. For example, an interviewee who worked with various government departments to develop digital means for distributing social benefits during the pandemic, recalls having regular status meetings at 04:00 with senior members of the government, including Minister Mkhize (anon, interview, 2021). Tanna also explains that despite having spent the past 15 years working for the DoH, he had never seen lead times for developing, piloting, and implementing health interventions like the ones he experienced during the pandemic (interview, 2022).

Many interviewees also say that PPPs and other arrangements for the development of digital interventions were already challenging in 'normal' conditions. Rogers – whose organisation works with multiple African governments to implement digital health apps and services – says that she has seen government officials frequently being placed in the very 'difficult position' of having to make decisions about technical interventions without necessarily having the relevant knowledge or background to be able to do so. This leads to people making 'the wrong choices' for 'the wrong reasons, like "so-and-so is someone's friend, they would never screw you over"' (interview, 2021). She says she feared these circumstances would lead to 'problems like somebody being tied into a contract that they can't afford, or choosing an inferior product because that person happens to say it's free and open source when actually they've got data [privacy] issues' (Rogers, interview, 2021). Lephoto, similarly, says that the government officials she works with have never asked her about the technology behind a digital intervention (interview, 2021):

> *… these guys are not even capable of unpacking contracts and understanding if there are any hidden costs that may be embedded in those contracts.*

Pandemic conditions caused additional challenges for overstretched government departments – and not only in South Africa. Rogers explains that national departments

of health that she works with struggled to even 'sift through' the significant numbers of offers made to them by various tech companies, 'let alone make sure that it was perfectly suited to their needs and not just something that a tech bro had come up with'. She adds (Rogers, interview, 2021):

> *All of these very complicated questions on top of that even if you do find something that you do want to use, it's just incredibly burdensome to any public health system, even the NHS* [the UK's public health service]*, let alone South Africa or Uganda, or anywhere else in the world.*

State of disaster conditions meant, however, that some of these complicated questions could be put aside in the interest of addressing the imminent public health risk, and as a result government officials could operate with more freedom (or perhaps impunity) than they would usually have enjoyed. Tanna explains that while the pandemic led to unprecedented lead times for developing digital health interventions, it also 'alleviated' many of the checks and balances that normally prolong procurement processes (interview, 2022):

> *It was helpful in a sense, that a lot of red tape didn't really exist; we could just get with the job. So it was a nice space to play in …*

While this 'nice space to play in' might have made some aspects of government officials' jobs easier, it also meant that the usual time and space for public participation and deliberation – likely what he means by 'red tape' – about these initiatives were not provided for.

6.4.2 Policy mechanisms

As was explored in Chapter 2, South Africa's government put in place regulations to ringfence the state of disaster and to – among other things – govern the collection, storage and usage of data during the pandemic for contact-tracing purposes (Government Gazette, 2020). At first, these regulations reflected the government's intention to make use of location-based data gathered by MNOs for contact-tracing purposes (Ramaphosa, 2020b). As Ramaphosa explained in one of his family gatherings (2020e):

> *Using mobile technology, an extensive tracing system will be rapidly deployed to trace those who have been in contact with confirmed coronavirus cases and to monitor the geographical location of new cases in real time. This drive is far-reaching, it is intensive and it is unprecedented in scale.*

Civil society and academics were alarmed about these initial regulations and their potential consequences for primarily privacy, calling them 'invasive', 'vague', 'overboard', 'intrusive', and/or 'potentially unconstitutional' (e.g., Duncan, 2021 cited in Alt Advisory, 2021; Hunter, 2020; Gillwald et al., 2020). In a report detailing the trajectory of contact-tracing interventions in South Africa, Hunter noted that the first approaches to contact-tracing (using MNO data) were 'poorly designed, based on false assumptions, and fuelled by an understandable sense of panic' (Hunter, 2020). Private sector actors were also dissatisfied with their obligations under these regulations. Jacqui O'Sullivan, executive of corporate affairs at MTN, recalls that under the first set of regulations, the government initially requested access to various parts of MTN's infrastructure and systems. The MNO denied such access because (interview, O'Sullivan, 2021):

> *… the alarm bells started ringing, and [the government's] ask was consistently not something that we would be able to comply with … It wasn't going to work.*

The government apparently realised that this approach 'wasn't going to work' from a public health perspective either, and seemingly pivoted to thinking of other approaches and technologies as a means to respond to the pandemic (WC Provincial Parliament, 2020). In April, further directives were published to enable a different approach (cf.,

Chapter 8 para 13, DMA: Regulations related to Covid-19, 2020). At the time, privacy activists and civil society actors expressed their support of these revisions, noting that the regulations provided more protection than what the current privacy regulation outside the framework in the country tended to enable (Singh in Section 27, 2020), perhaps indicating that 'not every crisis provokes an anti-democratic response' (Hunter in Section 27, 2020). These 'thoughtful' and 'progressive' regulations (Section 27, 2020) meant that the parameters for any technical intervention for contact-tracing would be significantly constrained by legal guidelines specifically designed to mitigate privacy-related risks.

Yet, and despite being an improvement on the first iteration, the regulations were introduced at a time when neither CovidAlert nor CovidConnect had been implemented at scale. They were not only therefore 'a product of iterative policymaking' (Hunter, 2020), but were furthermore 'injected abruptly into an incomplete data protection landscape' (Gillwald, Rens, et al., 2020, p. 250), with POPIA only coming into effect on 1 July 2021 (see section 2.2.3 for background on POPIA).

While some interviewees say they tried to use the Act's provisions proactively to guide the development of interventions like CovidAlert even though it was not yet promulgated (anon, interview, 2022), others suggest that POPIA was in any event problematic. Tanna, for instance, says 'the POPIA Act [*sic*] is in many ways flawed' and laments that policies like POPIA could apparently conflict with and essentially 'stall' government programmes, thus acting as 'barriers to growth' in the country (interview, 2022). While not specifically referring to POPIA, other interviewees warn that it is in any event difficult to develop policy that can keep pace with technology. 'So often it's the tail wagging the dog, right?', Rogers says. She adds that not only does the country face 'outdated policies that are meant to protect but unfortunately end up being problematic', but also a dearth of policies in certain instances that 'can be taken advantage of'. One of the biggest challenges impacting these twin problems, in her view, is 'the lack of people in government who understand the nuances of these policies to be able to make a call or change a policy' (interview, 2021).

6.4.3 Enforcement and oversight

Even if many interviewees might indicate that they believe digital contact-tracing interventions did not pose significant privacy risks, or that the risks that were present were mitigated by regulation and design, putting in place strong safeguards does not necessarily equal enforcement. Many are concerned that despite all of these guardrails, implementation would be a pitfall. Hunter explains (interview, 2021):

> *… it's not like we're saying let's sell all this information to the Russian spies or to fucking Coca-Cola for targeted advertising. It's the best possible use of personal data or best possible misuse of personal data. I think the thing that is really worrying is that no one is at the wheel on these questions.*

The concern about who is at the wheel relates to all levels of the partnerships involved in developing these interventions – from global to local partners – as well as local legislative and oversight mechanisms. For instance, some interviewees express concern about the challenges involved in relying on dispute resolution services of foreign companies like Meta, Apple and Google, with little recourse if things go awry (interview, Mzuku, 2021):

> *… are they going to listen to us here in Africa with some of our concerns? It's hard even getting customer service from them … And now we're just taking their solutions straight out of a box to use it here but not necessarily questioning it …*

Locally, the government's decision to appoint a Covid-19 designated judge (cf., section 2.3.3) rather than relying on the Information Regulator as the entity tasked with overseeing the protection of personal information was met with confusion and even ire. The reasons for government's failure to consult or use the Regulator, and instead appointing a separate albeit respected judge 'out of the blue' (anon, interview, 2022), are unclear. Some interviewees guess that 'they kind of forgot that the Information Regulator was there' – something which, Hunter adds, was 'completely understandable' given the regulator's lack of powers at the time (Hunter, interview, 2021).

When Tanna was asked why the Regulator was not consulted or involved in the process, he said that while he has no answer 'to that', he assumed the Judge would 'bring in any necessary parties as they're required' for oversight (interview, 2022). Interviewees in the Regulator's office itself are also unsure about why it was not engaged to provide oversight of the process, with some noting that it might be political (Sewlal, interview, 2021), while others say it was indicative of government's tendency to 'operate in silos, which they've done for a very long time' (anon, interview, 2022). One interviewee says that while they thought this was a 'very strange move', they decided that they weren't going to fight this', that they would 'work with her' (anon, interview, 2022).

Besides the drafting of the regulations, the Information Regulator was also not consulted with the conclusion of partnerships to deliver or implement interventions like CovidAlert or CovidConnect either. An interviewee who was closely involved in the work of the Regulator at the time says 'none of those [PPPs] were actually sanctioned by the regulator, and the regulator really felt side-lined by that' (anon, interview, 2022). When asked whether the Regulator could intervene, he says (*ibid*.):

> *... our chairperson's not the type of person who likes to step on other people's feet. So the attitude that she took there was like, "Look, let them do these things. Once they're messed up, that's where we'll step in."*

A step the Regulator did take, was to issue a slim guidance note in March 2020 to 'remind' both the public and private sector of 'the importance of the right of access to information and the right to privacy in the management and containment of the virus' (Information Regulator, 2020). When Regulator members were asked about the guidance note, one says it was 'absolutely needed' to encourage proactive compliance with POPIA, which had not yet been promulgated at the time (Sewlal, interview, 2021). Another employee suggests that the note also served as a reminder of the Regulator's existence (anon, interview, 2022):

> *... when we drafted this guidance, I think that made government alive to the fact that we existed. They should have given us our powers sooner, they should have allowed us to capacitate sooner. So that we could have dealt with the pandemic issues sooner. I mean, there were horrific things going on here in South Africa.*

After the state of disaster had ended, in April 2022, the Regulator published another press release in which it demanded that the DoH report to it on various issues pertaining to how it handled data during the pandemic and compliance with POPIA (Information Regulator, 2022). In an emailed response to a request for an update on the matter, a senior staff member of the Regulator noted that "despite several attempts by the Regulator writing to DoH requesting that it demonstrate how the Department had gone about deidentifying data collected during covid, no response has been received from the department" (*sic*) (Shelembe, emailed correspondence, 2022). As a result, the Regulator reportedly resorted to conducting an assessment under section 89 of POPIA to assess the DoH's handling of data during the pandemic (*ibid*.).

Almost a year later, on 20 February 2023, the Regulator issued a further press statement in which it wrote that it had referred the DoH to an enforcement committee over the issue. In the statement, it criticised the DoH's failure to respond to the Regulator's requests for information about how it had processed personal information during the pandemic, including what it had done with the data after the state of disaster came to an end (i.e., how such information was lawfully destroyed and/or deidentified). Pansy Tlakula, the Regulator's chairperson, was quoted as saying (Information Regulator, 2023):[96]

> *Personal information that was collected during the pandemic included special personal information of people such as COVID test results and there must be accountability for how that information has been handled. We have been lenient with the* [DoH] *on this point, but we would be failing the data subjects if we, as the Regulator, do not take action to ensure that there is compliance and accountability.*

Besides these notices, the Regulator did not engage directly in other data or privacy-related challenges posed by the pandemic, often blaming its limited resources and difficulties faced in getting set up as a reason for having to focus on 'the most pressing needs at the time' (Sewlal, interview, 2021). One member – who has since stepped down

[96] It is unclear from the press release what the enforcement or compliance powers of the enforcement committee are.

because, among other things, 'the pay wasn't great' – explained that the Regulator struggled to establish itself with a national budget (at ZAR22 million[97]) that was but a fraction of the city of Berlin's data protection commissioner's budget (at EUR100 million).

These constraints were not only further pressurised by the advent of the pandemic, but meant that the small (at the time) Regulator reportedly had to 'prioritise' (Sewlal, interview, 2021). And while it felt it 'wasn't quite ready' (anon, interview, 2021) when POPIA took effect on 1 July 2020 (enforcement started on the same day a year later), one thing it did prioritise during the state of disaster was to challenge WhatsApp for its proposed changes to user terms and conditions on the platform (IRr, 2021). Regulator members interviewed are critical about the 'disparity' between the platform's policies in different parts of the world (proposed changes would mean stronger privacy safeguards for European countries, for example, than African counterparts), and seem pleased to have been commended for its public stance against the global platform by international counterparts (interviews: Sewlal, anon, 2021/2). One notes (Sewlal, interview, 2021):

> *I think these massive companies are beginning to appreciate that all over the world, they're not going to be able to act with impunity as before.*

However, some interviewees are concerned about the Regulator's focus on apparently schooling global platforms when the local context is still faced with not only 'weak safeguards, lack of oversight and legal loopholes' (Hunter, interview, 2021), but a fraught history of 'documented abuses of the state's existing communications surveillance powers' (Hunter, 2020). Public interest lawyer Avani Singh warned in a webinar that while 'a lot of leeway' might have been given during the first few months of the pandemic, thus allowing 'a lack of consultation and oversight', there was a need for better oversight and the prevention of 'regulatory creep into the privacy spectrum' going forward (Section 27, 2020).

[97] As at the time of interview, this amount amounted to approximately EUR1.2 million.

6.4.4 Mitigation by design

In addition to formal law and its implementation, the interventions themselves operated under their own privacy policies, for what they were worth. While CovidConnect's privacy policy is provided or imposed by WhatsApp (as the platform on which it runs), CovidAlert has its own (DoH, 2020d). In it, the DoH is listed as the responsible data controller, but the app is described to be 'under the direct control' of the DoH, Google and Apple. No mention is made of Discovery, despite interviewees confirming that Discovery was effectively controlling the data for much of CovidAlert's lifespan. The policy provides that the DoH had engaged 'third parties' to assist in providing the services, but that confidentiality agreements were signed between the DoH and these parties (DoH, 2020d). The contents of these agreements are not publicly available.

Besides privacy policies, many interviewees suggest that the design restrictions imposed by global partners inherently managed privacy risks. For example, some stakeholders said that CovidConnect's reliance on WhatsApp's API meant that 'the data is fully protected. Only the contact-tracing teams, the case managers in the district as well as provinces have access to the data. No data is shared with any other person' (Tanna, cited in Voigt, 2020). Rogers, the CEO of Praekelt.org, says: 'we gather almost no information at all about the person and that's kind of by design… there's not nearly as much worry about abuse' (Rogers, interview, 2021).

Interviewees observe that the design of CovidAlert, similarly, would manage privacy risks, while the reliance on foreign technology might even encourage more potential users to trust the app in a context where some are wary of government interventions (interviews: anon, O'Sullivan, 2021). Tanna, for instance, said in a news article that relying on the EN framework to build CovidAlert was useful because 'some people might trust the tech giants more than they trust the government' (Nortier, 2020). The DoH's decision to use the Google-Apple API, 'which guarantees privacy and confidentiality' (Tanna, cited in Section 27, 2020), meant that specific privacy risk mitigations were reportedly incorporated into the design of the app itself. In a white paper that described technical measures for preserving privacy in the EN framework, Apple researchers

argued that the system 'provides a digital solution for detection of possible exposures to COVID-19 that puts user privacy first' (Apple & Google, 2021).

While the EN framework indeed only allows app manufacturers to gather specific types of data, other safeguards include the limitation on who could use the framework. As noted earlier, only public health authorities or governments were permitted to use the framework.[98] Anyone wanting to promote any Covid-19-related apps on Apple or Android app stores reportedly had to undergo 'a very, very rigorous process' with Apple and Google to ensure their app met strict requirements (anon, interview, 2021). MTN's spokesperson, similarly, says that when MNOs wanted to zero-rate the app to encourage more downloads, it took a number of months to 'convince' Google and Apple. 'It's a completely closed system', O'Sullivan notes (interview, 2021).

This does not mean some interviewees are not concerned about what was going on *inside* that 'very, very locked-down' system (anon, interview, 2021), and the potential abuses by these platforms hosting these systems. Many interviewees are uncertain about what benefits these foreign entities might be accruing as a result of these partnerships, and at what costs. A person working on data privacy at Discovery says in an interview that 'at the end of the day, we also just had to believe what Apple and Google told us in terms of how they handled the data' (anon, interview, 2022). Another interviewee notes that besides it being hard to know what is going on inside the system, the combination of this data with other data sources which foreign partners have is also potentially problematic (Mzuku, interview, 2021):

> *… you don't know what [Google, Apple and Meta] are doing with the data. They could tell us one thing and do the other and we've already seen that in the past. It's not like these concerns aren't warranted. There's a whole history around these things that have gone bad, and for me, it's the fact that they also have other information. So Google have not just our health data, but they also know what we're searching for, which websites I look at. Facebook has all my friends. And so … if you put this together into this pool with everything else that you have, then I think it makes it much, much worse.*

[98] The extent to which this policy was enforced by Apple and Google is unclear, and requests to these entities for comment were not successful (see fn. 91).

Besides the privacy risk mitigations imposed by foreign partners, the local partners involved in developing CovidConnect and CovidAlert also reportedly invested resources in mitigating potential privacy risks. As far as CovidConnect is concerned, Rogers notes that Praekelt.org – which also works on programmes related to HIV – spends 'a lot of time and energy' thinking about safeguards and has employed 'a 60% person' to specifically advise on privacy elements: 'It almost feels like overkill, but I would rather that we overkill on the risk side…' (interview, 2021). For CovidAlert, similarly, extensive app reviews and testing were apparently done from technical, cybersecurity and privacy perspectives by Discovery (anon, interview, 2022). Unfortunately, neither these nor the DoH's impact assessments are available for public examination (Alt Advisory, 2021).

CovidAlert itself also makes commitments to privacy. In the 'how it works' tab of the app, for instance, a dedicated privacy section makes a commitment to not share data with 'other app users' (DoH, 2020c):

> *We are committed to your privacy. This app does not record where you have been. It is only used to determine how close and how long you have been in contact with others using the app … This app will not share your name or any personal information about you or your location with other app users. Your personal and health data remains private.*

6.5 Conclusion

Given what the game ranger told me on that ochre dune in the Kgalagadi, I would be surprised if many of the ≠Khomani San would have downloaded or used a contact-tracing app during the pandemic in the vast open spaces of their home. Then again, the stakeholders involved in developing and implementing these apps might argue that people living in rural and remote areas (like the ≠Khomani San) were less dependent on these tools than people in crowded or densely populated areas in South Africa. Nevertheless, it seems rather odd that a government under pressure in a time of crisis would invest significant resources into (digital) pandemic responses that could only ever

serve very specific parts of the population, and then with seemingly limited assessment of potential risks or outcomes.

In contexts where prevailing socio-digital inequalities – like the ones that affect the ≠Khomani San – mean that certain digital tools are not suitable, or are of little potential use or relevance, why do policymakers and other stakeholders nevertheless insist on using them – and often at the expense of more suitable alternatives? This chapter raises questions about why and how the ways in which the definition and management of certain risks (e.g., privacy in this case) are prioritised by policymakers and their partners might shape different outcomes, and/or might facilitate risk arbitrage (e.g., introduce exclusion risks for some while mitigating privacy risks for a select privileged few). It therefore offers important insights for my overall RQ, which is concerned with how and why digital development risks are important in shaping digital development processes.

In this chapter, I explored the use of contact-tracing apps as specific examples of functional digital IDs used or proposed as a response to the Covid-19 pandemic in South Africa. The chapter therefore builds upon my first, overarching case study in Chapter 5, which considered the development of digital ID processes for developmental purposes at a continental level, and enabled me to consider different dimensions of risks and related risk management approaches or measures. This nested case therefore provides insights into a specific application of digital ID in contrast to the overarching case, and does so at a different (national) level during a specific time period (the Covid-19 pandemic). Not only do I suggest that the pandemic has a lot to say about what it is that people reach for in a time of crisis, and how stakeholders define and manage associated risks, but the digital contact-tracing apps that were developed as a public health response to the pandemic have implications that extend beyond public health considerations, and are interesting examples of digital development processes more broadly.

I discussed why and how the government and other stakeholders turned to various digital contact-tracing interventions, and how the partnerships involved reportedly worked. I then turned to stakeholders' definition of the risks involved to investigate SRQ1. While I found, in Chapter 5, that risks are generally poorly defined and therefore also poorly managed in digital development processes, this chapter indicated another

dimension of risk arbitrage, namely that in some instances, stakeholders might (over-)emphasise and prioritise certain risks while neglecting (or distracting people from) other, more pressing or more relevant risks (e.g., exclusion risks or risks associated with a lack of transparency in the partnerships involved with implementing the interventions). I found, as detailed in this chapter, that the social dimensions of risks in general and privacy risks in particular were often prioritised by respondents, while other (arguably more relevant) risks like exclusion were typically neglected, as were the digital dimensions of these risks, as well as the risks introduced by the multitude of partnerships and collaborations involved in delivering these interventions (for some).

I also examined how stakeholders managed the risks they had defined – ranging from the efforts of the country's Information Regulator to the role that foreign tech companies' design decisions played in managing and mitigating the risks that had been identified and prioritised (SRQ2). In this regard, this nested case was particularly interesting from the perspective of Beck's notion of organised irresponsibility (cf., section 3.3.5), which suggests that as more stakeholders become involved in managing (and introducing) risks, individuals are compelled to assume more responsibility for risk management – while policymakers who were traditionally responsible for managing risks are no longer up to the task, or might outsource and designate that responsibility to risk beneficiaries as a part of processes of risk arbitrage (see section 3.5).

In the next chapter, I analyse these findings alongside those from the overarching case discussed in the preceding chapter (Chapter 5) with a view to answering this and the other questions that accompany my empirical RQ of how risks are defined and managed in digital development processes. Chapter 7 thus provides a second stage of my data analysis, involving a deeper engagement with the different components of the cases in order to derive potential 'causal' mechanisms at stake (see section 4.7 for an explanation of this staged approach to data analysis).

CHAPTER 7: FOOLS RUSH IN

7.1 Introduction: from hallucinations to developmentality

In April 2023, the European Parliament adopted the AI Act proposal with a broad majority (European Commission, 2023a).[99] The draft legislation proposes a 'proportionate risk-based approach' for the development and use of AI in Europe, and classifies certain biometric ID systems as a 'high-risk' (Article 6) to the health, safety, or fundamental rights of individuals. This classification, which will reportedly be made by considering both the function of a system and its specific purpose and modalities of use, means any biometric (digital) ID system utilising AI must comply with certain mandatory requirements and an ex ante conformity assessment. The Commission has not specified how these risks will be evaluated in the first place, nor how the interaction between risks and their social contexts and/or levels of experience are perceived to shape whether a risk might be deemed 'high' enough to trigger the provisions of the Act.

In the same time frame, the US-based Center for AI Safety issued a succinct statement in which it warned that 'mitigating the risk of extinction from AI should be a global priority alongside other societal-scale risks such as pandemics and nuclear war' (Center for AI Safety, 2023).[100] And a few weeks earlier, a letter endorsed by various (in)famous individuals[101] and published by another US-based entity, the Future of Life Institute, called for 'giant AI experiments' to be halted on the grounds that they have become an 'out-of-control race' to develop and deploy AI that not even its creators 'can understand, predict, or reliably control' (Future of Life Institute, 2023):

> *Society has hit pause on other technologies with potentially catastrophic effects on society. We can do so here. Let's enjoy a long AI summer, not rush unprepared into a fall.*

[99] The Act has since proceeded to negotiation stages and is expected to be adopted by late 2023/early 2024.
[100] See US-based non-profit, https://www.safe.ai/statement-on-ai-risk.
[101] By mid-April 2023, almost 50 000 people or institutions had reportedly signed the letter. See: https://futureoflife.org/open-letter/pause-giant-ai-experiments/.

Amidst concerns that range from existential societal threats to less life-threatening hallucinations (i.e., the convincing falsehoods that advanced AI systems can create), 'rush [ahead] unprepared' is exactly what policymakers and development actors seem to do when it comes to the promotion of digital technologies – whether AI, digital IDs, or another shiny new digital tool – in the name of development.

The hallucinations that accompany the export or use of these and other ICTs for 'developmental' or developmentality purposes in global majority contexts seem to be less of a concern to these stakeholders at a time when extreme risk language is co-opted by tech evangelists who have the power to define and manage risks (cf., Beck, 2006 p. 333), but who tend to avoid and redesignate responsibility for their creations by diverting public and policymaker attention to hypothetical and existential societal-scale risks of technologies based in the unreal, vague future. Indeed, developmentalists can seemingly 'rush in' where others in the global North fear to tread on their own turf – despite the (manufactured) risks that accompany the use of ICTs often being global and prone to 'boomerang' effects' (Beck, 1992, p. 37) that are difficult to predict or contain to one part of the world (cf., section 3.3.2).

In the previous two chapters (Chapters 5 and 6), I discussed the findings from two cases based on a first-level analysis (cf., Danermark *et al.*, 2001, pp. 109-111) that illustrate definitions of the socio-digital dimensions of risks associated with digital development processes, including digital development risk. In the first, overarching case study, I considered the promotion of digital IDs for developmental purposes in Africa, as well as perceptions of the definition and management of risks that accompany these processes on the continent. In the second, nested case, I narrowed my focus to examine the case of contact-tracing apps (as examples of functional digital IDs) used during the first six-to-twelve months of the Covid-19 pandemic in one country, South Africa, and perceptions of the ways in which the risks associated with these interventions are defined and managed. Rather than only telling a story of Africa or South Africa, these cases provide insights about digital development processes and related risks in a range of settings and contexts, demonstrating the insights which can be drawn from my institutional analysis and indicating where they are especially relevant to global majority contexts.

While I, therefore, did not explore the use and risks of all ICTs in development contexts in this thesis, many of my findings about digital IDs may be relevant to other digital development processes. They are also useful for gaining a better understanding of how and why the definition and management of digital development risks are important in digital development processes as well as for shaping their potential consequences for responsible well-being and socio-digital inequalities.

In this chapter, I undertake a deeper, second-level analysis of the findings from these cases (cf., Danermark *et al.*, 2001, pp. 110) in order to respond to my empirical RQs, which explore how risks are defined and managed in digital development processes. To do so, I first summarise and analyse findings related to risk definitions (SRQ1) from both cases, starting with a broad response, followed by a discussion of certain factors that complicate this framing, and finally exploring the socio-digital dimensions of the risks that were highlighted by stakeholders involved in digital ID processes. I then turn to how these risks were managed by these stakeholders (SRQ2). This discussion follows an iterative process. Where relevant, I highlight conceptual linkages that became apparent when doing my fieldwork and analysis, and introduce suggestions for future research, which I elaborate on in Chapter 8. To do so, I cross-reference previous sections as relevant.

In my conclusion to this chapter, I reflect on how the empirical answers to my questions relate to the overall question for this thesis, concerned with how and why digital development risks are important in shaping digital development processes. This is further elaborated upon in Chapter 8.

7.2 How are risks defined?

A blunt answer to SRQ1, which explores how stakeholders define the risks associated with digital ID processes, is that the stakeholders in my sample did not appear to do so. If risk definitions are defined as perceptions of the uncertain outcomes of digital development processes in (a) specific context (as I argued in section 3.3.4), then my empirical analysis indicated that primarily positive changes (opportunities) are

presumed and even privileged by stakeholders (and institutions) involved in digital development processes.

My analysis indicated that digital IDs are promoted for a plethora of reasons related to development and its (positive) outcomes. Whether to 'save lives' during a pandemic or to provide proof of identity to access certain critical, public, or humanitarian services, there seems to be limited engagement with, and only perfunctory interest in, the need to engage with and define (as well as, subsequently, manage) the risks that accompany these processes. In my analysis in Chapter 5, I found that development actors, for example, tended to assume 'positive' outcomes from digital IDs and often couch such outcomes in economic terms (see section 5.5.3), with limited regard to contextual realities or needs.

If, to return to Mythen's metaphor (2004, p. 68, see section 3.3.4), information about risks is 'deposited at various points of a piece of rope' that is the 'subject of a tug-of-war' between different stakeholders responsible for defining and managing risks, then users or so-called beneficiaries of digital IDs (and risk beneficiaries) typically only hold the short end of that rope. Processes of risk arbitrage – which, as noted in section 3.3.5, means that powerful stakeholders can avoid defining and/or managing risks by redistributing it elsewhere – means that development beneficiaries often end up becoming risk beneficiaries (a notion I introduced in section 3.5). In other words, they are responsible for managing the uncertainty of outcomes of these interventions themselves (as I explain in the next section), whether inadvertently or by choice. In a sense, this also evinces Beck's argument that our ability to manage, define, and designate risks becomes a 'determining factor of power, identity and the future' (2013, p. 72, see section 3.3.5).

My analysis suggested that most of these powerful stakeholders do not seek comprehensively to define the risks that accompany digital development processes – or at least they do not do so explicitly, publicly, or in sufficient detail. In other words, the respondents I interviewed did not appear to be, as Beck would perhaps have argued, that interested in or concerned with preventing digital development risks from *becoming real* (Beck, 2006, p. 332, see section 3.3.3). In the rare instances where risk definitions were forthcoming, the stakeholders I interviewed tended to define risks in a rather

perfunctory or even tokenistic manner, and risk definitions were cast in a negative manner in both of my cases, i.e., as something that can cause harm (to responsible well-being). As such, perceptions of the potentially *positive* dimensions of risks themselves (e.g., opportunities) were rarely discerned in either case: stakeholders' definitions of risks tended to be couched in negative terms, and they typically conflated risks with harms (see section 5.4 for the overarching case and section 6.3 for the nested case). This, I surmise, also suggests that the *opportunities* that accompany risks (if managed appropriately) are unlikely to be explicitly harnessed, and neither are the ways in which risks (including the positive and negative dimensions thereof) can be amplified for some while being minimised for others (i.e., risk arbitrage). An example is the insights South Africa's government might have gleaned from the data it gathered via its digital contact-tracing interventions if only it had invested in the capacity to do so (see section 6.3.2 b).

There is, of course, more to the desirability and difficulty of meaningfully defining risks in a positive or negative sense, as is explored next before turning to specific examples of the socio-digital dimensions of risks.

7.2.1 Do unto others: risk avoidance and arbitrage

When the stakeholders in this study defined risks, my analysis suggested that they tended to do so in ways that are fractured (by emphasising certain aspects of risks, or prioritising some risks, while neglecting others); that served to distract from other challenges or risks (whether intentionally or unintentionally); or that avoided and even shirked responsibility for defining risks (and thus for managing risks, as is discussed below). As such, my empirical analysis indicated that risk definitions tend to serve the interests of powerful stakeholders or their organisations rather than potentially affected parties, like the users or 'beneficiaries' of these digital development processes (i.e., risk beneficiaries).

Such vague and inadequate risk definitions can facilitate risk arbitrage, which means (powerful) stakeholders might designate and/or amplify certain risks for some individuals or communities (e.g., beneficiary communities) while restricting risks for others (or themselves) (see section 3.3.5). In some cases, my empirical analysis indicated

that stakeholders can also create, introduce, or exacerbate risks for others while creating opportunities for themselves (e.g., through overt corruption, or by licensing and promoting a certain technology as if it is a prerequisite for 'development', while making a profit and even facilitating lock-in). While my theoretical definition of risks emphasised the intentionality thereof (see section 3.3.2), it was difficult to assess the degree of intentionality or negligence involved in the failure to define these risks, and/or the tendency to outsource or avoid related responsibilities for their management. That said, these findings also confirmed the potential value of the notion of developmentality for critically engaging with the conduct of digital development (e.g., Foucalt, 2007, p. 115; Dean, 2010, pp. 17-18; Lie, 2015a, p.4, see section 3.4.4). It indicates that these digital development processes can facilitate the reallocation or even shirking of responsibility to address the risks and collateral implications of digital development processes for responsible well-being (see section 3.5).

For example, risk arbitrage was visible in the nested case when the government decided to partner with a major health insurance company, Discovery, during the first months of the Covid-19 pandemic 'to gamble' (as one interviewee put it) with a contact-tracing app (see section 6.2 b) that could, by definition, only serve a privileged section of the connected population given South Africa's poor levels of ICT adoption and penetration (e.g., ICASA, 2023, see section 2.2.2). Even if the professed cost of the partnership between Discovery and the DoH was purportedly zero ZAR (see section 6.3.2 b), I posited that the costs of this partnership extended beyond reported or quantifiable financial implications. The arrangement (which has now come to an end) not only brought certain benefits to Discovery (including lobbying power and access to data) and to the government (including creating the perception that the government was 'on top of the situation', as one respondent argued), but it was designed to privilege a specific segment of the population – namely, as one civil society interviewee said, 'people with deep pockets and expensive medical problems' (cf., section 6.3.3 b).

My evidence suggested that the CovidAlert app, in particular, neglected communities and audiences that were most in need of additional information, guidance, and assistance about Covid-19, including analogue and preventative options – thus potentially heightening the life-threatening risks they were exposed to during the pandemic (see section 6.3.3 b). This is particularly problematic given that alternative

pathways were available and could have been followed: for example, the government could have invested in other analogue or non-digital efforts, or if it had insisted on digital interventions, it could have chosen to collaborate with other institutional partners (e.g., universities, as in the case of COVI-ID) that explicitly catered for these audiences, as opposed to Discovery as a partner which, by its own admission, designed the app to serve its own 'top-end' customer base (see section 6.3.2 b). Given these factors, it is curious that government and other stakeholders involved in these processes repeatedly privileged privacy risks and their mitigation while avoiding talking about exclusion risks – as is discussed in more detail below.

I also discerned the likelihood of risk arbitrage in the overarching case concerning digital IDs, albeit in different guises. The UN and development community's decision to leave the meaning of 'legal identity' in the SDGs open for interpretation has meant that different stakeholders and institutions (including the private sector) have been able to adopt definitions of digital IDs that privilege their respective needs, rather than necessarily serving the needs of beneficiaries. This concern has also been expressed by Manby (2020, see section 3.6.2), and was reiterated in some interviews with development actors and non-profits responsible for facilitating the promotion of digital IDs on the continent (see section 5.2). Since 2015, a deluge of initiatives has indeed been launched by the broader development community to promote (and sell) digital IDs for development, for good, or for Africa – most of which operate under the vague mantle of the SDGs, but few of which define what is understood by development, by good, or by Africa. In addition, I found that many interviewees from this community did not elaborate on what is meant by 'digital IDs' in our discussions (*ibid*., and Chapter 5 generally).

Some more sceptical interviewees pointed out that the SDGs' definitional ambiguity has facilitated the introduction of a plethora of rather ill-conceived projects for (often functional) digital IDs that do little to address the underlying and entrenched socio-digital inequalities that, they argued, more urgently need to be addressed from a developmental perspective (see examples in section 5.2). Indeed, it is rather telling that many of these initiatives are promoted by development agencies, the private sector, and other initiatives (e.g., ID4Africa, ID2020, and Smart Africa) that derive (or rely on consultant and donor support that originate) from countries that often do not have

digital IDs with similarly expansive affordances in their own jurisdictions. While it falls beyond the scope of this thesis to explore such claims in detail (I suggest, in the next chapter, that it would benefit from future research), some respondents were concerned about the 'data is the new oil' rhetoric (see section 5.4.3) and suggested that it might be driving some of these initiatives. This, some respondents argued, is particularly problematic given that many development actors, especially, seem to act 'above the law' in many development contexts (see section 5.5.2). As such, this means powerful development actors can incur benefits for themselves while designating or outsourcing risks to others (e.g., risk beneficiaries) – often with limited accountability. (This finding is also relevant to risk management, as is discussed below.)

In the same way that my analysis indicated that the stakeholders in this study thus prioritise and emphasise different aspects of digital IDs to serve their respective needs and interests in the overarching case data, stakeholders in both cases defined risk, or emphasised diverse aspects of risk, based on their individual or organisational priorities, needs, and interests. For instance, a significant focus of advocacy activity as far as digital IDs is concerned, is dedicated to perceptions of the relevance of privacy risks and their mitigation, while other risks pertaining to exclusion are less frequently addressed in documentation and projects. In both cases, some interviewees were perplexed by this focus, noting that it appears to be shaped by the fact that many CSOs active in the digital ID 'space' tend to be based in Europe or the USA (or are funded by organisations based in global North contexts), where privacy risks are often more front of mind than the exclusion risks which are especially relevant on the continent (see section 5.4.2). As one respondent argued: 'there is an ideology at play here' (*ibid*.) – and one which makes certain presumptions about what challenges and risks are relevant and pressing, and, accordingly, need to be managed more urgently. This is not to argue that privacy risks are not relevant on the continent, but rather that the prioritisation of certain risks *vis-à-vis* others by some interviewees is curious and likely driven by developmental and donor agendas.

This focus was even more pronounced in my nested case data (see sections 6.3.3 a and 6.4.2 in particular), in which I found that a disproportionate level of attention was dedicated to attempting to instil trust in the apps (and, by extension, in the government's ability to deal with the pandemic-related crisis appropriately). To do so,

stakeholders seemingly resorted to promoting perceptions of individual privacy and the actions taken to pre-emptively exculpate privacy risks in official communiques and interviews alike, despite the likelihood of these risks materialising being rather limited given the ways in which the interventions were developed and designed in the first place. In other words, by emphasising the digital dimensions of risks (e.g., privacy-preserving technology or end-to-end encryption), other more pressing social dimensions (e.g., exclusion, discussed in section 6.3.3 b) appeared in my analysis to be avoided or not given the level of attention they arguably deserve (as is explored in more detail below).

Some stakeholders argued that government officials' explicit use of privacy-friendly language, including frequent assurances that the digital interventions were 'privacy-preserving' and anonymous (e.g., Mkhize, 2020a, 2020b, 2021), also amounted to a distraction mechanism (i.e., technology theatre) and facilitated the potential incurrence of opportunity costs (see sections 6.3.1 and 6.3.3 a). By focusing on allying fears of risks that were arguably less realistic or less likely to materialise, the government and other stakeholders involved in the development of these digital interventions can be seen to have managed – whether intentionally or inadvertently – to not only redesignate or shift the responsibility for managing risks elsewhere (i.e., to individuals), but to potentially distract the population from arguably more significant concerns and risks. As such, in my analysis of the interview data, the risks associated with both local and foreign PPPs were shown to be significantly underplayed (see section 6.3.2).

Given persistent inequalities relating to Internet access, smartphone ownership, and other requirements that shape whether people have the opportunities to choose to use, or not to use, these apps or technologies more generally in South Africa (see section 2.2.2), I also suggested that the interventions – and CovidAlert in particular – were almost by definition exclusionary. Concerns about exclusion were only rarely, however, mentioned in documentation and interviews with stakeholders and institutions involved with the development of these interventions (see section 6.3.3 b). This might be because the responsibility to manage exclusion risks requires broader, societal action, the responsibility for which lies at a societal (and policymaker) level, while privacy risks can often be designated at (or outsourced to) a seemingly more manageable individual level.

In the next section, I analyse some of the -isms and other maladies that were found to facilitate stakeholders' ability to underplay or shirk the responsibility of defining risks pertaining to digital development processes, before exploring the social and digital dimensions of risks.

7.2.2 A case of the -isms

In my theoretical chapter (Chapter 3), I acknowledged that certain 'determinisms' typically shape perceptions of ICTs and the definition and management of related risks (see section 3.2.3). I underestimated, however, how most of these determinisms also appear to shape the definition of risks that accompany ICTs before embarking on my empirical work. In both of my cases, policymakers, for example, often displayed a reluctance to publicly engage with or discuss risks, and were eager to emphasise the *positive* potential of digital IDs and other ICTs. My analysis of the interview data indicated that the common neglect of both the negative and positive dimensions of the risks associated with the use of ICTs like digital IDs might be facilitated or exacerbated by a triumvirate of -isms that still plague experiences with digital technologies on the continent, including Afro-optimism, tech-determinism, and developmentalism (or developmentality).

In the overarching case, a shift towards the promotion of positive narratives about Africa's 'potential' seemed to complicate many of my interviewees' ability to develop counter-narratives or simply more balanced accounts about risks that accompany what one interviewee called a 'wildebeest migration' towards ICTs like digital IDs. This optimism was also evinced by many of my interviewees, and especially those based in Africa, emphasising the need for Africans to develop a unique approach and agenda for digitisation in a rather performative manner. What this agenda would entail was neither elaborated upon nor entirely clear in my interviews (nor from documentation), although a common motivation for calling for such an African agenda seemed to be the perceived need to avoid potential exploitation by primarily foreign actors, institutions, and/or 'partners' (see section 5.4.3).

It was somewhat ironic to learn that African agendas that do exist, even when they purport to 'put' Africans (and their data) 'first' (whatever this might mean), tend to be shaped by external actors or the (often foreign) consultants they employ. Some interviewees were concerned that much of the agenda-shaping work taking place on the continent (e.g., the drafting of policy frameworks relevant to digitisation and ICTs) and that is relevant to defining and managing risks associated with digital development processes are, to some extent, facilitated, funded, and/or managed by both foreign actors, including development agencies, and policy objectives and ideals that tend to derive from the global North in general and Europe in particular. For example, one interviewee warned that the 'recolonisation of the African continent by virtue of the imposition of legal principles' exposes Africa(ns) to the risk of future exploitation (see section 5.5.1). Documentary sources that I analysed echoed this tendency (albeit with less direct or evocative language), indicating that policy principles deriving from global North contexts often influence and permeate African policy documents.

This influence does not only apply to policy agendas, however, but also to the technologies and supposed affordances exported to development contexts in Africa. Many interviewees expressed concern that India's Aadhar model, for example, is commonly promoted as an exemplar of developmental digital IDs for African countries, despite concerns about whether or not it is actually appropriate for vastly different contexts; or the risks it has introduced and exacerbated in India (see section 5.2). This echoes similar concerns about Aadhar's export value, expressed in academic literature (e.g., Martin, 2021), which warn that the 'Aadhar in a box' approach to digital IDs in development contexts can be problematic given the lack of relevant data protection regulatory capacity in many of these contexts. My cases indicated that while data governance frameworks might be on the increase on the continent, the institutional capacity (and political will) to implement and enforce these governance instruments is often lacking. This was particularly evident in the nested case, where the Information Regulator was shown to not only lack adequate resources, but also had limited capacity or enforcement powers to hold state departments (like the DoH) to account for potential data abuses – as was evident when the DoH failed to respond to the Regulator's request for information about potential data abuses during the pandemic well after the state of disaster had ended (see section 6.4.3).

The potential influence of foreign agendas and approaches was visible in other ways in my analysis of the nested case data too, in which it seemed that at least one reason why the government and other stakeholders relied upon and promoted digital contact-tracing mechanisms as a pandemic response was because that was what many countries in the global North were said to be doing (see section 6.2). A case, simply put, of keeping up with the Joneses. Some of my interviewees, including policymakers and other stakeholders involved in promoting digital contact-tracing apps in the country, boasted about South Africa being one of the first African countries to have used the Apple-Google API that had been developed to aid digital contact-tracing, and also justified their promotion of these interventions with reference to a guidance note in which the WHO ascribed some potential to digitising contract-tracing. In South Africa and elsewhere, it was curious that few of the stakeholders and publications that referred to the WHO note bothered to mention the disclaimers and caveats contained in the same note. Indeed, there seems to have been limited reflection – in documentation and by my interviewees – on whether investing in such interventions was suitable for the context or amounted to the best use of limited resources available at the time (see section 6.3.1 in respect of opportunity costs). In this sense, the concern about socio-cultural determinism that I explored earlier (e.g., Mansell & Steinmueller, 2002, p. 461; Van Loon, 2002, p. 9, see section 3.2.3) – or an over-reliance on contextual challenges to avoid delving into consequences or outcomes – did not seem to be as evident in my data.

The reliance on digital technologies as a 'useful tool in the coronavirus response toolbox' can be seen as being part and parcel of a more general tendency – also displayed in the overarching case data – towards technological determinism, which remains highly prevalent on the continent and indications of which were also present in some interviews with stakeholders involved in promoting digital IDs for development. In both cases, some interviewees either relied upon ICTs themselves or said that ICTs are relied upon as a panacea for addressing a plethora of social problems which, somewhat ironically, could often not be resolved or alleviated by digital interventions. Indeed, I posit that the introduction of digital IDs can exacerbate rather than address socio-digital inequalities or developmental objectives, as was illustrated in my overarching case, where interviewees pointed out that, in some instances, having a digital ID becomes a prerequisite for benefiting from accessing basic public services (see section 5.4.1). The exclusion that can result from this integration of digital and social services can, some

interviewees pointed out, be so significant as to mean the difference between life and death for risk beneficiaries (see section 5.4.3). Either way, as one respondent remarked, the digitisation 'hype' as far as identification processes are concerned, is a rather 'fishy narrative' that neither leaves space for critical engagement nor for asking questions about the collateral implications of the seemingly unabated appetite for digitisation (see section 5.1).

In my nested case data, similarly, digital contact-tracing efforts were frequently and repeatedly touted in official documentation and speeches, by senior policymakers and leaders, as positive and enabling 'tools' for 'fighting' the pandemic. Even when some of my interviewees who were involved in developing these interventions admitted during interviews that these 'tools' were a 'bit of a gamble' (see section 6.2) and/or even 'a flop' (see section 6.3.1), they continued to expound a narrative about how the technology could nevertheless be 'leveraged' to address other social problems or endemics in the future. For example, while enthusing that the pandemic had enabled the government to 'showcase' the 'strength of digital and the strength of technology', a participant from the DoH enthusiastically suggested, during a webinar, that this should be done 'for every service within government' (see the introduction to section 6.3.2).

In my overarching case data (Chapter 5), similarly, the enthusiasm for digital IDs on the continent – or, as one respondent described it, a 'wildebeest migration with craziness about ID' (see section 5.3) – and for the potential affordances of related technologies (including surveillance capabilities) seemed to make it difficult for some interviewees to engage with risky and/or potentially less-rosy outlooks. While the positive potential of these ICTs was frequently highlighted by my interviewees, there was only limited evidence in my data that the negative or the positive dimensions of risks as 'hot potatoes' (including the opportunities that might arise from mitigating and managing risks appropriately) were reflected upon.

In this regard, the notion of *digital* developmentality – i.e., the promotion of digitisation or of ICTs at all costs for ostensible or vague developmental purposes, but with little regard for the risky consequences (see section 3.5) – was found in my analysis to contribute to the tendency to underplay or underemphasise risks in order to convince stakeholders of the need for certain digital interventions for various purposes. Some

development actors interviewed for the overarching case admitted to prioritising reflections upon the positive potential of digital IDs when they try to convince policymakers to adopt a particular technology, and underplayed the risks that accompany these ICTs (see section 5.3). And when so-called risk or 'impact' assessments were conducted before proposing a digital ID 'solution' in response to a specific 'problem', or as an encompassing and one-size-fits-all 'solution' for a myriad of developmental concerns, my evidence suggests that it seemed to be done in a rather instrumental manner that failed to adequately reflect the contextual factors and other externalities that shape risk experiences. In this regard, it was particularly concerning to me to learn that some development stakeholders seem to intentionally minimise, neglect, or denigrate mentions of potential risks in both discussions with governments and in the 'impact assessments' or CBAs conducted to determine whether a specific context is a suitable one for a digital ID intervention or not (see section 5.5.3). The nature, strengths, and shortcomings of these assessments should be investigated in more detail in future research, as I propose in Chapter 8.

In other words, even if there might be evidence of an awareness of potential risks, accompanying responsibilities to define and manage such risks seemed, in my analysis, to be intentionally obscured or shirked in digital development processes. This, I suggest, has the effect among other things of contributing to technological determinism on the continent and might make it difficult for stakeholders to appropriately reflect upon the risks of digital IDs promoted in the name of development, or digital development processes more generally, while assuming overall positive outcomes.

While I have argued that risks are typically under-theorised or not adequately defined in the introduction to this section, this subsection has highlighted that a triumvirate of -isms and related narratives contribute to the shaping of risk definitions and the failure to define risks. These factors also play a role in whether and how specific risks are defined or managed by the stakeholders interviewed for this study, as is explored in the next section.

7.2.3 The socio-digital dimensions of risks

In order to systematise my analysis, my methodology called for a deconstruction of risks to enable me to organise and clarify my descriptions, so as to better understand how risks were being understood by my interviewees. I differentiated between risks associated with digital (or supply-side) and risks associated with social dimensions (or demand-side). While potentially a rather superficial division, this approach was used in recognition of not only the constant interaction and interplay between these social and digital dimensions, but also that the experience of risks would be shaped by the levels on which they are experienced (e.g., individual, collective, and/or societal).

As such, the notion of the *socio-digital dimensions* of risks was presented as a concept which offers a useful way of unpacking the risks that accompany digital development processes (see section 3.5). Using this approach, in the remainder of this section I first emphasise insights that arise when the analytical focus is more on the (a) social and then more on (b) digital dimensions of risks since there are distinctive aspects related to risk definitions and designations that come to light in the data. That said, the analysis of data from both cases confirmed that the understanding of risks is cross-cutting, intersectional, overlapping, and can neither easily, nor rigidly, be contained to social or digital dimensions exclusively. In keeping with the Risk Society's definition of risks as unpredictable and ambiguous (Beck, 1992, see section 3.3.2), I therefore also discuss, in subsection (c) below, my analysis of examples of risks that are ambiguous and cross-cutting, and difficult to contain to one or the other dimension.

a) Social dimensions of risks

I defined the social dimensions of risks as encompassing risks that extend beyond the infrastructure or technology itself to how it is used (or not used) in specific contexts, and by incorporating many of the demand-side challenges commonly understood to complicate the adoption and equitable use of other ICTs (or choice to not use these technologies). My analysis suggests that these risks are commonly neglected or underestimated in risk definitions articulated in my interviews – and more so than risks pertaining to the digital dimensions of risks, with the exception of the focus on privacy risks in the nested case data.

My analysis of both cases indicated that despite the importance of understanding the historical development of digitisation and identification processes when trying to define risks and their management, contextual engagement was generally limited on the part of most of the stakeholders I interviewed that promote these processes. More specifically, some of my interviewees lamented that challenges pertaining to ('offline') socio-economic inequalities, including whether someone has proof of citizenship in my overarching case (often needed to obtain a digital ID) (see section 5.2), or a smartphone with data and space (or 'real estate') in my nested case (needed to download and use contact-tracing apps) (see section 6.3.1), are often disregarded. This tendency was particularly visible in my overarching case, where the significance of context and social inequalities was typically downplayed in many of my interviews with both development actors and institutional representatives that actively promote digital IDs on the continent (see section 5.4.2). This is a concern that is also common in the academic literature, most notably from Breckenridge (e.g., 2021, 2014). I elaborate on these observations in the remainder of this section.

In my overarching case data, in particular, my investigation of risks proved impossible without first examining the historical background to and experience of identification systems on the continent, from their application in attempting to streamline the delivery of aid for refugees and other beneficiary communities, to their use in securitisation efforts (and related surveillance) after 9/11 led to the introduction of more stringent border control measures – at least for some populations (see section 5.2). Without an understanding of the risks that might have accompanied pre-digital and analogue experiences of identification processes (e.g., the state of birth and death registration), I posit that it is difficult not to be blinded by what some interviewees called the 'fashion' of and 'craziness' for digital IDs (see section 5.3), or by the ways in which the introduction of new digital development processes might give rise to or exacerbate various socio-digital inequalities – as illustrated by the vignette of the man desperately brandishing his South African identity book among a mob of angry locals.

The reasons why people might opt to *not* adopt or use digital IDs – even if the choice might increasingly prevent them from accessing critical services given governments' growing reliance on the digitisation of public services – were therefore seen to be more

complex than some interviewees and available documentation would typically acknowledge. While some interviewees failed to question the reliance on digital IDs and assumed that all Africans are desirous of participating in 'promising' processes of digitisation, there are therefore practical and historical considerations at stake for why some people would decide not to be registered and/or identified, whether digitally or in more analogue formats.

While some interviewees therefore emphasised the exclusion risks of these tendencies, it is important to keep in mind that Helsper's definition of socio-digital inequalities (2023) that I draw upon encompasses the choice to participate or not to do so as well (see section 3.4.3). Opting out, in a sense, is an interesting risk mitigation mechanism for individuals who regard digital IDs as such a significant risk to their lives and livelihoods that they would prefer to go without (see section 5.4.2). That said, many interviewees warned of the risk of compounding or exacerbating inequalities as a result of the affordances of digital IDs, and, more specifically, a growing tendency for government services and other important services (e.g., banking) to be 'stacked' on the 'foundation' of digital IDs. This means that, as one respondent noted with reference to the Ghanacard example, 'life just stops' without a digital ID, especially for the many Africans who are undocumented, who lack basic documentation, and/or who cannot register for digital IDs (see section 5.5.1).

These 'offline', historical, and social inequalities also appeared to be largely neglected or ignored in my analysis of the nested case data. While South Africa faces significant challenges as far as socio-digital inequalities are concerned (see section 2.2.2), remarkably few interviewees engaged with these factors when discussing the definition and management of risks and their potential outcomes of digital contact-tracing mechanisms. Given these inequalities, I suggest that the digital contact-tracing mechanisms promoted during the pandemic in South Africa were almost by design exclusionary. (I argue this in the sense that they were exclusionary because of how they were designed, but not necessarily intentionally exclusionary.) This contention is based on the fact that:

- CovidConnect, which is still active, has contact-tracing capabilities, but is only available to users with WhatsApp on their mobile phones (see section 6.2 a); *and*

- CovidAlert, which is no longer operational, was designed for the government by Discovery (see section 6.2 b). During interviews, some of Discovery's employees explained that the organisation invested in developing the app because Discovery was concerned about protecting its own customer base from the virus (see section 6.3.3 b). The app was therefore designed to work for and serve a very specific, primarily economically-active middle class – i.e., people with smartphones, space on their phones, enough data to download apps and battery to use location tracking, and the necessary skills, time, and know-how for learning to use the app.

A significant part of South Africa's population was thus, I posit, never likely to benefit from these interventions. Given what epidemiologists projected about the number of app downloads needed to run a 'successful' digital contact-tracing mechanism (see section 2.3.2), many of the civil society commentators (i.e., the stakeholders not directly responsible for developing the app) I interviewed, as well as those who commented in news items at the time, argued that CovidAlert, in particular, would likely be doomed to failure from at least an epidemiological perspective even before it was launched (see section 6.3.1).

Generally, while I suggest that lives were not directly threatened by the failure to be able to use or not use contact-tracing apps given that the apps were unlikely to make a significant public health contribution, associated opportunity costs and exclusion risks were more significant than the privacy risks that were so often highlighted by stakeholders involved in the development of digital contact-tracing efforts in the country (see section 6.3.3 b). That said, these opportunity costs can be difficult to identify and were only explicitly mentioned by one interviewee, although other interviewees did express concerns about policymakers investing in these digital tools while neglecting (often non-digital) alternatives, such as raising general awareness about washing one's hands frequently and the need for wearing facemasks correctly (see section 6.3.1). These concerns expressed in the interviews were also echoed in a report about the consequences of digital substitution during the pandemic, in which researchers argued that these digital interventions introduced and amplified information disparities, which might have made certain populations more susceptible to higher mortality rates than those who could get more timely information about the virus (Banya et al., 2022, see sections 2.3.1 and 6.3.1).

In both documentation and my interviews for my nested case, South African policymakers were eager to justify perceived failures (in terms of vague usage numbers) of the digital contact-tracing interventions by arguing that these efforts were 'only' intended to supplement and not replace manual contact-tracing efforts (see section 6.3.3 b). However, these pronouncements seemed to contradict statements about the necessity and 'life-saving' potential ascribed to these digital interventions in official rhetoric, including speeches and tweets from the President and Minister of Health.[102] A frequently used Twitter (X) graphic from the then Minister of Health, for instance, repeatedly implored South Africans to download and use these tools in order '*to protect yourself, your loved ones and your community'* (see section 6.2 b). Evidence arising from my study therefore shows that, at some point and for quite some time (at least during the first eight months of the pandemic), policymakers did try to convince South Africans that these apps had significant potential for mitigating some of the negative implications of the pandemic.

Given some interviewees' concerns about the usefulness and functionality of these digital contact-tracing mechanisms – which were echoed in some app reviews (see section 6.3.1) – as well as exclusion concerns and risks, it was curious to see which perceived risks were defined, focused on, and managed by the public and private sector partners (e.g., from Discovery and the DoH) closely involved in the development of interventions like CovidAlert. As mentioned, privacy was often described (in interviews and documentation) as a trade-off with public health (for those who could, as mentioned, actually use the apps). In neither interviews nor available documentation did the interviewees who were involved in these processes explain how a significant part of the population with no access to these apps due to persistent socio-digital inequalities would protect themselves, their loved ones, and their communities without having access to these digital interventions.

These general conditions were therefore important factors that shaped the contexts in which these ICTs were introduced. Another factor was the Covid-19 pandemic, which not only framed my nested case, but also played a role in the overarching case and the

[102] See section 6.2 for an analysis of senior policymakers' references to these technologies in official communication channels at the time.

popularity of various digital ID applications in pandemic responses (see sections 5.2 and 6.3.1 respectively). While the pandemic was an exceptional time accompanied by extraordinary pressures, decisions made and precedents set during this time have had broader implications for understanding stakeholders' reliance upon digital technologies for various problems, including crisis responses. Indeed, as one report about the impacts of digitisation during the pandemic argued (ITU, 2021), the digital conditions introduced during this time of crisis heralded a 'new normal' (see section 2.3.1). This is particularly problematic given that most of the interventions in my nested case were developed and introduced without the usual checks and balances and public scrutiny – or 'red tape', as one government official called it (see section 6.4.1). Given other scandals pertaining to public procurement and the spending of emergency funds during the prolonged state of disaster (e.g., the Digital Vibes scandal), the lack of red tape also raises questions about associated corruption risks.

b) Digital dimensions of risks

Interviewees in both cases argued that risks that relate to and accompany ICTs, whether digital IDs or another ICT, are perceived to be complicated, abstract, less tangible than 'analogue risks', and therefore sometimes difficult to justify dedicating resources and/or attention to. These risks, as one respondent pointed out, are 'a hot potato' (see section 5.3). As such, the risks that are associated with the design and development of certain ICTs used in digital development processes (including related institutional environments, partnerships, and collaborations) appeared to be a particularly apt example of Beck's portrayal of the Risk Society (Beck, 1992, see section 3.3.2). These risks are manufactured, uncertain, vague, often dependent on the ways in which they defined, and thus shaped by the interests of stakeholders and institutions with the power to define and manage risks in development contexts.

I surmise, based on my analysis of both cases, that digital risks become even more difficult to manage when complex institutional environments are involved (including a plethora of stakeholders) in designing and developing the ICTs that introduce or exacerbate these risks, thereby enabling the redistribution or reallocation of risks and the responsibility for managing it, as well as making it difficult to determine where associated responsibilities for managing risk might rest. The notion of organised

irresponsibility (Beck, 2009, see section 3.3.5), proved particularly relevant here. In this regard, interviewees in both of my cases pointed out that there seems to be a growing tendency for traditionally public services to be outsourced, either to (foreign) development actors, to the private sector (often foreign actors, including digital platforms), or to local NGOs (for my overarching case, see sections 5.2 and 5.4.1, and for my nested case, section 6.3.2). Interviewees identified a range of challenges and risks that might result from these complex institutional environments (many, but not all of which, amount to PPPs).

These concerns extend beyond the aesthetic absurdity of having, for example, a Mastercard or Visa logo on a national ID card (see the Nigerian case in section 5.2): resultant partnerships and arrangements were implicated in a plethora of problems in both cases. While I examined interviewees' perceptions of these institutional environments in more detail in the nested case than in the overarching case, some interviewees in the overarching case were concerned about the involvement of various foreign platforms and services and related risks such as being locked into systems that are often ill-suited for local purposes or contexts, while creating dependency relations, facilitating corruption, or paying more than was bargained for (see section 5.4.1). These observations were common to the consultants I interviewed as well as to some development actors.

Some interviewees pointed out that related risks can also extend to arrangements to outsource public sector services which can be plagued by corruption scandals (the 'unwritten rule' of 'brown envelopes') and related challenges. It was interesting to note that despite the work done by the development sector and other institutions (including entities that some of my interviewees work for), and investments made to address so-called digital ID gaps by these stakeholders, many of these inequalities do not seem to have been much improved. One interviewee pointed out that a failure to make sustainable progress in this regard might be because it is sometimes in the interests of some stakeholders to maintain an unequal *status quo*, for some individuals to remain illegible (or unregistered), or for private sector stakeholders to install systems that are superfluous and/or might need to be replaced (often accompanied by healthy kickbacks for other stakeholders) in a few years' time (see section 5.4.1).

In my nested case, which delved more into the specifics of complex institutional environments in which digital contact-tracing interventions were delivered, the lack of transparency in some of the partnerships involved was particularly disconcerting for me and for some interviewees (especially civil society actors and members of a regulator) (see sections 6.3.2 and 6.4.3). These concerns became ever more relevant when investigative journalists revealed that the country's then Minister of Health (and the department in his charge, the DoH) had reportedly been embroiled in a number of allegedly corrupt procurement arrangements committed during the pandemic (e.g., Digital Vibes, see section 6.3.2 b), begging the question of what other skeletons might remain hidden as far as the DoH or other government departments' pandemic dealings are concerned.

The two digital contact-tracing interventions that formed the focus of my investigation in Chapter 6 both relied upon foreign technology, apps, or frameworks developed and maintained by large platform companies. The potential implications of this dependence on (foreign) platform power (including Meta, Apple, and Google) to deliver potentially significant national interventions were not elucidated by most respondents (see section 6.3.2 a). When these collaborations were mentioned, institutional 'partners' tended to be enthusiastic about the 'opportunity' of working with platforms like Apple, Google, and Meta, arguing that doing so would encourage the local community to trust the interventions more. While some participants did express concerns about being 'at the whim' of these platforms and not having any insights into how these platforms manage the data collected, they often justified the decision to nevertheless forge ahead with these 'tools' by relying upon arguments about economies of scale and other considerations, including not wanting populations to have to convince users to learn or adopt another new app or tool (see sections 6.2 a and 6.3.2 a).

The geopolitical considerations involved with large platforms seen to effectively dictate national-level decisions about contact-tracing, as well as related concerns as far as national sovereignty is concerned (e.g., Edwards, 2020, p. 43; Greenway, 2023; Sharon, 2021), did not seem to be a significant concern for my interviewees. Yet some interviewees were concerned that governments' reliance on the private sector (locally in particular) might occasion the situation that every corporate actor would invest in not only what they have expertise in (e.g., health), but also in what suits them, rather than

what meets the needs of beneficiaries. One interviewee explained that for a food and beverage company, for instance, it might make sense to invest in feeding schemes, while for the largest health insurance company in the country (Discovery), collecting and managing health data with/for the DoH (by developing a contract-tracing app) would similarly be a beneficial and lucrative arrangement for both parties, given both Discovery's experience and interest in the sector (see section 6.3.2 b).

In this regard (and in the case of the contact-tracing app CovidAlert), the South African government's arrangements with Discovery to develop and promote the app remain opaque, despite my attempts to unpick this in interviews and from documentation. The limited information that was forthcoming about the arrangement was a cause for concern for some interviewees (particularly those from civil society and the Information Regulator) (see section 6.3.2 b), however. Not only did the insurer collect and store personal data about infections and other health patterns (i.e., data that is potentially valuable and relevant to the company's present and future business interests) on behalf of the government, but it was permitted (or compelled) to hold onto that data and to continue managing the app for much longer than it should have, at least according to unconfirmed media reports of some of the terms of the arrangement between Discovery and the DoH.[103] Even if very limited sensitive or personal data was collected by the app – or as one respondent put it, the data was not 'particularly sexy' (see section 6.3.3 a) – it is problematic that there appears to have been limited oversight over how data was collected, stored, and then transferred to the government (if at all).

Similarly, allegations that the government was not in a position to take over the management of the app from Discovery and/or to manage the data collected (and associated risks) – that it 'didn't have the real-world capacity to make use of the information', as one interviewee noted (see section 6.3.2 b) – are equally disconcerting for me and some interviewees. As is further explored below, this indicates that the *positive* opportunities that accompanied these apps – including the use of potentially valuable health data and related insights – were not harnessed by the government for planning and other purposes.

[103] A noted in Chapter 6, I could also not determine whether and how collected data was eventually destroyed and/or 'returned' to the DoH.

c) Intersectional elements and ambiguous risk

As the example of data collection, storage, and management indicates in the preceding section, my analytical distinction between the social and digital dimensions of risks sometimes becomes difficult to strictly maintain in my analysis. This difficulty inadvertently helped to confirm the notion of risks as ambiguous (see section 3.3.3). Overall, I found that this ambiguity is amplified by the complex and complicating nature of ICTs (and digital IDs) and their affordances, or how they interact with, are shaped by, and are shaping of the environments in which they are developed and used in diverse ways (see section 3.2.1). My analysis indicated that it is tricky to distinguish between the risks arising from processes and the risks arising from specific technologies, or even from the ways in which these risks are managed. This ambiguity might also be why many of my interviewees tended to conflate risks with harms or threats, or to similarly view risks and their mitigation as interchangeable.

For example, my overarching case indicated that the increased digitisation of government and other services has facilitated the promotion of digital 'varnishes' or overlays on existing (and often flawed) systems in ways that purport to decouple physical and digital worlds, but that typically overestimate the boundaries between these spaces (see section 5.2). Some interviewees pointed out that digital IDs can facilitate rather superficial (digital) changes to an unsatisfactory status quo in physical or social spaces (as the example of refugee registrations illustrated, see section 5.4.3). In doing so, some interviewees warned that they can introduce new and exacerbate existing inequalities in certain contexts, including by limiting people's choices pertaining to (digital) ID processes (see section 5.1). These processes of (and enthusiasm for) digitisation can also serve to obscure the shift in identification processes from physical to digital artefacts, or from stories to samples to bits (Breckenridge, 2014, p. 12, see section 3.2.2). The latter was not mentioned by my interviewees, but I indicate that further research into these changes would be useful in Chapter 8.

Interviewees were concerned that the development, implementation, and maintenance of digital ID infrastructure could introduce risks related to the overzealous collection of data; the potential misuse of data; and/or the use of data for purposes for which it was not collected. In the case of refugees, for example, some interviewees pointed out that

data and its management have also been used as leverage in negotiations between refugee host states on the continent and refugee and other aid agencies (including WFP and UNHCR), but with potentially devastating implications for relevant beneficiaries. As one respondent pointed out, both having or not having digital IDs can amount to a death sentence for risk beneficiaries in some instances: on the one hand, it can enable access to various fundamental resources and services (e.g., healthcare or food), while, on the other hand, the data collected by digital IDs can be used to facilitate abuses or to exacerbate inequalities now or in the future. Some respondents also feared that the 'data is the new oil' rhetoric popularised by some stakeholders on the continent is partly to blame for a growing appetite for digitisation and datafication processes, also as far as digital IDs are concerned (see section 5.4.3).

Using the example of refugee management and the discrepancies that sometimes fester between national systems of ID management and the systems managed and created by refugee agencies, the interviews in my overarching case illustrated that incongruencies like the ones between refugee and local systems can shape a tendency towards insisting on data localisation on the continent. I suggest that concerns that Africans' data might be exploited for benefit elsewhere, which were mentioned by a few interviewees, might be fuelling a growing tendency to emphasise that 'Africans' data belong to Africans' and to insist on data localisation, as also illustrated by the policy frameworks I examined in section 5.4.3. This brings me to risk management, which were explored as a part of my second SRQ and to which I turn next.

7.3 Managing risks (SRQ2)

If, as I argued in Chapter 3 and the previous section, risk definition(s) can be defined as perceptions of the uncertain outcomes of digital development processes in (a) specific context(s), then risk management (SRQ2) can be defined as the actions taken (or not taken) to manage the potential changes (or uncertain outcomes) that digital development processes might mean for and in a specific context (see section 3.3.5). However, the ambiguity of risks, examined in the preceding section, makes both the definition and the subsequent management of risks difficult. My findings with respect

to SRQ1 indicated that many of my interviewees' risk definitions – and related desirability or willingness to assume responsibility for risk management – were rather vague, splintered, and/or perfunctory. While I argued that risk management measures and definitions are interrelated and iterative exercises, this was not a distinction that most interviewees in either of the cases readily made. In the nested case, for example, interviewees often conflated not just risks with harms but also risk definition with their management (see section 6.3.3).

Somewhat ironically, the perpetuation of this ambiguity of risks might, if one indulges a cynical reading, enable stakeholders to directly or indirectly conceal, deny, and deflect the responsibility for managing risks, once identified or designated as such. I posit that this becomes more feasible the more complex the institutional environment and the higher the number of stakeholders involved in these processes might be, which shapes to what extent a culture of organised irresponsibility thus reigns (see section 3.3.5). However, and based on my analysis, I propose that if a risk is identified, some responsibility to manage it might be triggered – and many stakeholders involved in digital development processes might have an interest in deploying tactics of risk arbitrage by wanting to avoid or outsource this responsibility.

In the next section, I consider how, in my analysis, risk definitions and management processes were shaped by tendencies towards organised irresponsibility and risk arbitrage, before turning to specific examples of how the risks that were identified in my two cases were managed by different stakeholders.

7.3.1 Organised irresponsibility

My empirical analysis indicated that the notion of digital development risks is closely related to that of a culture of organised irresponsibility (defined in section 3.3.5), and sometimes facilitated by and interwoven with processes of risk arbitrage and technology theatre. I did not directly explore outcomes in this thesis, but as I suggest in Chapter 8, it would be useful to investigate how tendencies such as risk arbitrage in digital development processes might shape outcomes in future research agendas.

In addition to Beck's definition of the nature of manufactured risks as risks that are produced by humans or humanity itself (see section 3.3.3), I found his approach to risk management, as well as the faltering role of institutions in these processes (see section 3.3.5), particularly relevant in my empirical explorations. My analysis indicated that it becomes easier to avoid responsibility for managing risks since many of these digital development processes involve a multitude of stakeholders working in complex institutional environments, thereby making it more difficult to attribute responsibility, accountability, or liability, and, arguably, resulting in or facilitating what Beck defined as *organised irresponsibility* (2009). In some instances, given the pressure to meet certain development objectives and goals (e.g., the SDGs), promoting these interventions at seemingly any and all cost means that certain stakeholders have been able to extract benefits and opportunities from these digital development processes via processes of risk arbitrage, while reassigning risks away from themselves. Where digital IDs, in particular, are concerned, the conceptual ambiguity of the SDGs has not just enabled different stakeholders to adopt varying definitions of digital IDs based on their respective needs or priorities, but might have facilitated the reallocation of accompanying risks in the same manner.

My analysis also indicated that processes of risk definition and management can become quite performative in and of themselves. Some of the -isms I mentioned in section 7.3.2 were prevalent when it came to this approach to defining risk, or (rather), failing to do so – and are relevant to the management of risks too. In my nested case data (Chapter 6), it was difficult for me to understand why policymakers would have invested significant resources (not to mention incurring opportunity costs) in developing digital contact-tracing efforts if these were unlikely to meet the prerequisite usage numbers required to have any public health benefits, or if the government was in no position to make beneficial use of the data collected from those processes. By diverting the population's attention to seemingly fancy (and fanciful) digital tools (and specific aspects thereof, such as privacy-related mitigations), I suggest that there might be a possibility that policymakers wanted to distract people from other challenges – e.g., corruption in related processes, broader failures in pandemic responses (including high fatality rates and stringent lockdown conditions), or other challenges with the apps themselves (e.g., risks of exclusion or poor design).

Such technology theatre was partly facilitated by the sheer number of public and private sector, local and foreign stakeholders involved in the complex institutional environments developing these interventions, which meant that it becomes increasingly difficult to know who is responsible for managing the risks that accompany these processes. This situation – in which it becomes more difficult to allocate responsibility for risk definition and management – is also arguably an example of organised irresponsibility, which Beck (2009) used to argue that the stakeholders who were traditionally responsible for managing risk are no longer capable of doing so and, indeed, are now the creators (or manufacturers) of risks themselves. Not only does this phenomenon increase risk beneficiaries' responsibility for risk management (as opposed to holding relevant institutions to account), but it can also facilitate risk arbitrage, meaning that certain risks can be outsourced or reallocated to some parts of the population while keeping other parts of the population satisfied (or safe).

The interesting relationships between such organised irresponsibility, digital development risks, and risk arbitrage were also revealed in my overarching case (Chapter 5). The enthusiasm for digital IDs in development contexts was shown to be at least partly facilitated by some development actors' tendency to promote digital development processes at seemingly all costs, while feeding into the ready rhetoric provided by technological determinism and hype (see section 5.3). As such, I suggest that technology theatre was in some ways aggravated in my cases by developmentality as well as the plethora of stakeholders involved in these processes, thus also facilitating organised irresponsibility.

7.3.2 Examples of risk management efforts

In both of my cases, the actions taken by stakeholders to manage digital development risks have been shown to be tempered by and must be viewed in the context of evidence of risk arbitrage and organised irresponsibility conducted on the stage of the digital development/ality theatre (see section 5.5 for the overarching case and section 6.4 for the nested case). Somewhat unsurprisingly, it appeared from my analysis in these sections that risk management efforts vary and depend upon the stakeholders

concerned and their respective interests and concerns, including how they define(d) or failed to define risks in the first instance.

In this subsection, I discuss the risk management strategies that were forthcoming in my empirical analysis.

a) Policy and governance mechanisms

In both cases, the growing number of relevant policy instruments (e.g., data protection frameworks) being developed at an African level was highlighted by a number of interviewees as potentially important risk mitigation mechanisms (see section 5.5.1 for the overarching case and section 6.4.2 for the nested case). At a continental level, most interviewees who were aware of these policies, argued that the AUC's efforts to develop policy frameworks on (respectively) digital IDs, data governance, data protection, and digital transformation, more broadly, illustrate an appetite for engaging more actively in digital policy and governance.[104] Some interviewees pointed out that ensuring adoption or domestication is more difficult, as evinced by the sobering experience with the Malabo Convention (see section 2.2.3).

While policy frameworks related to Africa's 'digital future' or 'digital transformation' at a continental level are therefore launched with much aplomb, and are also referred to by some interviewees with optimism (see section 5.3), my analysis showed that they are in reality often drafted with foreign 'mutual assistance' or development funding, and/or by foreign 'expert' consultants who effectively hold the pen given significant resource and bureaucratic constraints in organisations like the AUC, which could and – some interviewees argued *should* – be setting continental agendas on digitisation. This includes not just the funding and resources for drafting relevant agendas and frameworks, but the policy principles contained therein, as was illustrated by, for example, both South Africa's proposed identity management policy and the AUC's *Interoperability Framework for Digital ID* containing principles that are either a direct duplication or a very close adaptation of the (World Bank's) *Identity for Development Principles* (see section 5.5.1).

[104] For example, shortly after the EU's AI Act was adopted in early 2023, at least two different AUC departments reportedly also started working on the development of AI policy framework(s), for instance.

Besides the potential challenges associated with having an agenda imposed by external partners with their own interests at stake, these tendencies are also interesting in the context of developmentality and the Foucauldian notion of the 'conduct of conduct' (Foucault, 2007, see section 3.4.3). When governance mechanisms like these at an African level become the focus of 'development' efforts, stakeholders might inscribe their own power, philosophies, and interests by, for instance, promoting or imposing their ways of thinking and doing in these instruments and policies. By funding these governance instruments (and the development thereof), development actors might thus gain another way of indirectly exercising and exerting power, also by determining what should be defined and managed as risks and for whom in these governance frameworks, and what should not.

Besides developmentality, some respondents warned that a failure to define appropriate digitisation priorities in contexts without sufficient regulatory safeguards can facilitate the exploitation of African markets in ways that can echo the extractive tendencies of colonial rule, or can facilitate data colonialism practices. As one respondent warned, the dearth of strategic digitisation agendas means Africa is 'on the menu' and even 'on the table' for foreign stakeholders. Despite difficulties of enforcement, it seemed that localisation provisions are proposed as one way of countering this risk while reasserting sovereignty (see section 5.4.3). For example, in the AUC's *Interoperability Framework for Digital ID*, the list of *Identity for Development Principles* is augmented with the addition of one somewhat obscure statement, namely 'digital ID data belongs to, and remains in the control of Africa' (see section 5.5.1).

In the nested case context, where a raft of legislation exists with the aim of managing the protection of personal information and data, access to information, and other data governance risks, further undergirded by a strong Constitution (see section 2.2.3), many interviewees told me that South Africa's policy environment should be capable of managing the risks that accompany digital IDs generally and contact-tracing apps specifically (see section 6.4.2). Even if some of the checks and balances, or 'red tape', as one government stakeholder called it, were temporarily suspended during the state of disaster introduced in response to the Covid-19 pandemic, many of my interviewees were pleasantly surprised at the regulatory steps the government took during the

pandemic to mitigate potential risks pertaining to data management, from disaster regulations that made provision for a dedicated Covid-19 data oversight judge, to existing safeguards under legislation like POPIA (see section 2.3.3). That said, many of these regulatory interventions were developed with little to no public input or participation and at a time when POPIA was not yet fully operational. I also found that implementing these safeguards is a somewhat different story – as is explored in greater detail below.

Besides 'hard' policy, other governance instruments include the privacy and user policies adopted by some of the platforms, software, and technologies used to develop digital IDs. In the nested case, I found that platforms like Apple, Google, and Meta required users and developers to consent to certain privacy and use policies before developing or using their services (see sections 2.3.2 and 6.4.4). Apple and Google, for instance, only allowed one contact-tracing app 'owned by' a country's national health department to be listed on its app stores to, one interviewee speculated, avoid being inundated with requests to approve, review, and/or audit multiple applications per jurisdiction. This, I suggest, is in and of itself an indication of risk arbitrage being practiced by large foreign platforms.

Despite the existence of privacy and use policies, however, many interviewees expressed concern about the difficulty of obtaining any form of recourse from platforms like these. Implementation and enforcement therefore appeared to be more of a concern to many interviewees than the existence of relevant policies. I turn to enforcement and oversight next, before discussing the design dimensions of these protections (under section c) below.

b) Enforcement and oversight

Even if a growing number of governance mechanisms, including principles, policy frameworks, and privacy policies (e.g., for the apps in the nested case), might be in place on the continent to manage risks in theory, many interviewees pointed out that proof is in the implementation and enforcement pudding (see section 5.5.2 in my overarching case and section 6.4.3 in my nested case). In both of my cases, some interviewees were concerned about the capacity and will of local institutions to enforce compliance,

coupled with the difficulty of holding foreign tech platforms to account or simply getting responses and/or support from them. In the nested case data, for example, an interviewee from a major MNO complained about the 'months' it took to convince Apple and Google to let it zero-rate CovidAlert (see section 6.4.4), a step which could have encouraged more use, and thus could have helped to address the significant exclusion risk that clouded this intervention.

In the overarching case data, some interviewees pointed out that, despite the purported existence of policies and risk management strategies, limited mechanisms exist for implementing or measuring these commitments, despite 'rhetoric' to the contrary (see section 5.5.4). As one interviewee from an institution that actively promotes digital IDs on the continent lamented, '… the reality is that we don't have a mechanism to do it' (*ibid*.). Some interviewees were also concerned that many of the development actors that promote digital IDs and other ICTs on the continent for various reasons are not only 'above the law' but seem to shirk responsibility for the digital development processes they actively promote (see section 5.5.2). When it comes to data collection, for instance, one stakeholder argued that some of these actors 'preach' one thing (i.e., the need for risk management) but themselves do another (i.e., collect data with limited transparency and accountability) (*ibid*.).

In South Africa, my nested case analysis indicated that while strong data protection and other legislative mechanisms do exist in the country, institutional incapacities and resource constraints make enforcement and compliance difficult in practice (see section 6.4.3). The Information Regulator, which is tasked with ensuring the protection of personal information and access to information in the country, became fully operational during the pandemic but played a rather limited role in overseeing how data was collected and managed during the pandemic generally and by digital contact-tracing interventions, in particular (see sections 2.3.3 and 6.4.3). Indeed, the government seemingly forgot about its existence when it published disaster regulations that provided for a separate judge tasked with overseeing data management during the state of disaster. While some interviewees speculated that this was likely an unfortunate if wasteful oversight rather than a deliberate attempt to side-line the Regulator (see section 6.4.3), my analysis of the data (including transcripts from hearings and interviews) indicates confusion about respective roles and responsibilities, as well as

potential lack of trust in existing institutions by those responsible, in the first place, for creating and mandating these institutions.

In any event, the Information Regulator not only operates under significant resource constraints, but seems to have a curious way of choosing to spend those limited resources that, in some ways, echoes a common tendency, mentioned at the start of the chapter, to focus on future, societal, and abstract global ills rather than on current and real local risks. During the pandemic, for instance, the Regulator challenged Meta (WhatsApp) about certain user policies, but it was less proactive in addressing potential data abuses by major government departments taking place at the same time. Only after the two-year state of disaster came to an end, in 2022, did the Regulator start issuing rather futile requests for information about data management from the DoH. By mid-2023 and at the time of writing, the matter remained unresolved. According to press releases and emailed correspondence with employees in its offices, the Regulator's stalled investigations primarily relate to the data that was collected and used by the DoH during the pandemic. While the Regulator's powers extend to monitoring and enforcing compliance of both public and private bodies, it does not seem to have sent similar requests for information to Discovery, which was responsible for managing data collected by the CovidAlert app for a number of months. Given the paucity of information available about the partnership between the DoH and Discovery (see section 6.3.2 b), especially as far as data handling is concerned, it is arguably regrettable that the Regulator has not extended its inquiry to some private sector actors' activities.

While its enforcement and compliance work as far as data gathering during the pandemic was concerned might have been somewhat disappointing for me and some of the interviewees I spoke to (see section 6.4.3), the Information Regulator did issue reminders of the importance of adhering to privacy protections early in the pandemic. It is therefore interesting that a significant proportion of President Ramaphosa and other high-level politicians' speeches or other communiques were dedicated to emphasising the 'privacy-preserving' nature of the apps and the anonymity of data collected – concerns that, I surmise, might have been more relevant because of the role the Regulator played in raising awareness about its role and the need to engage with these concerns.

At the same time, some interviewees pointed out that policymakers were less engaged with other risks that had fewer recourses to policy safeguards or regulatory protection (see section 6.3.3 b). The Information Regulator's enquiries to the DoH relate to the data that was collected from those that are online and choose to download and use the app, but did not extend to assessing the situation for people who did not download or use the app and the potential consequences of their exclusion from use. My analysis also indicated that there was limited deliberation about possible alternatives to these digital interventions and the data they collected. It is unclear, for example, which (if any) regulator or state entity could have addressed concerns about exclusion and information disparities as a result of the digital interventions promoted by the DoH.

c) Mitigation by design

In my overarching case, many development actors who I interviewed pointed to the 'impact' or risk assessments they conduct as a mechanism to manage digital development risks, and argued that these help to shape the design of digital IDs in a more rights-respecting manner (see section 5.5.3). Given the apparent paucity and inadequacy of some of these assessments, which tend to lack sufficient understanding of the contexts and circumstances that shape experiences on the continent, I suggest that it is hard to imagine that these assessments can usefully do so. Indeed, the assessments done to apparently inform the design of these interventions seem to be inadequate for enabling an understanding of how risks interact with relevant environments and contexts, or how it might target or impact risk beneficiaries differently. Not only negative externalities, but also various social risks, are difficult to translate into 'impact' or risk assessments. In other words, based on my analysis it would seem that context is likely lost in translation.

That said, many interviewees highlighted the ways in which the design of digital IDs and functional versions thereof, like contact-tracing apps, can act as risk management mechanisms (see sections 5.5.3 and 6.4.4). For it to do so, however, I suggest that there is a need for first understanding and defining risks in particular contexts. Before the uncertain outcomes of digital development processes are managed, they must be understood and defined. Similarly, while this was not raised by any of my interviewees, questions remain about the appropriateness of outsourcing important risk definitions

and management decisions to the private sector or other stakeholders involved in designing and developing these ICTs, or whether and how there should be public oversight, accountability, and transparency about related decisions (as some interviewees suggested in my nested case, see section 6.4.1).

In the nested case data, for example, many stakeholders argued that a benefit of using Apple-Google's API to construct CovidAlert was that these companies restricted the data that would be collected and how it could be used. Similarly, CovidConnect's usage of Meta's infrastructure also implied restrictions by design, including WhatsApp's reliance on end-to-end encryption (see section 6.4.4). In other words, the stakeholders involved in collaborations to develop these interventions (e.g., Discovery, the DoH, and Praekelt) were constrained by the rules and regulations imposed by these foreign platforms. While some stakeholders were concerned about the risk of being locked into partnerships (or technologies) with large foreign tech companies who could change policies at a whim, many local partners argued, as mentioned earlier, that the benefits of working with these entities nevertheless outweighed the potential risks of doing so.

By downloading and using the apps, similarly, users had to consent to Apple and Google's user and privacy policies, and their use of the apps was constrained to affordances allowed by these platforms in the first place. Concerns mentioned about Discovery's role in managing the CovidAlert app and collecting data, therefore, relate more to the principle of giving a private sector actor access to such data, and failing to assess potential outcomes, rather than to any specific breaches. Data breaches or misuses would likely have been improbable given the guardrails reportedly constructed by Apple and Google. Based on my analysis, I suggest that this might mean that large foreign platforms played an important role in the management of risks – and likely much more significant than other governance mechanisms might effectively have achieved in these contexts.

On the other hand, it also means that the potential opportunities that the government could have gained from collecting valuable health and other data from individuals – even if it was only from a small part of the population – and harnessing such data for planning and other purposes, were wasted. The restrictions, in other words, imposed by foreign tech platforms therefore also limited potential opportunities for learning and beneficial

usages of the data collected during the pandemic. Perhaps this possibility was in any event obviated by stakeholders' concern that the government did not have the capacity to make use of the data gathered by these apps (or other tools), which therefore forced it to outsource some of these tasks to the private sector.

d) Other (governance) mechanisms

A somewhat extreme mitigation mechanism that was mentioned by some respondents is the choice to opt-out, or to not participate when it comes to digital IDs and digital development processes generally – a choice which is not always freely available to all, but that can act as a way of avoiding the risks that accompany the use of digital IDs (and contact-tracing apps). In both cases, non-participation (or non-use) was sometimes presented as a choice made to avoid privacy or other risks, although one that is becoming harder to realise given the tendency for a growing number of public sector services to be digitised in both global North and global majority contexts alike (see section 5.4.3).

In the nested case data, for instance, a study that considered digital substitution in the second year of the pandemic indicated that while socio-digital inequalities were a significant reason why people did not download and/or use CovidAlert (e.g., concerns about data costs), most people did not use the app because they did not think it would be useful, with relatively few respondents being concerned about privacy risks as a reason not to use the app (Banya et al., 2022). Given this data and based on indications in my analysis, it is unfortunate that so little information and data are available about not just usage (or non-usage) during other parts of the pandemic (and especially the first six-to-eight months thereof, when these interventions were more actively promoted by policymakers), but the perceived consequences of these interventions for risk beneficiaries at individual, collective, and broader, societal levels (see section 6.2). Some interviewees said, for instance, that despite the apps not working very well and/or not having high usage numbers, they still played a role in 'building consciousness' about the dangers of Covid-19 (see section 6.3.1). As such, it seems that most interviewees failed to question the need for the app in the first place, and neither did they interrogate the opportunity costs of investing in something from which many people would be excluded.

Similarly, in the overarching case data, interviewees from most of the digital ID advocacy organisations, as well as the development agencies that promote digital IDs on the continent, seemed to assume that digitising ID processes is inexorable and desirable. 'It's a *fait accompli* that the world is digital', one stakeholder from a major development institution argued (see section 5.4.2), for instance. Based on my analysis, it appears that the management of risks of adverse digital incorporation are typically underestimated and even negated in these digital development processes. Indeed, my analysis of the documentation shows that many of the entities involved in these processes propose a variety of principles and values to guide the development of digital ID processes, from the (World Bank's) *Identity for Development Principles* to ID4Africa's 'guardrails' and ID2020's 'risk appetite assessments' (see section 5.5.4). All of these, I argue, seem to assume that the opportunities presented by digital IDs outweigh the risks thereof, however poorly understood and defined those risks might be.

7.4 Conclusion

In the introduction to this chapter, I discussed a tendency by certain tech evangelists (and prodigal 'techbros') to focus, with much fanfare, on vague future risks of certain technologies (like generative AI) with claims of potentially catastrophic effects. While this is not a thesis about the risks of AI, whether real or hallucinatory, the example illustrates a common tendency when it comes to the development of ICTs to harness, and even abuse, risk definitions in order to delegate or avoid responsibility for managing collateral risks, as depicted by notions of organised irresponsibility and risk arbitrage.

Similar tendencies are reflected in this thesis, which investigates current and everyday digital development processes, and which finds, based on my analysis in Chapters 5 and 6, a general tendency to avoid, neglect, or even deflect defining and managing the risks that accompany these processes. This, I argued in this chapter, indicates that developmentality and organised irresponsibility are seemingly intertwined in complex processes environments responsible for the promotion of digital development processes. Beck warned that the exercise of defining risk is 'a power game' (2006, p. 333), and my analysis indeed indicates that in institutional environments that involve

multiple stakeholders, digital development processes can obfuscate the significance of risks while facilitating opportunities for risk avoidance and arbitrage. That is, when powerful actors that are at least partly responsible for the promotion of digital development processes fail to assume the responsibility to address the risks that accompany these processes, it creates opportunities for risks to be avoided or even redesignated to others, including to development beneficiaries.

While I have not sought to explore the outcomes of this tendency, based on my analysis, it is possible to suggest that the systemic and even endemic neglect of the risks that accompany digital development processes (like digital IDs) are problematic and potentially introduce or even exacerbate socio-digital inequalities on the continent. As such, development beneficiaries become responsible for managing the uncertainty of outcomes of these interventions themselves, i.e., they become risk beneficiaries. This suggestion is particularly relevant to not only my empirical problem, but also to answering my overall RQ, which asks how and why digital development risks are important in digital development processes.

Although the definition and management of risks should ideally go hand in hand, I found that a paucity of risk definitions, or risk definitions that only define certain aspects of risks in a fractured manner, make it difficult, if not impossible, to appropriately manage risks and their negative and positive connotations or dimensions. At the same time, I have shown that this fluidity and ambiguity are not only indications of a tendency towards organised irresponsibility where digital development processes are concerned, but can facilitate risk arbitrage which, in turn, can introduce and/or exacerbate socio-digital inequalities even more.

In my overarching case (Chapter 5), I saw how the failure to define digital development risks thoroughly has enabled development actors and other stakeholders to effectively avoid or redistribute and reallocate the responsibilities that accompany the use of digital IDs in the name of development, while potentially exposing beneficiary communities to risks for which many are not necessarily prepared given the lack of available safeguards and enforcement mechanisms in relevant contexts. Among a triumvirate of -isms that appear to shape the construction of risks in the context of digital IDs, I found that digital developmentality is particularly problematic in that it makes it difficult to engage with

risks in a constructive or meaningful manner. While many development actors and other proponents of digital IDs on the continent claim to rely upon the use of risk assessments to mitigate harmful outcomes, for example, these mechanisms seemed to rarely amount to more than mere rhetoric in practice given that risks are not, in the first place, defined well enough in order to be managed effectively.

In my nested case (Chapter 6), which focused on examples of specific, functional digital ID applications that were proposed and used in response to the Covid-19 pandemic, I found a tendency by many stakeholders (in interviews and as evidenced in documentation) to emphasise certain digital risks and their management. Examples include those related to the design of the interventions and how 'privacy-preserving' they were. However, these risks were arguably moot or less relevant than risks pertaining to the social dimension (e.g., exclusion risks or opportunity costs), given that persistent socio-digital inequalities in the country would make it impossible for a vast proportion of the population to have the opportunity to choose to use or not to use these purportedly 'life-saving' interventions during the pandemic. While these interventions might have been intended primarily as a public health response during the Covid-19 pandemic, my analysis also revealed a general tendency towards technological determinism which not only set the stage for technology theatre, but for organised irresponsibility and risk arbitrage.

In the next and final chapter, I bring together the strands of these arguments, and use them to answer my overall RQ. I also recap my theoretical and methodological points of departure, discuss the shortcomings and limitations of my study, and make suggestions for future research.

CHAPTER 8: UNVEILING DIGITAL DEVELOPMENT RISKS (CONCLUSION)

8.1 Introduction

At the start of this thesis, I wrote about Kentridge's modern-day Sybil and her concern, 'To what end'. I explained that this statement – one which I rephrased as a question – is also important to this thesis, but that rather than try to predict the future (or outcomes), I am interested in examining the risky means to these uncertain ends. In so doing, I hope to have made better sense of my research problem than the people waiting outside the Sibyl's cave, trying to determine which reply scribbled on a leaf (or lined office paper, in Kentridge's case) is corresponding to which existential question.

Those people – and I, no less – have a lot more in common with the stakeholders and institutions that were introduced in many of the preceding chapters than one might imagine: from AI alarmists in Chapter 7 who write their rather feeble letters about the existential but remote risks of certain technologies that they themselves helped to build and develop (and from which they continue to profit); to the man desperately clutching at the lifeline of his green 'book of life' while being accosted by a xenophobic mob in Chapter 5; the ≠Khomani San game warden striding across an ochre Kgalagadi dune in Chapter 6 and explaining why he is not that 'deep' into his phone; the optimistic blockchain start-ups going about their business in the depressing hallways of Datahouse in Chapter 4; and to Kentridge's current-day Sybil in Chapter 1 and her concerns about the need to 'starve the algorithm' since the 'old gods have retired'.

In one way or another, each of these stakeholders or institutions are concerned about or with the collateral implications of ICTs generally – or, indeed, the question: To what end?

While I share this concern, I am more interested in ICTs' collateral implications in the context of digital development processes – in how and why digital development risks are important in shaping digital development processes, and how different stakeholders

involved in digital development processes define and manage these risks. These questions are well placed and relevant in a world (or a Risk Society) where an increasing number of services are rendered digitally – including in development processes, which formed a primary focus of this thesis. While it has become increasingly crucial to engage critically with the ways in which these digital development processes are rendered, as well as their potential consequences and outcomes, this thesis confirms that the risks that accompany such processes are still poorly defined and/or managed.

That said, my analysis has assumed a hopeful view by acknowledging that the consequences of these digital development processes and the ways in which related risks are managed are not cast in stone. They are – like the Sybil's leaves – still swirling and fluttering in the wind.

In this final chapter, I hope to catch some of these leaves and organise them in a way that can help make sense of my overall RQ: *how and why are digital development risks important in shaping digital development processes?* To do so, I revisit and contextualise the findings, claims, and conclusions that were analysed in Chapter 7 by returning to the conceptual framework and theoretical problem that guided my research. I first summarise my answers to the overall question with reference to the thesis' points of departure and arrival (section 8.2), alongside potential limitations related to the particularity of the empirical approach used. I then outline the contributions this thesis makes to the field of digital development research and, indirectly, to the fields of risk management and digital IDs respectively (section 8.3), before elaborating on its significance and broader implications of this research for policy, practice, and research (section 8.4). In the latter, I also suggest avenues for further research, before concluding.

8.2 Summary of insights

In the introduction to this thesis I argued that digital development processes introduce not just opportunities, but also uncertain outcomes for which many individuals and institutional environments in global majority contexts are not properly prepared. To unpack these contexts (and why I argue that they might not be prepared for the collateral

implications of digital development processes), I provided a backdrop to the African and South African policy, institutional, and ICT landscapes in Chapter 2. These formed the starting point for my interest in how and why digital development processes and related risks might shape these environments in general and developmental outcomes in particular.

In Chapter 3, I brought together theories and concepts in order to construct a conceptual framework that could be used for developing insights relevant to the theoretical problem I am interested in: how and why digital development risks are important in shaping digital development processes (and, indirectly, their potential consequences for responsible well-being and socio-digital inequalities). In doing so, I acknowledged that my application of these theories and concepts would provide only partial understanding of this problem, given my critical realist positioning (cf., section 4.2). Throughout this section, in which I summarise responses to my overall RQ and explain how these findings were produced, I also reflect upon the theoretical choices I made and how they worked for my empirical approach and analysis, acknowledging that this conceptual approach led to specific insights that would have been different had I made other theoretical choices.

I first recap the theoretical foundation constructed for investigating the risks associated with digital development processes (section 8.3.1), before turning to my empirical points of departure and the key insights from my analysis (section 8.3.2). While these discussions already provide relevant cues and clues for answering my theoretical RQ, I return to the latter in the final part of this subsection (section 8.3.3), where I bring together these different strands in an attempt to gain more insights into the problem.

8.2.1 Theoretical points of departure, points of arrival

Three conceptual stepping stones were used to construct my conceptual framework, namely ICTs, risks, and development.

I defined **ICTs** as instruments that are shaped by and shaping of our everyday environments (see section 3.2.1). Drawing on the concept of affordances, I emphasised

the role that powerful actors and institutional environments play in developing these technologies, also in the name of development. This conceptualisation of ICTs included digital identification processes (digital IDs), or digital proofs of identification, as an empirical subject. Given my interest in meso-level interactions, I focused on digital IDs as ICTs that act as interfaces between individuals and institutions – including the stakeholders that wield power to issue credentials and facilitate identification.

Digital development processes at a meso level

I used the concept **digital development processes** instead of popular alternatives like ICT4D, given that this term lends itself more to a focus on processes and reflections on processes at an institutional level. As such, I steered away from a technological determinist focus that might fail to account for contexts or time (see section 3.4.1). This approach also enabled me to focus on the institutional environments that are responsible for shaping digital development processes and related risks, rather than the individual actors who tend to have less say (or power) in how these processes are developed and how accompanying risks are defined and managed.

I selected two cases to explore perceptions of the risks associated with such digital development processes, including their definition and management. The cases I chose (and which I elaborate upon in section 8.3.2 below) included the promotion of digital IDs for developmental purposes in Africa, and the use of contact-tracing apps during the Covid-19 pandemic in South Africa. Given the relatively small size of my interview samples for both cases, the impacts of Covid-19-related travel restrictions for fieldwork, and other research design parameters I put in place (see Chapter 4), the insights derived from this study should not be generalised beyond suggestions about what they might imply in other contexts. These parameters included the choice of empirical subject (digital IDs), object (risks, including digital development risks), location (Africa/South Africa), and temporality (for the nested case, Covid-19). These parameters are closely related to my decision to use a nested case study design, coupled with my selection of cases.

As noted in Chapter 7, this selection also enabled me to tell not only a story of digital IDs in Africa and contact-tracing in South Africa, but to learn about the consequences

of digital development processes and related risks in different settings and contexts at a broader, meso or institutional level which engages with the institutions involved in these processes too. Many of my findings related to digital IDs may therefore be relevant to other ICTs promoted by powerful institutions or stakeholders in the name of development in especially global majority contexts, as well as for gaining a better understanding of how and why digital development risks are important in shaping these processes and, potentially, related outcomes for risk beneficiaries.

The focus on digital development processes enabled me to account for risks that are sometimes difficult to ascribe to the affordances of a specific ICT (the digital dimension) in isolation from the relevant contextual environment (the social dimension). For example, my analysis in Chapter 7 showed that a common risk management mechanism is the choice to partially or wholly avoid or 'opt-out' from digital IDs (drawing on data from the overarching case in Chapter 5). While doing so might mean these users experience exclusion, this decision or choice (whether informed or not) to *not* be registered is sometimes occasioned by the need to manage the risks (and avoid the responsibilities) that can derive from being legible to the state or other stakeholders as a result of being registered or identified. Focusing on ICTs in a vacuum in this context (e.g., by decrying exclusion risks) might mean neglecting potential outcomes that are more commonly associated with the context and environment, for instance (e.g., the significance of contextual and historical realities and risks associated with inadvertent inclusion).

Instead, a focus on the *processes* involved proved useful in enabling me to consider the social and digital dimensions (and affordances) of the risks related to these digital IDs, including the institutional environments (e.g., the roles that development agencies play in exacerbating inequalities between different disadvantaged populations) as well as associated considerations. I return to these social and digital dimensions, and the ambiguity and intersectionality of associated risks, when I discuss what the analysis has shown with reference to my definition of development, below.

This example (and my empirical findings more generally) also indicated that both digital IDs and risks are shaped by and shaping of the contexts in which they are deployed, as my theoretical conceptualisation of ICTs in terms of affordances suggested (cf., section

3.2.1). My analysis indicated, for instance, that the definitional flexibility of the UN's SDGs as far as legal identity is concerned has facilitated not just how different stakeholders have prioritised different types of digital ID, or emphasised different affordances of digital IDs for developmental purposes, but have also shaped how different stakeholders construe and prioritise certain risks *vis-à-vis* others (cf., Manby, 2020). The significance of affordances was also evident in my nested case, where the Covid-19 pandemic which framed my case illustrated how ICTs in general and functional digital IDs in particular could be redeployed for a variety of reasons depending on the power, interests, and appetites of powerful state and private sector stakeholders involved in these processes (see Chapter 6). While some Covid-19 apps quickly became obsolete during latter stages of the pandemic, for instance, the technology was swiftly repurposed to develop vaccine certificates or 'immunity passports', and some respondents even boasted about how the technology could be repurposed to manage other public health challenges beyond the pandemic. The implications of these processes therefore often extended beyond the Covid-19 crisis (and affordances associated with contact-tracing) itself.

Defining risks

To understand the changes and uncertain outcomes that might result from digital development processes (and digital IDs) as empirical objects, the concepts of **risk(s) and development** were brought together in my conceptual framework (see section 3.8) to define my empirical subjects and craft my conceptual approach thereto.

This combination proved to be a useful and meaningful way of overcoming some of the shortcomings of using these two concepts in isolation. For example, while Beck's theory of the Risk Society (1992) (see section 3.3.2) enabled me to develop an understanding of *risks*, using this theory in isolation would not have provided sufficient understanding of the unequal consequences of development processes, nor of the roles of agency and ICTs' affordances in these processes (see section 3.5). Similarly, using the concept of *development* alone would not sufficiently enable me to critically engage with potentially risky or harmful implications of processes deployed in the name of development, nor of the roles and responsibilities of stakeholders and institutions involved for managing the risks associated with these processes (see section 3.4.4).

In thus merging these concepts (risk and development), I wanted to elaborate on how digital development processes might lead to changes in both opportunities (development) and risks. To do so, I defined **risks** as *uncertain outcomes with respect to something we value*. This definition proved useful for emphasising intentionality, ambiguity, and the potentially unequal consequences of digital development processes for diverse risk beneficiaries. Before turning to development, I briefly unpack three factors that proved particularly relevant or important in this conceptualisation: the positive dimension of risks; the manufactured nature of risks as uncertainties; and the importance of power in defining and managing these risks. (The latter also relates to concepts like organised irresponsibility, risk arbitrage, and developmentality, which I discuss later in this chapter.)

First, while I tried to emphasise both the **positive and negative dimensions** of risks in the definition (see section 3.3.3) – given that risks (if appropriately managed) can also occasion opportunities and do not necessarily lead to harms – these positive dimensions proved more difficult to emphasise in my empirical work. No respondents highlighted the positive dimensions or opportunities of risks (see section 7.2.2). However, this might be because most stakeholders rather considered these opportunities in the context of positive outcomes (which were readily presumed and even over-emphasised) than considering it as a part of risks. While I return to this tendency to neglect the positive dimensions of risks when I recap my definition of development later in this section, it is important to note that this is a particularity of the theoretical approach I had designed that might have led to different results if I had found another way of emphasising the positive opportunities that are also associated with risks. Given that these positive dimensions (or opportunities) of risks are important (and could be harnessed for positive developmental outcomes if risks are appropriately managed), I suggest that these dimensions could benefit from further research and potentially a different theorisation (see section 8.5 below).

Second, my definition of risks also enabled me to position them in the context of digital development processes and not as calculative probabilities, but as **manufactured** uncertainties (Beck, 1992) that are often difficult to contain to traditional institutions or within traditional boundaries. I was initially drawn to the Risk Society's theorisation of

(manufactured) risks as risks that are produced or manufactured by humans or humanity itself (see sections 3.3.2 and 3.3.3), which I thought particularly appropriate to the context of networked digital technologies and my interest in complex institutional environments in which digital development processes are common. The digital development processes (including digital IDs) that I was interested in, as well as the risks they are accompanied by, are inherently manufactured, and their affordances mean they tend to have different services layered on top of and reliant upon them. In my overarching case, for example, my analysis showed that an increasing number of government services in Africa are now 'stacked' on the foundation of digital IDs. This is an unstable foundation for many users or non-users given the social dimensions (e.g., low birth registration numbers) that shape these digital development processes and related outcomes. In addition to indicating the relevance of the notion of manufactured risks to digital IDs, this example also illustrates the value of focusing on digital development processes in a cross-cutting way, and (as I explore below) of viewing social and digital dimensions of risks as intersectional and cross-cutting.

Third, if the ability to define these risks is a 'power game' (Beck, 2006) in the Risk Society, then my empirical explorations showed that this 'game' produces winners and losers. Risk definitions (and management) can produce risk beneficiaries that end up being responsible for managing uncertain outcomes themselves. For example, in both of my cases, respondents expressed concern and even puzzlement about CSOs' and other institutions' tendency to privilege privacy risks as opposed to other risks that are arguably more relevant (though also less manageable) in the African contexts in which digital IDs are often deployed (see section 7.2.1). In my nested case (Chapter 6), for example, the government and private sector actors involved in the development of a contact-tracing app during the Covid-19 pandemic selected a digital approach for contact-tracing that could by definition only serve a small subset of the (privileged, connected) population.

At the same time, these stakeholders repeatedly emphasised the ways in which they had supposedly and pre-emptively managed and/or prioritised privacy risks which were, by design, less pressing or relevant in the context concerned than the very real likelihood of exclusion risks. This is especially curious given that 'African' notions of privacy are sometimes said to encompass more communal or collective elements than

individualistic 'Western' notions of privacy, and thus tend to privilege others' well-being above individual well-being (as some notions of privacy tend to do) (e.g., Akintola, 2016; Greenleaf & Cottier, 2020, see section 2.2.3).

Across the board, the same stakeholders had very little to say about these significant exclusion risks, the (ir)responsibility for which was therefore left unassigned. In developments that point to technology theatre (McDonald, 2020a, 2020b) and risk arbitrage (Curran, 2018b), the risks associated with these processes were also largely outsourced to either risk beneficiaries (responsible for how they would decide to share their data with the government or not) or the large foreign platforms responsible for stipulating the rules and regulations by which country 'partners' were permitted to use their APIs and app stores.

If the ways in which risks are defined (or not defined) can, therefore, expose some risk beneficiaries to increased or different risks – i.e., risk definitions can generate winners and losers – then the developmental implications of digital development processes are, well, at risk. This brings me to the second part of my conceptual framework, namely development, and what I understand it to mean.

(In the name of) Development

If risks are defined as uncertain changes, I argued that **development** can then be described as 'good' change (Chambers, 2005, see section 3.4.1). I acknowledged, in Chapter 3, that this is somewhat ironic given that the concept of development was initially regarded as a counterpoint of progress (and change), rather than its twin (Cowen & Shenton, 1996, see section 3.4.2). But rather than view development as a remedy for the faults of industrialisation (in which ICTs play no uncertain role), development is nowadays more commonly conflated with modernisation and progress (e.g., Chambers, 1994, p. 14; Deb, 2009, p. 41, see section 3.5).

My empirical research echoed this concern. It indicated that there is still much enthusiasm for the 'promise' of 'digital transformation' in its various guises (i.e., technological determinism) in Africa, whether it be the 4IR, digital IDs, AI, or some other new-fangled ICT. In my empirical chapters (Chapters 5 and 6), digital IDs, ICTs,

and digitisation and ICTs generally seemed to be equated with progress (or Progress), and in a similar manner to how development traditionally has been defined and constructed in modernisation perspectives. This finding led me to argue (in section 7.2.2) that the development-as-progress narrative might be bolstered by another fantasy, namely, the notion of technology-as-progress. (This finding aligns with concerns about technological determinism, which I discussed in section 3.2.3.)

The risks of digital development processes

To return to my definition of risk, and to combine it with development, I defined the 'something we value' in my definition of risks by turning to heterodox theories of development to inform and facilitate my analysis of these risky digital development processes (and, indirectly, their potential outcomes) (see section 3.4.3). Drawing on the notion of **responsible well-being** (Chambers, 1997) was useful for enabling me to emphasise and explore the relative responsibilities of different stakeholders to define and manage the risks that accompany digital development processes (and that thus pose potential consequences for individual, collective, and societal well-being), both now and in the future. Applying this concept, I refined my understanding of and definition for risks as *uncertain outcomes with respect to responsible well-being*. I thus positioned my empirical research alongside studies of the outcomes of ICTs and digital development processes by exploring the notion of something we value (responsible well-being) and examining how stakeholders perceive of these potential consequences and their relationship to risks.

This concept proved particularly useful in my empirical work for investigating how and whether the stakeholders involved in digital development processes perceive of the outcomes of their actions, whether they think of and define the risks involved and, indeed, whether and how they assume *responsibility* for how their actions (the conduct of development, or developmentality) contribute to responsible well-being, or not.

As explored in Chapter 7, I found that this responsibility is rarely assumed. My case studies indicated that digital development processes are facilitated by a growing number of stakeholders, which complicates any attempt to assign responsibility for managing and identifying potential risks or shaping outcomes. Indeed, the complexity of

institutional arrangements involved in digital development processes like the ones I explored in Chapters 5 and 6 also means that it becomes more difficult to assign responsibility for risk definition and management. This concern is not dissimilar from the Sybil's fears about the 'old gods' having 'retired' (see section 1.1), or Wilson's concerns about 'medieval institutions'' irrelevance or unsuitability for dealing with 'godlike technology' (see section 3.1).

The notion of **organised irresponsibility** (Beck, 2009, see section 3.3.5) thus proved particularly useful in the context of these digital development processes and for raising important concerns about how (development) institutions conduct development (or developmentality). My findings indicated that development actors commonly display an inability or unwillingness to define and manage risks associated with digital development processes, to acknowledge their roles in actively producing or causing some of these risks, and/or to shirk the responsibility of dealing with the collateral consequences or, as the notion of risk arbitrage suggests, reassign that responsibility elsewhere. As such, my empirical work indicated that a culture of organised irresponsibility that is common to the conduct of development (or developmentality) can be nurtured by processes of risk arbitrage, and is more broadly symptomatic of unequal power relations in which powerful stakeholders and institutions will define and manage risks in their favour, if at all. In these complex institutional environments, my empirical cases indicated that risks are often designated or left to development beneficiaries who, therefore, become risk beneficiaries since they are compelled to assume the responsibility of managing uncertain outcomes themselves, often with limited recourse to regulatory or other safeguards.

To develop a better understanding of what the potential consequences of this designation might be – of how these tendencies towards organised irresponsibility and risk arbitrage in risk definitions and management processes might shape the changes or outcomes that result from digital development processes – the concept of **socio-digital inequalities** (Helsper, 2023, see section 3.4.4) was useful. It not only enabled me to theorise the interplay between the social and digital dimensions of risks and related inequalities in my empirical analysis, but enabled me to explore potential changes or outcomes of risky development processes, albeit indirectly.

In my empirical chapters (Chapters 5 and 6), I applied this concept to unpack the digital (supply-side) and social (demand-side) dimensions of risk. As such, the concept *socio-digital risks* enabled me to broaden a common focus on the direct individual or collective level of risks to facilitate the consideration of broader, societal dimensions of risks that are particularly relevant to digital development processes, and the role of relevant institutional environments given my institutional level of analysis. As noted in Chapter 7, both of my cases illustrated that many of the socio-digital dimensions of risks associated with digital development processes are cross-cutting, intersectional, and ambiguous, and thus difficult to contain solely to one category. I concluded, therefore, that the socio-digital analytical framing needs to be applied flexibly to account for both the intersectional and ambiguous nature of risks associated with digital development processes, and the complexity of the institutional arrangements involved.

… or digital development risks

While my critical stance towards development processes could have taken me down the post-development path, related theories did not seem as helpful to me when investigating the agency and responsibilities of individuals in determining both development processes (see section 3.4.3) and risk definitions (see section 3.3.4). I also preferred to be consistent with my critical realist approach to this problem (see section 4.2), which assumes a more constructive approach. Insofar as my aim was therefore not only to critique understandings but also potentially to improve things (in this context, the nature and consequences of digital development processes), my conceptual framework was therefore framed by a heterodox development approach informed by notions of developmentality.

This decision proved useful in enabling me to not only give voice to my conceptual marriage of risk and development, but to emphasise its critical character and the fact that development is not simply 'good change', but also entails potential risks (as explored above). *Digital development risk*, more specifically, was defined as *the uncertainty of digital development processes causing, contributing to, and/or exacerbating uncertain outcomes with respect to responsible well-being.* I used this construct to scrutinise development activities that take place in the guise of a notion of development that is equated with affluence and growth as well as digitisation or datafication, while simultaneously seeking to avoid and/or delegate the risks that accompany these

processes as a result of developmentality and through processes of risk arbitrage that are facilitated or enabled in cultures of organised irresponsibility.

This somewhat eclectic approach proved useful in my empirical work as it enabled me to critically reflect upon the risks of digital development processes itself (and the roles and responsibilities of stakeholders involved therein), without negating the need for development in and of itself. More specifically, the notion of digital development risks proved to be a helpful way forward for critically reflecting upon the risky digital development processes facilitated by development actors on the continent through their conduct of development (or developmentality) and as evinced by my case studies. This approach was particularly relevant to my overarching case data (Chapter 5), in which I suggest that developmentality was partly to blame (among a host of other -isms) for a lack of critical engagement with the potentially risky outcomes and consequences of digital IDs on the continent (see section 7.2.2). It proved somewhat less useful for more precise, individual cases like the nested case (Chapter 6), which applied to a more specific example of digital development processes.

Given my argument that digital development processes do not only lead to good changes, but also entail risks, the concept of digital development risks is nevertheless useful for reflecting upon how developmental changes are said to occur and the responsibilities of stakeholders involved for both defining and managing the risks that are said to accompany these processes – thus shaping either responsible well-being (the positive) or enabling and/or exacerbating socio-digital inequalities (the negative). The need to understand these processes of definition and of management guided my empirical work, as is explored in the next section.

8.2.2 Empirical points of departure, points of arrival

Using the conceptual stepping stones that I highlighted in the previous section, I developed an overall question for this thesis that is concerned with understanding how and why digital development risks are important in digital development processes. To find the most appropriate way of exploring this question empirically, I turned to existing literature to understand how other research and literature related to ICT4D and digital

divides/development tends to consider processes in which ICTs are proposed and implemented with developmental purposes, as well as how the risks that accompany these processes are typically theorised.

In doing so, I identified three broad traditions of research in which I wanted to situate my empirical work (see section 3.6). The first focuses on supply-side challenges and barriers; the second on demand-side barriers (i.e., 'after access' challenges and considerations); and the third on the (primarily positive) outcomes of digitisation. With reference to the literature I reviewed, I found that there has been growing interest in seeking to understand developmental changes (and outcomes) in the tradition provided by endogenous theories, which highlight the contextual or demand-side factors that influence how ICTs might have particular outcomes in diverse contexts (i.e., associated with second tradition factors like the social, economic, and cultural contexts that shape digital engagements).

I also positioned research about digital IDs within these traditions with the aim of comparing and contrasting lessons learnt from these fields. Doing so was a potentially useful contribution in itself since I could not find other instances in which research on digital IDs had benefited from comparison to the lessons learnt in studying how (other) ICTs are used for developmental purposes, and related risks – including, for example, lessons from the three traditions in digital inequality/divides literature (see section 3.7). By facilitating a dialogue between these traditionally disparate fields, I was able to learn from and build upon insights in that field, and to identify areas to which I might contribute.

Through this comparison, I found that similar to discussions about digital 'inclusion' or 'divides', the digital ID literature also evinced some persistent 'gap' talk and a tendency to focus on supply-side challenges while often neglecting social or demand-side issues (common to the second tradition). This was also visible in my initial case study, where many of the respondents I interviewed tended to prioritise 'bridging' digital ID 'gaps' without, for instance, elaborating on the significance of contexts and institutional environments for, in the first place, creating or even facilitating those gaps (see section 7.2.3 b). In this regard, and as mentioned above with reference to the ambiguity of socio-digital dimensions of digital development risks, such gap talk fails to give sufficient

attention to how the maintenance of this unequal status quo can sometimes serve some stakeholders involved in these processes at the cost of risk beneficiaries.

When outcomes are examined in research pertaining to the use of digital IDs for development (as is, fortunately, increasingly done), they are often engaged with in an instrumental manner that prioritises (positive) economic benefits, while examinations of risks tend to be rather insular, instrumental, and often conflated with and focused on harms (e.g., privacy or exclusion). Much of the available research on digital IDs also tend to focus on specific communities and the collective risks experienced by individuals who belong to or associate with these groups (e.g., refugees or migrants) – a tendency which is likely shaped by donor agendas, especially as far as grey literature is concerned. Critical examinations into overarching concerns about the process of digitisation or the datafication of identification for development (ID4D) purposes, and the roles of relevant stakeholders involved in defining and managing associated risks, appear to be less common.

Drawing on my review of the digital development and digital ID research, I suggested that the *risks* of digital development *processes*, including digital development risks, coupled with the unequal distribution thereof and the ways in which complex contexts shape risk experiences, have not received sufficient attention in research thus far, and especially not in or with a focus on global majority contexts. This led to suggesting the need for a new, fourth way of approaching research on digital development risks and related processes (see section 3.7).

Paving a fourth way for digital development research

I situated my empirical work in this proposed fourth way, in which I aimed to critically examine the changes or risks arising from digital development processes (rather than risks arising from the use of specific ICTs), as explained above, as well as how and why these risks are important in shaping digital development processes and related consequences for development (see sections 3.7 and 3.8). To explore this problem, I developed empirical questions (see Chapter 4) that could help me examine how risks associated with digital development processes (and digital IDs) are first defined and then managed.

In this regard, and returning to the notion of changes arising from digital development processes, I was particularly interested in understanding changes not only in opportunities (as earlier traditions of digital development research have tended to do), but also of risks. In my empirical explorations, I therefore regarded the ways in which risks are *defined* (SRQ1) (or how stakeholders perceive of the uncertain outcomes that might result from digital development processes), while processes of risk management (SRQ2) relate to the ways in which these changes are *managed* – or *not* managed, as I found as a result of the prevalence of processes of risk arbitrage and tendencies towards organised irresponsibility.

In these empirical explorations, I emphasised different *perceptions of* digital development processes and the risks that accompany them due to the importance of contextual factors and the role of individual and collective agency in shaping not just change over time (see section 3.8), but how risks *become* real (cf., Beck, 2006 p. 332). While being mindful of the need to emphasise and acknowledge that individual respondents' perceptions do sometimes differ from their institutions' approaches, individuals still form a part of larger institutional environments (and collectives) and their shared perceptions, interests, goals, and responsibilities (see section 4.7) at a meso level. In addition, my conceptual approach was particularly concerned with risks that are manufactured by humans or humanity – like those that are associated with digital development processes.

Empirical explorations: how are risks defined and managed in digital development processes?

I relied upon a nested case study approach and selected an initial, overarching case that considered the promotion and use of digital IDs for developmental purposes in African contexts (see section 4.4.1). I set out to examine how development actors, in particular, define and manage the risks that accompany the use of digital IDs when promoted in the name of development (Chapter 5). I also identified a nested case which investigated how a specific type of (functional) digital ID, namely contact-tracing apps, were relied upon during a pivotal part of the Covid-19 pandemic in one country, South Africa (Chapter 6). This nested case enabled me to investigate the research problem at a

different, albeit still meso, level while complementing the potential broadness of the overarching case in Chapter 5.

As detailed in Chapter 7, the overarching case proffered valuable insights for broadly understanding digital development risks, while the nested case was particularly useful for examining the social and digital dimensions of the risks that accompany digital development processes at a different level, as well as the practical difficulties of managing these risks appropriately. A thematic analysis of the data indicated a tendency to avoid or even redesignate the definition and management of digital development risks. In the initial case, this tendency was fuelled by a trilogy of -isms (technological determinism, developmentalism, and Afro-optimism), which together enable the avoidance, redesignation, and/or outsourcing of digital development risks (or risk arbitrage).

Moreover, in the rare instances in which risks were identified and defined, they were typically defined in a rather fractured or even instrumental manner that reified some aspects (and often in accordance with the stakeholder concerned and their interests, or the need to exculpate them from related responsibilities) while downplaying or neglecting others. Findings from my nested case, for example, suggested that when stakeholders do profess an interest in defining or managing risks, they tend to focus on digital dimensions of risks while underplaying important social dimensions that were perceived to be more pressing and relevant in the context.

These shortcomings as far as risk definitions and responsibilities are concerned were translated to the ways in which risks, poorly defined as they might be, were managed too. In section 7.3.2, I highlighted an array of actions stakeholders take in apparent endeavours to manage risks which they commonly have not properly defined in the first place, varying from governance techniques to the use of design to mitigate risks in a one-size-fits-all manner, for example. I found that even though a growing number of policy mechanisms might exist on the continent to manage the risks associated with digital development processes, they are not only shaped by foreign or imported policy agendas (largely from Europe) that might serve other masters, but implementation mechanisms and the institutional will or resources needed for enforcement are generally lacking. In

other words, risk management processes tend to be a fiction that rarely translates to practice.

Both of my cases also indicated the significance of organised irresponsibility and risk arbitrage as far as processes of risk definition and management were concerned. These conditions are fuelled, in complex (neoliberal) institutional environments, by the growing number of stakeholders involved in digital development processes (also because of the growing appetite for data and datafication in development processes), which means that it has become increasingly difficult to assign accountability or responsibility for managing and identifying the risks associated with these processes. Such organised irresponsibility, which seems to reign freely as far as digital development processes are concerned, tends to facilitate or enable processes of risk arbitrage, whereby relevant, powerful stakeholders avoid, redesignate, and/or outsource these responsibilities when and if they have the power to do so.

As such, I suggested that organised irresponsibility is symptomatic of unequal power relations in which powerful stakeholders and institutions will define and manage risks in their favour, if at all. This reallocation of responsibility can, I found, introduce and/or even exacerbate socio-digital inequalities. This failure to define and manage digital development risks means that intended beneficiaries of digital development processes face becoming risk beneficiaries. Given that my definition of risks embraces both positive and negative outcomes, this does not necessarily imply only negative outcomes, but rather that the responsibility of managing risks (and thus the pressure to manage the uncertainty of outcomes) is left to these risk beneficiaries.

8.2.3 Summary of findings: the importance of digital development risks

As explained in section 8.2.1, I combined a risk agenda with a development agenda in my conceptual framework and proposed the notion of digital development risks to provide a critical approach for unpicking the collateral implications of digital development processes, as well as the roles and responsibilities of relevant stakeholders and institutions for defining and managing these risks. In doing so, I hoped to answer my

primary RQ of how and why digital development risks are important in shaping digital development processes.

My empirical work (Chapters 5 and 6) and analysis thereof (Chapter 7) revealed a problematic tendency to neglect defining and managing the risks that accompany digital development processes. Moreover, the institutions that were traditionally responsible for managing these risks have now not only been shown to produce them, but also shirk the responsibility for defining and managing them, potentially turning beneficiaries of development into beneficiaries of risk. As such, given my understanding of risk's positive and negative dimensions, beneficiaries thus become tasked with managing the uncertainty of outcomes. These and other findings led to the claim that the systemic and even endemic neglect of the risks that accompany digital development processes (like digital IDs) is problematic and can potentially introduce or even exacerbate socio-digital inequalities.

This is important because it means that it is difficult to develop an understanding of how and why digital development processes may facilitate certain changes in specific contexts, including not just 'good' changes and opportunities (i.e., development), but also uncertain outcomes (i.e., risks). This apparent failure to grapple with and prepare for the changes that may result from digital development processes is problematic not only because of the vast amounts of resources spent on digital development processes (and digitisation or datafication more generally), but the potential implications of related risks for particularly socio-digital inequalities on the continent and, more broadly and by extension, in other global majority contexts where these development processes are also promoted (see section 1.3). While not the focus of this thesis, this is also potentially important for understanding the unequal consequences of digital technologies and digitisation processes in select contexts within the global North, and for developing relevant research and policies to redress related inequalities.

While my analysis indicated that concerns about the disappointing outcomes of development outcomes (as highlighted by post-developmentalists) might therefore be well-founded – or, at least, that there seems to be a limited regard for understanding and dealing with the risks that are associate with digital development processes – my conceptual marriage of risks and development enabled a more critical engagement with

disappointing outcomes, and provided a useful foundation for recognising that risks can also have positive implications. The notion of digital development risks proved to be a relevant conceptual device for critically interrogating the ways in which especially development actors promote ICTs such as digital IDs for ostensible developmental purposes, with seemingly limited regard for or concern with the unequal outcomes of these processes.

I now turn to where these insights lead in terms of conceptual and empirical contributions (section 8.3), as well as to a discussion of why these contributions are significant for research, policy, and practice (section 8.4).

8.3 Contributions to the literature

I situated this thesis with regard to three broad traditions of digital development research (see section 8.2.2), and argued that a new, fourth way for this discipline would critically engage with the risks of digital development processes and processes. This thesis takes a step in this direction and therefore contributes, overall, to digital development (or ICT4D) research. While researchers working in this broad tradition have increasingly interrogated the outcomes of specific ICTs in a critical manner, this thesis makes a unique contribution by focusing on the unequal distribution of uncertain outcomes associated with digital development *processes* (rather than arising from the use of specific ICTs), including digital development risks; the way(s) in which these risks are distributed within specific contexts; and how these risks are defined and managed (also to facilitate more positive outcomes or rewards). This contribution is especially useful and relevant to global majority contexts, in which critical literature or research on developmental outcomes is more limited.

A related contribution is to research pertaining to digital IDs and its processes, which has rarely benefited from a comparison with the lessons learned in studying how (other) ICTs are used for various developmental purposes, and related risks. As I mentioned in section 3.7, research into uncertain outcomes as far as digital IDs are concerned has typically focused on particular collectives or communities (like certain disadvantaged or

at-risk communities), or specific risks (e.g., privacy and exclusion), and has only exceptionally (an example is Breckenridge's research) considered these overarching processes in general or, indeed, the positive dimensions of associated risks – as this thesis set out to do. While I treated digital IDs as an example (and case) of digital development processes, my conceptual framework enabled me to develop a different and arguably novel perspective for digital ID research. By situating digital ID research in the context of three broadly recognised traditions of digital development (or ICT4D) research, this thesis also contributes insights to that field.

Besides contributions to the broad topical fields of digital IDs and digital development research, my empirical analysis has contributed a useful basis for advancing theoretical understanding of key concepts like *risks* and *development*. In the context of digital development processes, combining Beck's Risk Society theory (and associated analytical concepts) with heterodox development approaches (e.g., Chambers, 1997) contributes to research in both of these traditionally separate fields, and indicates a potentially productive avenue for future research. More specifically, my proposal of the term *digital development risks* makes a contribution to the literature in these fields by providing a way for critically and constructively engaging with the collateral implications (including opportunities) of digital development processes and related responsibilities, without obviating the need for development in and of itself.

In addition, coupling digital development risks to notions common to my interpretation of the Risk Society, including organised irresponsibility and risk arbitrage, together contributes a helpful framework for examining the roles of different stakeholders in defining and managing the risks associated with digital development processes – or, indeed, failing to do so. My empirical analysis therefore also contributes a basis for advancing theoretical understanding of these concepts or tendencies, each of which was shown, in different ways, to plague digital development processes. These concepts helped to position my analysis of the risks of digital development processes as critical for stakeholders that invest in and promote the use of digital IDs and other digital technologies for developmental purposes.

My analysis also highlights concerns about the potential consequences that the neglect of risks in digital development processes, including digital development risks, might

have for *socio-digital inequalities* (Helsper, 2023) and *responsible well-being* (Chambers, 1997) on the continent. As noted in Chapter 3, there is a plethora of broad and divergent approaches to assessing (and managing) risks. Given the lack of consensus, my socio-digital approach to unpacking risks contributes a way of connecting risks to developmental outcomes and socio-digital inequalities (Helsper, 2023), and to ensure that contextual realities, coupled with individual agency (relevant to the definition of risk), are not stripped from such assessments. However, as I argue in section 8.5 below, there is a need for thorough engagement and analysis of the 'impact' assessments and CBAs conducted by many development actors to justify promoting digital development processes in specific contexts.

Another contribution was more indirect and incidental. My nested case (Chapter 6) was framed by the Covid-19 pandemic, and investigated certain digital development processes implemented in response to the crisis. Not only were the findings from this case interesting because of how it exposed the unequal impacts of the pandemic within the case country (South Africa), but it showed how policymakers and other stakeholders rely upon and even appropriate digital technologies during times of crises for their own purposes. These findings contribute to the literature on crisis responses and/or on the pandemic and contact-tracing apps more specifically, which have broader implications (Chigudu, 2020, see section 4.4.2). I elaborate on this below.

These insights arising from my research have certain implications and significance for policy and development processes, as is explored in the next section.

8.4 Implications, limitations, and suggestions for research

The critical realism epistemological approach that underpins this thesis (see sections 4.2 and 4.7), meant that I not only set out to critically engage with certain digital development processes and related risks, but that I aimed to develop insights that might help shape these processes for the better. It shaped a staged approach to my handling of data, enabling me to do a first-level descriptive analysis of how the stakeholders involved in the digital development processes concerned describe and interpret risks (Chapters 5

and 6), followed by a second-stage, deeper analysis of the component findings that indicate certain 'causal' relations (Chapter 7). This final chapter, in turn, situates and compares these findings with the ideas and concepts that were first presented in Chapter 3.

This epistemological positioning also recognises that because ICTs' uses and outcomes are largely shaped by the ways in which they are designed, financed/funded, and implemented in particular contexts, cause for optimism remains. And if, as I claimed in Chapter 7, the ways in which development actors and other stakeholders define and manage digital development risks are generally inadequate, then this critical realist approach makes it incumbent on me to develop suggestions for potentially remedying these shortcomings in the future, including through future research. Accordingly, in this section I highlight implications for policy and practice, as well as limitations of my research. Where possible, I make suggestions for addressing these limitations through future research.

As discussed in the preceding sections, this research has indicated that current risk definitions are often inadequate, and that the positive dimensions of risks associated with digital development processes (i.e., opportunities) are typically neglected. In the remainder of this section, I reflect on the implications and limitations of choosing to focus on digital development processes and digital IDs, the definition and dimensions of risks, the management of risks, and my research design more generally.

Digital development processes

While I might have focused my empirical work on digital IDs, this remains a thesis about *digital development processes* – not digital IDs. I purposefully focused on digital IDs as examples of digital development processes (and empirical subject) rather than as an example of identification ecosystems *per se*. However, while I did not explore digital IDs and their histories and development in detail, my findings highlight the relevance and importance of identification processes in the context of civil and birth registration and broader identification ecosystems, including the variety of applications and types of digital IDs available today (of which I only considered one in my nested case).

These aspects and differences would benefit from future research, especially in terms of the shift to digitisation and datafication and related implications for identification, already raised by authors such as Breckenridge (e.g., 2021). In particular, the variety of stakeholders involved in promoting these interventions in the name of development could benefit from being mapped and analysed, including a critical examination of the institutional arrangements in place to deliver them, and their potential outcomes. In respect of the latter, a demand-side study of the perceptions and experiences of risk beneficiaries would be particularly meaningful (extending beyond particular collectives or groups including refugees, to encompass individual and societal experiences of risk, while being careful to pay sufficient attention to contextuality).

As emphasised throughout this thesis, I did not directly consider outcomes of digital development processes and of digital development risks, but positioned the thesis alongside research on outcomes. Future research into the outcomes of digital development processes and the risks associated with them is needed. In this regard, developing a better understanding of the *distribution and experience* of risks and outcomes is also important. Because the *positive* dimensions of risks (i.e., opportunities) were shown to be rarely acknowledged, this aspect of risks can also benefit from further study; as can the ways in which risks can be amplified for some while it is minimised for others (i.e., risk arbitrage).

The definition and dimensions of risks of digital development processes

It proved tricky to explore the definition of an empirical object that is inherently value laden, vague, and ambiguous from an empirical perspective. Risks are difficult to study – or, as one respondent noted, 'hot potatoes'. With risks to some extent being in the eye of the beholder (and being defined differently for different people), I had to carefully design my interview questions to elicit responses about the risks associated with digital development processes generally, and digital development risk in particular, without leading respondents. At the same time, many participants were not especially eager to define risks given that such definition might be accompanied by the need potentially to assume responsibility for managing defined risks. In this regard, and as mentioned, the positive dimensions of definitions of risks were difficult to emphasise in my empirical

work. Future research could benefit from exploring these dimensions more explicitly and in the context of risks, rather than positive outcomes.

While the socio-digital analytical framing I adopted to unpack different dimensions of risks in my analysis was useful conceptually, the ambiguity of risks complicated the application of this concept in practice. Future research into better framing, categorising, and unpacking the risks that accompany digital development processes might include comparative analyses of different risk and impact assessments used by diverse development and other stakeholders commonly engaged in these processes. This suggestion does not, however, amount to calling for taxonomies of risk, since I argue that risks are very much dependent on different social contexts in addition to the digital dimensions that shape them.

Managing risks

Without clearly identifying risks, I maintain that managing risks from a governance perspective will be difficult if not impossible to achieve. Given the growing popularity of risk-based approaches to the governance of ICTs generally (e.g., the EU's AI Act mentioned in section 7.1), gaining a better understanding of the ways in which especially development actors promote digital development processes in global majority contexts is crucial, along with developing a better understanding of their responsibilities for defining and managing the risks that accompany these processes. As such, since my findings indicate that risks are often not appropriately defined and managed using existing risk assessment tools favoured by development actors (including but not limited to 'logframes', theories of change, CBAs, and /or 'impact' assessments), future research on the benefits and shortcomings of these existing tools and mechanisms would be useful.

My findings also suggest policy implications that are especially relevant for a continent where risk management processes and actions tend to be shaped by foreign actors, meaning that the same stakeholders responsible for producing risks in the first place (e.g., by promoting and implementing certain digital development processes) tend to be at least partly responsible for managing it (e.g., by investing in the development of local policy frameworks), and can redistribute risks to risk beneficiaries in order to suit their own interests (i.e., risk arbitrage). This is a pity given that African perspectives on

values and principles of relevance to these risk management processes are rich and valuable – as evinced by examples of African notions of privacy (e.g., Akintola, 2016, p. 138) or collective well-being (*ubuntu*) – but are often neglected when policy frameworks and other governance approaches are developed for the continent. As such, I emphasised the importance of ensuring that Africans define or shape our own agenda for digital development, and datafication/digitisation generally, and then invest sustainably in the implementation of the same agenda.

In addition, further research is needed to establish whether the patterns of processes and perceptions revealed by the interviewees in this study are likely to be repeated, including by those working with or promoting digital development processes other than digital IDs. In Chapter 7, I noted some concerns expressed by my interviewees about the growing appetite for data and datafication in development processes, and concerns that development actors are especially likely to processes risk arbitrage while being seemingly above the law. This is a claim that would benefit from further exploration.

I argued in Chapter 7 that one of the potential outcomes of processes of risk arbitrage and cultures of organised irresponsibility is that intended beneficiaries of digital development processes might inherit risks – i.e., that they are prone to becoming risk beneficiaries. Further research into how such risks are experienced, defined, and managed by risk beneficiaries at different levels (individual, collective, or societal), including the factors that shape different appetites and tolerance for managing the uncertainties of outcomes that are associated with digital development processes, would also be useful.

Lastly, developing a better understanding of the *responsibilities* of development (and humanitarian) actors, in particular, is important; equally important is the relationship between these sectors as far as the definition, designation, and management of digital development risk is concerned.

Reflection on research design

Decisions about my research design must be viewed in the context of the Covid-19 pandemic that defined the time during which I could conduct the fieldwork for this

study. As such, my sample of interviewees for both cases was constrained due to challenges of access and restrictions on travel posed by the pandemic.

For the initial, broad case, I was only able to develop a high-level exploration of how risks are defined and managed in digital development processes on a broad continental level. In terms of participants, my focus on development actors and processes in this case (given my interest in digital development processes) meant that I did not focus as explicitly on the growing significance of various partnerships and other collaborations for developing and delivering digital IDs on the continent (which is also relevant to my finding about the prevalence of organised irresponsibility and a tendency towards risk arbitrage). As such, a priority for future research is exploring and unpacking the significance of the expanding array of stakeholders involved in these processes, with different interests and mandates that shape risk definitions and management processes, but also providing more avenues for risk arbitrage and organised irresponsibility.

For my nested case, limitations include the temporality of my findings and insights and the extent to which they were unique to crisis policymaking during the Covid-19 pandemic. In this regard (and related to my choice of empirical object), the decision to situate my nested case on digital IDs during the first few months of the pandemic and related state of disaster meant that this case served not only as an example of a functional digital IDs in South Africa, but as an example of other things: crisis policymaking; public health responses and priorities; and general trends towards digitisation and datafication that prevail in the country. While in some ways this multifaceted approach was a strength, this choice meant that the results can only indirectly be related to digital development processes. It meant that it was difficult to explicitly respond to how digital development risks were defined and managed, although it did yield useful insights for understanding social and digital dimensions of risks pertaining to these interventions.

8.5 Conclusion

As a reminder, this research was borne partly from disappointing experiences working in the field of digital development in Africa, and my related unease with and concerns

about potentially harmful ICTs that are deployed and promoted in the name of development with seemingly little regard for the responsibility to define and manage associated risks (see section 4.8.2). Not only are development resources potentially wasted on these processes (resources that could be spent more usefully on other developmental processes), but I was and remain concerned about the potentially harmful consequences of these rather speculative digital IDs. It – as one interviewee warned in my overarching case – is difficult, if not impossible, to get the 'ghost' (or genie) back into the 'bottle' (or lamp) when it comes to the development community's growing reliance on digital technologies. This is why I argued at the outset of this thesis that there is a need to develop a better understanding of how and why risks interact with and shape digital development processes. Without the same, relevant stakeholders are unlikely to be able to maximise the opportunities and mitigate the risks that accompany digital development processes.

In this final chapter, I contextualised my findings with regard to how stakeholders define and manage the risks that accompany digital development processes. I also discussed my contributions for research, policy and practice, examined the limitations of my study, and made suggestions for future research. Despite my concern with a phenomenon that is, by definition, rather uncertain – risks – I suggest that there is hope, as evinced by my observation that the potentially *positive* dimensions of risks are largely disregarded in digital development processes.

As I mentioned at the start of this chapter, the consequences of digital development processes are not cast in stone. On this hopeful note, my findings indicate that risks are similarly shaped by and shaping of their contexts, and could have both negative and positive implications (however neglected the latter have been found to be in development processes).

If we therefore encourage and gain a better understanding of the positive and negative dimensions of risks that are associated with digital development processes, this could help enable the policymaking discourse and practice to evolve beyond token mentions of potential harms towards a critical understanding of the risky outcomes that accompany digital development processes, and to what ends they are pursued.

BIBLIOGRAPHY

Abou-Zeid, A. (2022). *Press Briefing by Commissioner for Infrastructure and Energy*. African Union (video). Retrieved November 2, 2022, from: https://au.int/en/videos/20220202/press-briefing-commissioner-infrastructure-and-energy-he-dr-abou-zeid-amani.

Abrahamsen, R. (2000). *Disciplining Democracy: Development Discourse and Good Governance in Africa*. London: Zed Books.

Abramovitz, M. (1986). Catching Up, Forging Ahead, and Falling Behind. *The Journal of Economic History, 46*(2), 385–406.

Abubakar, A. (1989). *Africa and the challenge of development: acquiescence and dependency versus freedom and development*. New York: Praeger.

Abueg, M., Hinch, R., Wu, N., Liu, L., Probert, W., Wu, A., Eastham, P., Shafi, Y., Rosencrantz, M., Dikovsky, M., Cheng, Z., Nurtay, A., Abeler-Dörner, L., Bonsall, D, McConnell, M.V., O'Banion, S., Fraser, C. (2020). Modeling the combined effect of digital exposure notification and non-pharmaceutical interventions on the COVID-19 epidemic in Washington state. *npj Digital Medicine, 4,* 49.

Ackroyd, S., & Karlsson, J. C. (2014). Critical Realism, Research Techniques, and Research Designs. In P. K. Edwards, J. O'Mahoney, & S. Vincent (Eds.), *Studying Organizations Using Critical Realism: A Practical Guide*. Oxford: Oxford University Press. (pp. 21-45).

Adam, B., Beck, U., & Van Loon, J. (2000). *The Risk Society and Beyond: Critical Issues for Social Theory*. London: Sage Publishing Ltd.

Adami, H. O., Berry, S. C. L., Breckenridge, C. B., Smith, L. L., Swenberg, J. A., Trichopoulos, D., Weiss, N. S., Pastoor, T. P. (2011). Toxicology and Epidemiology: Improving the Science with a Framework for Combining Toxicological and Epidemiological Evidence to Establish Causal Inference. *Toxicological Sciences, 122*(2), 223.

Adams, R. (2021). Can artificial intelligence be decolonized? *Interdisciplinary Science Reviews, 46(1–2)*, 176–197.

Addo, A., & Senyo, P. K. (2021). Advancing E-governance for development: Digital identification and its link to socioeconomic inclusion. *Government Information Quarterly, 38*(2), 1-15.

Adjibolosoo, S. B. S. K. (1995). *The human factor in developing Africa*. Westport: Praeger.

African Development Bank. (n.d.). *Income inequality in Africa*. African Development Bank (report). Retrieved November 7, 2022, from: https://www.afdb.org/fileadmin/uploads/afdb/Documents/Generic-Documents/Revised-Income%20inequality%20in%20Africa_LTS-rev.pdf.

African Development Bank. (2019). *Potential of the fourth industrial revolution in Africa*. African Development Bank (report). Retrieved November 7, 2022, from: https://4irpotential.africa/wp-content/uploads/2019/10/AFDB_4IRreport_Main.pdf.

African Development Bank, Asian Development Bank, Center for Global Development, Digital Impact Alliance, Digital Nations, World Bank. (2017). *Principles on Identification for Sustainable Development: Toward the Digital Age*. World Bank (article). Retrieved June 13, 2022, from: https://documents1.worldbank.org/curated/en/213581486378184357/pdf/Principles-on-Identification-for-Sustainable-Development-Toward-the-Digital-Age.pdf.

Agrafiotis, I., Bada, M., Cornish, P., Creese, S., Goldsmith, M., Ignatuschtschenko, E., & Upton, D. (2016). *Cyber Harm: Concepts, Taxonomy and Measurement (WP 2016-23)*. Saïd Business School (working paper). Retrieved August 7, 2023, from: https://ssrn.com/abstract=2828646.

Akintola, S. (2016). *Future unspecified use of tissue and data in biobank research*. (Doctoral Thesis, University of Southampton). Retrieved September 5, 2023, from: https://eprints.soton.ac.uk/394698/.

Akuetteh, T. (2022). *LinkedIn post*. LinkedIn (webpage). Retrieved November 2, 2022, from: https://www.linkedin.com/posts/teki-akuetteh-ms-015a641_digitalrights-activity-6973242844496953344-vZQh/?utm_source=share&utm_medium=member_desktop.

Allmark, P., Boote, J., Chambers, E., Clarke, A., McDonnell, A., Thompson, A., & Tod, A. M. (2009). Ethical issues in the use of in-depth interviews: Literature review and discussion. *Research Ethics,* 5(2), 48–54.

Alt Advisory. (2021). *Covid-19 Apps: South Africa Project Repor*t. Alt Advisory (report). Retrieved September 2, 2023, from: https://altadvisory.africa/wp-content/uploads/2021/05/South-Africa-Covid-App-Project-final.pdf.

Aly, G., & Roth, K. H. (2004). *The Nazi Census: Identification and Control in the Third Reich*. Philadelphia: Temple University Press.

ANC. (1994). *Policy Documents 1994: A basic guide to the Reconstruction and Development Programme*. ANC (report). Retrieved February 21, 2023, from: https://www.anc1912.org.za/policy-documents-1994-a-basic-guide-to-the-reconstruction-and-development-programme/.

Andersen, H. (2020). *Insights From Africa's Covid-19 Response: Contact Tracing*. Institute for Global Change (report). Retrieved April 25, 2022, from: https://institute.global/advisory/insights-africas-covid-19-response-contact-tracing.

Apple. (2020a, April 10). *Apple and Google partner on COVID-19 contact tracing technology*. Apple (press release). Retrieved April 8, 2022, from: https://www.apple.com/uk/newsroom/2020/04/apple-and-google-partner-on-covid-19-contact-tracing-technology/.

Apple. (2020b). *COVID Alert South Africa on the App Store*. Apple (app). Retrieved April 29, 2022, from: https://apps.apple.com/us/app/covid-alert-south-africa/id1524618326.

Apple & Google. (2021). *Exposure Notification Privacy-preserving Analytics White Paper*. Apple (white paper). Retrieved April 8, 2022, from: https://covid19-static.cdn-apple.com/applications/covid19/current/static/contact-tracing/pdf/ENPA_White_Paper.pdf.

Arensman, B., van Waegeningh, C., & van Wessel, M. (2018). Twinning "Practices of Change" With "Theory of Change": Room for Emergence in Advocacy Evaluation. *American Journal of Evaluation, 39*(2), 221–236.

Atick, J. (2022). *Dr. Joseph J. Atick*. LinkedIn (profile). Retrieved September 23, 2022, from: https://www.linkedin.com/in/dr-joseph-j-atick-13b6b0a/.

AUC. (2014). *AU Convention on Cyber Security and Personal Data Protection*. African Union (policy). Retrieved January 12, 2022, from: https://au.int/sites/default/files/treaties/29560-treaty-0048_-_african_union_convention_on_cyber_security_and_personal_data_protection_e.pdf.

AUC. (2020). *The Digital Transformation Strategy for Africa (2020-2030)*. African Union (policy). Retrieved October 25, 2022, from: https://au.int/en/documents/20200518/digital-transformation-strategy-africa-2020-2030.

AUC. (2022a). *AU Commission Data Policy Framework*. African Union (policy). Retrieved October 25, 2022, from: https://au.int/sites/default/files/documents/42078-doc-AU-DATA-POLICY-FRAMEWORK-ENG1.pdf.

AUC. (2022b). *Interoperability Framework for Digital ID*. African Union (policy). (unpublished as of 12 September 2023.)

Aven, T., & Renn, O. (2009). On risk defined as an event where the outcome is uncertain. *Journal of Risk Research, 12*(1), 1–11.

Ayres, L. (2008). Thematic Coding and Analysis. In L. M. Given (Ed.), *The SAGE Encyclopedia of Qualitative Research Methods*. Thousand Oaks: Sage Publishing Ltd. (pp. 867-868).

Babalola, O. (2022). Data Protection Legal Regime and Data Governance in Africa: An Overview. In B. Ndemo, N. Ndung'u, S. Odhiambo & A. Shimeles. (Eds.), *Data Governance and Policy in Africa*. London: Palgrave Macmillan. (pp. 71-96).

Bambra, C., Lynch, J., & Smith, K. E. (2021). *The Unequal Pandemic: Covid-19 and Health Inequalities*. Bristol: Policy Press.

Banaji, S., Livingstone, S., Nandi, A., & Stoilova, M. (2018). Instrumentalising the digital: adolescents' engagement with ICTs in low- and middle-income countries. *Development in Practice, 28*(3), 432–443.

Banya, R., Chinembiri, T., Mothobi, O., Kabinga, M., Yusuf, B., & Gillwald, A. (2022). *COVID-19, Digital Substitutional and Intersectional Inequality: The Case of South Africa*. Research ICT Africa (report). Retrieved July 3, 2023, from: https://researchictafrica.net/wp/wp-content/uploads/2022/09/South-African-Country-Report-COVID-19-The-Case-of-South-Africa.pdf.

Barro, R. J., & Sala-i-Martin, X. (2003). *Economic Growth (Second Edition)*. Cambridge: MIT Press.

Bateman, B. (2019, March 11). *National Health Lab Services is sharing patient records*. EWN (article). Retrieved May 17, 2022, from: https://ewn.co.za/2019/03/11/exclusive-national-health-lab-services-accused-of-unlawfully-sharing-patient-records.

Bayamlıoğlu, E. & Leenes, R. (2018). *Data-Driven Decision-Making and The Rule of Law*. Tilburg Law School Research Paper (paper). Retrieved October 17, 2022, from: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3189064.

BCX. (2020, July 22). *BCX and the Department of Health partner to launch COVIDConnect*. BCX (press release). Retrieved April 25, 2022, from: https://www.bcx.co.za/insights/bcx-and-the-department-of-health-partner-to-launch-covidconnect/.

Beach, D., & Pedersen, R. B. (2018). *Process-Tracing Methods: Foundations and Guidelines (Second Edition)*. Ann Arbor: University of Michigan Press.

Beck, U. (1992). *Risk Society: Towards a New Modernity (translated by Ritter, M.)*. London: Sage Publishing Ltd.

Beck, U. (1995). *Ecological Politics in an Age of Risk*. Cambridge: Polity Press.

Beck, U. (2006). Living in the world risk society: A Hobhouse Memorial Public Lecture given on Wednesday 15 February 2006 at the London School of Economics. *Economy and Society, 35*(3), 329–345.

Beck, U. (2009). Critical Theory of World Risk Society: A Cosmopolitan Vision. *Constellations, 16*(1), 3–22.

Beck, U. (2013). Why 'class' is too soft a category to capture the explosiveness of social inequality at the beginning of the twenty-first century. *The British Journal of Sociology, 64*(1), 63–74.

Beck, U., & Ritter, M. (1992). *Risk Society: Towards a New Modernity.* London: Sage Publishing Ltd.

Bennett, C. J., & Lyon, D. (2008). *Playing the Identity Card: surveillance, security and identification in global perspective.* Abingdon: Routledge.

Berger, A. (1998). *Media Research Techniques*. London: Sage Publishing Ltd.

Bergkamp, L. (2017). The concept of risk society as a model for risk regulation – its hidden and not so hidden ambitions, side effects, and risks. *Journal of Risk Research, 20*(10), 1275–1291.

Berkhout, E., Galasso, N., Lawson, M., Morales, P. A. R., Taneja, A., & Pimentel, D. A. V. (2021). *The Inequality Virus: Bringing together a world torn apart by coronavirus through a fair, just and sustainable economy*. Oxfam (report). Retrieved August 1, 2022, from: https://policy-practice.oxfam.org/resources/the-inequality-virus-bringing-together-a-world-torn-apart-by-coronavirus-throug-621149/.

Berthet, A. (2019, July 10). *Why do emerging AI guidelines emphasize "ethics" over human rights?* OpenGlobalRights (webpage/article). Retrieved April 24, 2023, from: https://www.openglobalrights.org/why-do-emerging-ai-guidelines-emphasize-ethics-over-human-rights/.

Bhandari, V. (2020). *Governing ID: India's Unique Identity Programme.* Center for Internet & Society (report). Retrieved September 26, 2022, from: https://digitalid.design/evaluation-framework-case-studies/india.html.

Bhaskar, R. (n.d.). *What is critical realism?* Roy Bhaskar (article). Retrieved March 14, 2023, from: https://roybhaskar.wordpress.com/what-is-critical-realism/.

Bhorat, H., Cassim, A., & Hirsch, A. (2017). Policy Coordination and Growth Traps in a Middle-Income Country Setting: The Case of South Africa. In J. Page & F. Tarp (Eds.*), The Practice of Industrial Policy: Government-Business Coordination in Africa and East Asia*. Oxford: Oxford University Press. (pp. 211–233).

Bhorat, H., Oosthuizen, M., & Stanwix, B. (2021). Social Assistance Amidst the COVID-19 Epidemic in South Africa: A Policy Assessment. *South African Journal of Economics, 89*(1), 63–81.

Binda, E.M. (2021). *Digital Identity in Rwanda: Case study conducted as part of a ten-country exploration of socio-digital ID systems in parts of Africa.* Research ICT Africa (case study). Retrieved March 20, 2024, from: https://researchictafrica.net/wp/wp-content/uploads/2021/11/Rwanda_31.10.21.pdf.

Blank, G., & Groselj, D. (2014). Dimensions of Internet use: amount, variety, and types. *Information, Communication & Society, 17*(4), 417–435.

Blank, G., & Lutz, C. (2018). Benefits and harms from Internet use: A differentiated analysis of Great Britain. *New Media & Society, 20*(2), 618–640.

Bolhuis, M., & Kovacs, P. (2022). *Africa's Inflation Among Region's Most Urgent Challenges*. IMF (blog). Retrieved February 20, 2023, from: https://www.imf.org/en/Blogs/Articles/2022/10/20/africas-inflation-among-regions-most-urgent-challenges.

Borgesius, F. J. Z., Möller, J., Kruikemeier, S., Fathaigh, R., Irion, K., Dobber, T., Bodo, B. & de Vreese, C. (2018). Online political microtargeting: Promises and threats for democracy. *Utrecht Law Review, 14*(1), 82–96.

Boshe, P. (2021). *Digital Identity in Tanzania: Case study conducted as part of a ten-country exploration of socio-digital ID systems in parts of Africa.* Research ICT Africa (case study). Retrieved March 20, 2024, from: https://researchictafrica.net/wp/wp-content/uploads/2021/11/Tanzania_31.10.21.pdf.

Botes, L., & van Rensburg, D. (2000). Community participation in development: nine plagues and twelve commandments. *Community Development Journal, 35*(1), 41–58.

Bowen, G. A. (2009). Document Analysis as a Qualitative Research Method. *Qualitative Research Journal, 9*(2), 27–40.

Bradford, A. (2020). *The Brussels Effect: How the European Union Rules the World.* New York: Oxford University Press.

Breckenridge, K. (2014). *Biometric State: The Global Politics of Identification and Surveillance in South Africa, 1850 to the Present.* Cambridge: Cambridge University Press.

Breckenridge, K. (2021). Documentary government and mathematical identification: On the theoretical significance of African biometric government. In S. A. Dalberto & R. Banégas (Eds.), *Identification and Citizenship in Africa: Biometrics, the Documentary State and Bureaucratic Writings of the Self*. London: Routledge. (pp. 49-64).

Breckenridge, K., & Szreter, S. (2012). *Registration and Recognition: Documenting the Person in World History (Proceedings of the British Academy 182)*. Oxford: Oxford University Press.

Brkan, M. (2019). Do algorithms rule the world? Algorithmic decision-making and data protection in the framework of the GDPR and beyond. *International Journal of Law and Information Technology, 27*(2), 91–121.

Brönnimann, A. (2022). How to phrase critical realist interview questions in applied social science research. *Journal of Critical Realism, 21*(1), 1–24.

Brubaker, R., & Cooper, F. (2000). Beyond "Identity". *Theory and Society, 29*(1), 1-47.

Büchi, M., Festic, N., & Latzer, M. (2018). How Social Well-Being Is Affected by Digital Inequalities. *International Journal of Communication, 12*(2018), 3686-3706.

Budd, J., Miller, B. S., Manning, E. M., Lampos, V., Zhuang, M., Edelstein, M., Rees, G., Emery, C. V., Stevens, M. M., Keegan, N., Short, M. J., Pillay, D., Manley, E., Cox, I. J., Heymann, D., Johnson, A., McKendry, R. A. (2020). Digital technologies in the public-health response to COVID-19. *Nature Medicine, 26*(8), 1183–1192.

Burchardt, T., & Hick, R. (2017). Inequality, Advantage and the Capability Approach. *Journal of Human Development and Capabilities, 19*(1), 38-52.

Burgess, A., Wardman, J., & Mythen, G. (2017). Considering risk: placing the work of Ulrich Beck in context. *Journal of Risk Research, 21*(1), 1–5.

Burr, C., & Floridi, L. (2020). Ethics of Digital Well-Being: A Multidisciplinary Approach. In C. Burr & L. Floridi (Eds.), *Science and Engineering Ethics*. Oxford: Springer. (pp. 1-29).

BusinessTech. (2021, October 13). *This is how many people left South Africa's biggest medical aid schemes in the last year*. BusinessTech (article). Retrieved April 13, 2022, from: https://businesstech.co.za/news/business/529040/this-is-how-many-people-left-south-africas-biggest-medical-aid-schemes-in-the-last-year/.

Byrne, E., Nicholson, B., & Salem, F. (2011). Information communication technologies and the millennium development goals. *Information Technology for Development, 17*(1), 1–3.

Cammaerts, B., & Mansell, R. (2019). Digital platform policy and regulation: towards a radical democratic turn. *International Journal of Communication, 14*(2020), 135–154.

Carmi, E., & Yates, S. J. (2020). What do digital inclusion and data literacy mean today? *Internet Policy Review: Journal on Internet Regulation, 9*(2), 1-14.

Center for AI Safety. (2023). *Statement on AI Risk*. Center for AI Safety (statement). Retrieved May 31, 2023, from: https://www.safe.ai/statement-on-ai-risk#open-letter.

Center for Human Rights and Global Justice, Unwanted Witness, & Initiative for Social and Economic Rights. (2021). *Chased Away and Left to Die: How a National Security Approach to Uganda's National Digital ID Has Led to Wholesale Exclusion of Women and Older Persons*. CHRGJ (report). Retrieved June 21, 2023, from: https://chrgj.org/wp-content/uploads/2021/06/CHRGJ-Report-Chased-Away-and-Left-to-Die.pdf.

Chafetz, H., Zahuranec, A. J., Marcucci, S., Davletov, B., & Verhulst, S. (2023). *The #Data4COVID19 Review Assessing the Use of Non-Traditional Data During a Pandemic Crisis Assessing the Use of Non-Traditional Data During a Pandemic Crisis*. SSRN (paper). Retrieved September 8, 2023, from: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4273229.

Chambers, R. (1994). *All Power Deceives*. IDS Bulletin, 25(2), 14–26.

Chambers, R. (1997). Editorial: Responsible well-being — a personal agenda for development. *World Development, 25*(11), 1743–1754.

Chambers, R. (2005). *Ideas for development*. London: Earthscan (Institute for Development Studies).

Chen, R. (2021). *Mapping Data Governance Legal Frameworks Around the World: Findings from the Global Data Regulation Diagnostic*. World Bank (report). Retrieved September 8, 2023, from: https://openknowledge.worldbank.org/entities/publication/8a6cb591-4548-5786-b108-5f9cd32edc8c.

Cheru, F. (2016). Developing countries and the right to development: a retrospective and prospective African view. *Third World Quarterly, 37*(7), 1268–1283.

Chigudu, S. (2020a). *Africa and the Global Outbreak Narrative - Oxford Talks*. Oxford University (article). Retrieved February 21, 2023, from: https://talks.ox.ac.uk/talks/id/obe3b348-a9db-4396-8893-5e18078f258d/.

Chigudu, S. (2020b). *The Political Life of an Epidemic: Cholera, Crisis and Citizenship in Zimbabwe*. Cambridge: Cambridge University Press.

Chilenga-Butao, T. (2022). *Policy in the time of pandemic: Social transfers in South Africa during the coronavirus*. Cape Town: UN University, The Nelson Mandela School of Public Governance, Public Affairs Research Institute (report). Retrieved September 8, 2023, from: https://www.wider.unu.edu/sites/default/files/Publications/Report/PDF/case-study-policy-in-the-time-of-pandemic-South-Africa.pdf.

Chong, P. W., & Graham, L. J. (2013). The 'Russian doll' approach: developing nested case-studies to support international comparative research in education. *International Journal of Research & Method in Education, 36*(1), 23–32.

Christopher, N. (2020, June 2). *The doctor will mislead you now*. Rest of the World (article). Retrieved February 14, 2022, from: https://restofworld.org/2020/the-doctor-will-mislead-you-now/.

Clark, J., Metz, A., & Casher, C. (2022). *ID4D Global Dataset 2021: Global ID Coverage Estimates*. World Bank (article). Retrieved September 11, 2023, from: https://elibrary.worldbank.org/doi/abs/10.1596/38440#:~:text=By%20incorporating%20this%20data%20with,official%20proof%20of%20their%20identity.

Cohen, T. (2003). Rethinking (Reluctant) Capture: South African Telecommunications and the Impact of Regulation. *Journal of African Law, 47*(1), 65-87.

Colizza, V., Grill, E., Mikolajczyk, R., Cattuto, C., Kucharski, A., Riley, S., Kendall, M., Lythgoe, K., Bonsall, D., Wymant, C., Abeler-Dörner, L., Ferretti, L., & Fraser, C. (2021). Time to evaluate COVID-19 contact-tracing apps. *Nature Medicine, 27*(3), 361–362.

Competition Commission. (2022). *Facebook prosecuted for abusing its dominance.* Competition Commission (report). Retrieved May 23, 2022, from: https://www.compcom.co.za/wp-content/uploads/2022/03/FACEBOOK-PROSECUTED-FOR-ABUSING-ITS-DOMINANCE.pdf.

Cornwall, A., & Scoones, I. (2011). *Revolutionizing Development: Reflections on the work of Robert Chambers*. Oxon: Earthscan.

Couldry, N., & Mejias, U. A. (2019). *The Costs of Connection: How Data is Colonizing Human Life and Appropriating It for Capitalism*. Stanford: Stanford University Press.

Couldry, N., & Mejias, U. A. (2021). The decolonial turn in data and technology research: what is at stake and where is it heading? *Information, Communication & Society, 26*(4), 786-802.

Cowen, M., & Shenton, R. W. (1996). *Doctrines of Development*. London: Routledge.

Cresswell, J. W. (2013). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches (Fourth Edition)*. London: Sage Publishing Ltd.

Culver, L. (2011). Historicizing Risk. In L. Culver, H. Egner, S. Gallini, A. Kneitz, C. Lousley, U. Lübken, D. Mincyte, G. Mom & G. Winder (Eds.), *Revisiting Risk Society: A Conversation with Ulrich Beck*. Munich: German Federal Ministry of Education and Research/Rachel Carson Center. (pp. 7-10).

Curran, D. (2018a). Beck's creative challenge to class analysis: from the rejection of class to the discovery of risk-class. *Journal of Risk Research, 21*(1), 29–40.

Curran, D. (2018b). The Organized Irresponsibility Principle and Risk Arbitrage. *Critical Criminology, 26*(4), 595–610.

CUTS International. (2020). *Covid 19 and Digital Divide in Africa: What more needs to be done?* CUTS (report). Retrieved September 11, 2023, from: https://www.cuts-geneva.org/pdf/KP2020-RRN-Covid-19_and-the-Digital_Divide.pdf.

Daily Maverick. (2022, June 22). *The Zondo Commission, 4 years later: The highs, lows and where to now*. Daily Maverick (article). Retrieved February 23, 2023, from: https://www.dailymaverick.co.za/article/2022-06-22-zondo-commission-look-back-highlights/.

Dalberto, S. A., Banégas, R. & Edwards, J. (2021). The social and political life of identity papers in contemporary Africa. In S. A. Dalberto & R. Banégas (Eds.), *Identification and Citizenship in Africa: Biometrics, the Documentary State and Bureaucratic Writings of the Self*. London: Routledge. (pp. 1–25).

Dalberto, S. A., Banégas, R., & Cutolo, A. (2021). African citizenships - A biometric turn? In S. A. Dalberto & R. Banégas (Eds.), *Identification and Citizenship in Africa: Biometrics, the Documentary State and Bureaucratic Writings of the Self*. London: Routledge. (pp. 29-48).

Danermark, B., Ekstrom, M., Jakobsen, L, Karlsson, J. C. Bhaskar, R. (2001). *Explaining Society: Critical Realism in the Social Sciences*. London & New York: Taylor & Francis Group.

David Malpas. (2022). *The Crisis Facing Development*. World Bank (transcript). Retrieved January 12, 2023, from: https://live.worldbank.org/events/annual-meetings-

2022-president-speech?cid=ECR_E_NewsletterWeekly_EN_EXT&deliveryName=DM155977.

Dean, M. M. (2010). *Governmentality: Power and Rule in Modern Society (Second Edition).* London: Sage Publishing Ltd.

Deb, D. (2009). *Beyond developmentality: Constructing inclusive freedom and sustainability.* London: Routledge.

Debos, M. (2021). Legible bodies and lives: How a biometric registration campaign reinvented the Chadian population. In S. A. Dalberto & R. Banégas (Eds.), *Identification and Citizenship in Africa: Biometrics, the Documentary State and Bureaucratic Writings of the Self*. London: Routledge. (pp. 65–75).

Defence Web. (2020, April 29). *"Draconian" lockdown measures in SA – UN Human Rights Commissioner.* DefenceWeb (article). Retrieved February 22, 2023, from: https://www.defenceweb.co.za/featured/draconian-lockdown-measures-in-sa-un-human-rights-commissioner/.

Della Porta, D., & Keating, M. (2008). *Approaches and Methodologies in the Social Sciences: A Pluralist Perspective.* Cambridge: Cambridge University Press.

Department of Home Affairs. (2020). *Draft Official Identity Management Policy (Department of Home Affairs, South Africa)*. Government Gazette (policy). Retrieved September 11, 2023, from: https://www.gov.za/sites/default/files/gcis_document/202101/44048gon1425.pdf.

Devarajan, S. (2011, October 6). *Africa's statistical tragedy.* World Bank (blog). Retrieved March 22, 2023, from: https://blogs.worldbank.org/africacan/africa-s-statistical-tragedy.

Digital Equity Association. (2022). *Who we are.* Digital Equity Association (webpage). Retrieved April 20, 2023: https://d-eq.org/who-we-are.

Discovery. (2020a, September 14). *Discovery data insights.* Discovery Limited (press release). Retrieved April 13, 2022, from: https://www.mynewsdesk.com/za/discovery-holdings-ltd/pressreleases/discovery-data-insights-show-that-up-to-16-000-south-african-lives-will-have-been-saved-from-covid-19-related-deaths-by-2021-as-a-result-of-dot-dot-dot-3034489.

Discovery. (2020b). *Download COVID Alert SA app.* Discovery Limited (press release). Retrieved April 25, 2022, from: https://www.discovery.co.za/corporate/download-covid-alert-sa-app-today.

DoH. (2020a, March 9). *Health updates on Coronavirus on 9 March 2020*. South African Government/SA Coronavirus (press release). Retrieved April 25, 2022, from: https://www.gov.za/speeches/health-updates-coronavirus-10-mar-2020-0000.

DoH. (2020b). *CovidAlert - SA Corona Virus Online Portal*. South African Government/SA Coronavirus (webpage). Retrieved April 25, 2022, from: https://sacoronavirus.co.za/covidalert/.

DoH. (2020c). *CovidAlert SA*. South African Government/SA Coronavirus (app). Retrieved April 25, 2022, from: https://sacoronavirus.co.za/covidalert/.

DoH. (2020d). *Privacy Policy - SA Corona Virus Online Portal*. South African Government/SA Coronavirus (webpage). Retrieved May 3, 2022, from: https://sacoronavirus.co.za/covidalert/privacy-policy/.

Donner, J. (2015). *After Access: Inclusion, Development, And a More Mobile Internet*. Cambridge, MA: The MIT Press.

Donner, J. (2018, December 19). *The difference between digital identity, identification, and ID*. Caribou Digital (blog). Retrieved February 15, 2022 from: https://medium.com/caribou-digital/the-difference-between-digital-identity-identification-and-id-41580bbb7563.

Donner, K. (2020, April 21). *COVID-19 and the direction of digital transformation. Caribou Digital* (blog). Retrieved February 15, 2022, from: https://medium.com/caribou-digital/covid-19-and-the-direction-of-digital-transformation-4073c2be8e3a.

Duncan, J. (2008). *Stopping the spies: Constructing and resisting the surveillance state in South Africa.* Johannesburg: Wits University Press.

Easton, G. (2010). Critical realism in case study research. *Industrial Marketing Management*, 39(1), 118-128.

Edwards, L. (2020). Apps, politics and power: protecting rights with legal and software code. In L. Tayor, G. Sharma, A. Martin, & S. Jameson (Eds.), *Data Justice and Covid-19: Global Perspectives*. London: Meatspace Press. (pp. 40–49).

Edwards, P. K., O'Mahoney, J., & Vincent, S. (2014). *Studying Organizations Using Critical Realism*. Oxford: Oxford University Press.

Egner, H. (2011). Enforced Cosmopolitanization and the Staging of Risks. In L. Culver, H. Egner, S. Gallini, A. Kneitz, C. Lousley, U. Lübken, D. Mincyte, G. Mom & G. Winder (Eds.), *Revisiting Risk Society: A Conversation with Ulrich Beck*. Munich:

German Federal Ministry of Education and Research/Rachel Carson Center. (pp. 19–21).

Ekdale, B., & Tully, M. (2019). African Elections as a Testing Ground: Comparing Coverage of Cambridge Analytica in Nigerian and Kenyan Newspapers. *African Journalism Studies, 40*(4), 27–43.

Eke, D., Oloyede, R., Ochang, P., Borokini, F., Adeyeye, M., Sorbarikor, L., Wale-Oshinowo, B. & Akintoye, S. (2022). Nigeria's Digital Identification (ID) Management Program: Ethical, Legal and Socio-Cultural concerns. *Journal of Responsible Technology*, *11* (2022).

Elder, L., Samarajiva, R., Gillwald, A., & Galperin, H. (2013). *Information Lives of the Poor: Fighting Poverty with Technology*. Ottawa: IDRC.

Escobar, A. (1995). *Encountering development: The making and unmaking of the third world*. Princeton, NJ: Princeton University Press.

Esteva, G. & Escobar, A. (2017). Post-Development @ 25: on 'being stuck' and moving forward, sideways, backward and otherwise. *Third World Quarterly, 38*(2), 2559-2572.

Eubanks, V. (2018). *Automating Inequality: How High-Tech Tools Profile, Police, and Punish the Poor*. New York: St. Martin's Press.

European Commission. (2023a) *Laying down harmonised rules on artificial intelligence (Artificial Intelligence Act) and amending certain Union legislative Acts*. European Commission (policy). Retrieved September 9, 2023, from: https://eur-lex.europa.eu/resource.html?uri=cellar:e0649735-a372-11eb-9585-01aa75ed71a1.0001.02/DOC_1&format=PDF.

European Commission. (2023b). *Uganda: Fact Sheet*. European Civil Protection and Humanitarian Aid (report). Retrieved April 20, 2023, from: https://civil-protection-humanitarian-aid.ec.europa.eu/where/africa/uganda_en.

Fair, J. E., & Shah, H. (1997). Continuities and discontinuities in communication and development research since 1958. *The Journal of International Communication, 4*(2), 3–23.

Fanny, Leufer, D., & Massé, E. (2023, January). *The EU should regulate AI on the basis of rights, not risks*. Access Now (webpage/article). Retrieved April 24, 2023, from: https://www.accessnow.org/eu-regulation-ai-risk-based-approach/.

Ferretti, L., Wymant, C., Kendall, M., Zhao, L., Nurtay, A., Abeler-Dörner, L., Parker, M., Bonsall, D. & Fraser, C. (2020). Quantifying SARS-CoV-2 transmission suggests epidemic control with digital contact tracing. *Science, 368*(6491): 1-7.

Finn, A., Leibbrandt, M., & Woolard, I. (2013). *The significant decline in poverty in its many dimensions since 1993*. Econ3x3 (article). Retrieved March 28, 2023, from: http://www.econ3x3.org/article/significant-decline-poverty-its-many-dimensions-1993.

Fletcher, A. J. (2016). Applying critical realism in qualitative research: methodology meets method. *International Journal of Social Research Methodology, 20*(2), 181–194.

Flick, U. (2009). *An introduction to qualitative research*. London: Sage Publishing Ltd.

Foucault, M. (2007). *Security, Territory, Population: Lectures at the College de France 1977-1978 (translated by Graham Burchell)*. New York: Palgrave Macmillan.

Fourie, J. (2021). *Our Long Walk to Economic Freedom: Lessons from 100 000 years of human history.* Cape Town: Tafelberg.

Fourie, M. M., & Verwoerd, W. J. (2021). COVID-19 as Natural Intervention: Guilt and Perceived Historical Privilege Contributes to Structural Reform Under Conditions of Crisis. *Affective Science, 3*(1), 34–45.

Freedman, D. (2002). A "Technological Idiot"? Raymond Williams and Communications Technology. *Information, Communication & Society, 5*(3), 425–442.

Friederici, N., Ojanperä, S., & Graham, M. (2017). The Impact of Connectivity in Africa: Grand Visions and the Mirage of Inclusive Digital Development. *The Electronic Journal of Information Systems in Developing Countries, 79*(1), 1–20.

Fussel, J. (2004). *Indangamuntu 1994: Ten years ago in Rwanda this ID Card cost a woman her life*. Prevent Genocide International (article). Retrieved November 2, 2022, from: http://www.preventgenocide.org/edu/pastgenocides/rwanda/indangamuntu.htm.

Future of Life Institute. (2023, March 22*). Pause Giant AI Experiments: An Open Letter*. Future of Life Institute (letter). Retrieved April 28, 2023, from: https://futureoflife.org/open-letter/pause-giant-ai-experiments/.

Gaster, P. & Martins, I. (2021). *Digital Identity in Mozambique: Case study conducted as part of a ten-country exploration of socio-digital ID systems in parts of Africa.* Research ICT Africa (case study). Retrieved March 20, 2024, from: https://researchictafrica.net/wp/wp-content/uploads/2021/11/Mozambique_3.11.21.pdf.

Gavaza, M. (2022, March 15). *Meta defends decision to kick GovChat off WhatsApp*. Business Day (article). Retrieved May 23, 2022, from: https://www.businesslive.co.za/bd/companies/telecoms-and-technology/2022-03-15-meta-defends-decision-to-kick-govchat-off-whatsapp/.

Gelb, A., & Metz, A. D. (2018). *Identification Revolution: Can Digital ID Be Harnessed for Development?* Washington D.C.: Center for Global Development.

Gellert, R. (2020). *The Risk-Based Approach to Data Protection*. Oxford: Oxford University Press.

Georgiou, A. (2022, October 14). *Mathematician on AI Dystopia and Human Superiority Over Machines*. Newsweek (article). Retrieved March 20, 2023, from: https://www.newsweek.com/mathematician-ai-dystopia-human-superiority-over-machines-1751829.

Gibson, W. & Brown, A. (2009). *Working with Qualitative Data*. London: Sage Publishing Ltd.

Giddens, A. (1999). Risk and Responsibility. *The Modern Law Review, 62*(1), 1-10.

Giddens, A. (2018, May 2). *A Magna Carta for the digital age*. The Washington Post (article). Retrieved March 28, 2023, from: https://www.washingtonpost.com/news/theworldpost/wp/2018/05/02/artificial-intelligence/.

Gigler, B.S. (2011). *Informational capabilities: The missing link for the impact of ICT on development*. Washington, DC: the World Bank. Retrieved March 22, 2024, from: https://documents1.worldbank.org/curated/en/227571468182366091/pdf/882360NWP0Box30serieson010March2011.pdf.

Gillwald, A., & Mothobi, O. (2019). *After Access 2018: A demand-side view of mobile Internet from 10 African countries.* Research ICT Africa (report). Retrieved September 11, 2023, from: https://researchictafrica.net/wp/wp-content/uploads/2019/05/2019_After-Access_Africa-Comparative-report.pdf.

Gillwald, A., Mothobi, O., & Rademan, B. (2019). *The State of ICT in South Africa*. Research ICT Africa (report). Retrieved September 11, 2023, from: https://researchictafrica.net/wp/wp-content/uploads/2018/10/after-access-south-africa-state-of-ict-2017-south-africa-report_04.pdf.

Gillwald, A., Razzano, G., Rens, A., & Van der Spuy, A. (2020). South Africa: Protecting mobile user data in contact tracing. In L. Taylor, G. Sharma, A. Martin, & S. Jameson (Eds.), *Global Data Justice and COVID-19*. London: Meatspace Press. (pp. 248–243).

Gillwald, A., Rens, A., Van der Spuy, A., & Razzano, G. (2020, April 27). *Mobile phone data is useful in coronavirus battle. But are people protected enough?* The Conversation (blog). Retrieved September 11, 2023, from: https://theconversation.com/mobile-phone-data-is-useful-in-coronavirus-battle-but-are-people-protected-enough-136404.

Gillwald, A., & Van der Spuy, A. (2019). *The governance of global digital public goods: not just a crisis for Africa.* Research ICT Africa (paper). Retrieved September 11, 2023, from: https://researchictafrica.net/wp/wp-content/uploads/2019/11/34_Gillwald_VanderSpuy_Global-Governance.pdf.

Graham, M. (2008). Warped Geographies of Development: The Internet and Theories of Economic Development. *Geography Compass, 2*(3), 771–789.

Greenleaf, G., & Cottier, B. (2020). International and regional commitments in African data privacy laws: A comparative analysis. *Computer Law & Security Review, 44*(2022) 105638, 1-29.

Greenway, A. (2023). *Digital sovereignty: the case of contact tracing apps.* Public Digital (article). Retrieved September 11, 2023, from: https://public.digital/2023/04/18/digital-sovereignty-the-case-of-contact-tracing-apps.

Grošelj, D., van Deursen, J. A. M., Dolničar, V., Burnik, T., & Petrovčič, A. (2021). Measuring internet skills in a general population: A large-scale validation of the short Internet Skills Scale in Slovenia. *Information Society, 37*(2), 63–81.

GSMA. (2020). *Covid-19: Digital Contact Tracing Applications*. GSMA (paper). Retrieved September 11, 2023, from: https://www.gsma.com/newsroom/wp-content/uploads//GSMA-Briefing-Paper-Contact-Tracing-Apps.pdf.

Hakmeh, J., Taylor, E., Peters, A., & Ignatidou, S. (2021). *The COVID-19 pandemic and trends in technology Transformations in governance and society*. Chatham House (article). Retrieved April 13, 2023, from: https://www.chathamhouse.org/2021/02/covid-19-pandemic-and-trends-technology.

Halford, S., & Savage, M. (2010). Reconceptualizing Digital Social Inequality. Information, *Communication & Society, 13*(7), 937–955.

Halliday, J. (2020, June 15). *Give 1m UK children reliable broadband or risk harming their education, MPs say*. The Guardian (article). Retrieved February 18, 2022, from: https://www.theguardian.com/technology/2020/jun/15/uk-children-reliable-broadband-coronavirus-lockdown-education?CMP=Share_iOSApp_Other.

Hansson, S. O. (2012). A Panorama of the Philosophy of Risk. In S. Roeser, R. Hillerbrand, P. Sandin, & M. Peterson (Eds.), *Handbook of Risk Theory: Epistemology, Decision Theory, Ethics, and Social Implications of Risk*. Dordrecht: Springer. (pp. 27-54).

Harris, S. T. G. (2021). Manufacturing the Liberal Media Model Through Developmentality in Malawi. In H. Pait & J. Laet (Eds.), *Media, Development and*

Democracy (Studies in Media and Communications, Vol. 22). Bingley: Emerald Publishing Limited. (pp. 23–44).

Harris, T., & Raskin, A. (2019). *The Problem*. Center for Humane Technology (webpage). Retrieved February 18, 2022, from: https://humanetech.com/problem/.

Heeks, R. (2002a). Information Systems and Developing Countries: Failure, Success, and Local Improvisations. *The Information Society, 18*(2), 101–112.

Heeks, R. (2002b). *eGovernment in Africa: Promise and Practice (iGovernment Working Paper no. 13)*. The Commonwealth Network of Information Technology for Development. Retrieved March 22, 2024, from: https://ssrn.com/abstract=3540054.

Heeks, R. (2005). *ICTs and the MDGs: on the Wrong Track?* University of Manchester, Development Informatics Group (working paper). Retrieved September 11, 2023, from: https://hummedia.manchester.ac.uk/institutes/gdi/publications/workingpapers/di/di_sp07.pdf.

Heeks, R. (2010). Do information and communication technologies (ICTs) contribute to development? *Journal of International Development, 22*(5), 625–640.

Heeks, R. (2018). *Information and Communication Technology for Development (ICT4D).* London: Routledge.

Heeks, R., & Wall, P. J. (2018). Critical realism and ICT4D research. *The Electronic Journal of Information Systems in Developing Countries, 84*(6), 1-11.

Helsper, E. J. (2012). A Corresponding Fields Model for the Links Between Social and Digital Exclusion. *Communication Theory, 22*(4), 403–426.

Helsper, E. J. (2014). *Synthesis report: harnessing ICT for social action. Peer review in social protection and social inclusion*. European Union (report). Retrieved September 11, 2023, from: http://ec.europa.eu/social/home.jsp?langId=en.

Helsper, E. J. (2021). *The Digital Disconnect: The Social Causes and Consequences of Digital Inequalities*. London: Sage Publishing Ltd.

Helsper, E. J. (2023). *Inequalities in Digital Well-Being: What explains different experiences in and of online spaces. Distinguished Speaker Series: Lectures in Digital Welfare*. Copenhagen: Centre for Digital Welfare.

Helsper, E. J., & Reisdorf, B. C. (2017). The emergence of a "digital underclass" in Great Britain and Sweden: Changing reasons for digital exclusion. *New Media and Society, 19*(8), 1253–1270.

Hickey, S. & Mohan, G. (2004). *Participation: From Tyranny to Transformation? Exploring New Approaches to Participation in Development.* London: ZED Books.

Hickok, E., Sinha, A., & Rakesh, V. (2017). *Aadhaar Scheme: FAQ*. Privacy International (article). Retrieved September 26, 2022, from: https://privacyinternational.org/news-analysis/819/aadhaar-scheme-faq.

Hirsch, A., & Lopes, C. (2020). Post-colonial African Economic Development in Historical Perspective. *Africa Development, 4*(1), 31–46.

Hlomani, H., & Ncube, C. B. (2022). Data Regulation in Africa: Free Flow of Data, Open Data Regimes and Cyber Security. In B. Ndemo, N. Ndung'u, S. Odhiambo, A. Shimeless (Eds.), *Data Governance and Policy in Africa*. London: Palgrave McMillan. (pp. 97-130).

HM Government. (2019). *Online Harms White Paper (CP 57)*. HM Government (policy). Retrieved September 11, 2023, from: hhttps://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/793360/Online_Harms_White_Paper.pdf.

Hood, C., Rothstein, H., & Baldwin, R. (2001). *The Government of Risk: Understanding Risk Regulation Regimes*. Oxford: Oxford University Press.

Hoods, C. C., & Margetts, H. Z. (2007). *The new politics of masculinity: Men, power and resistance*. Basingstoke: Palgrave MacMillan.

Hosein, G., & Nyst, C. (2013). *Aiding Surveillance: An exploration of how development and humanitarian aid initiatives are enabling surveillance in developing countries*. Privacy International (report). Retrieved September 11, 2023, from: www.privacyinternational.org/sites/default/files/Aiding Surveillance.pdf.

Huisman, B. (2020, June 30). *COVID-19: The touching story of Nurse Angy Rabothatha.* Spotlight (article). Retrieved April 20, 2022, from: https://www.spotlightnsp.co.za/2020/06/30/covid-19-the-touching-story-of-nurse-angy-rabothatha/.

Hunter, M. (2020). *Track and Trace, Trial and Error: Assessing South Africa's approaches to privacy in Covid-19 digital contact tracing*. Media and Democracy (report). Retrieved September 11, 2023, from: https://www.mediaanddemocracy.com/uploads/1/6/5/7/16577624/track-and-trace-digital_contact-tracing-in-sa-nov-2020.pdf.

Hutchby, I. (2001). Technologies, Texts and Affordances. *Sociology, 35*(2), 441–456.

Hutchby, I. (2003). Affordances and the Analysis of Technologically Mediated Interaction: A Response to Brian Rappert. *Sociology, 37*(3), 581–589.

Hutchings, R. (2020). *The impact of Covid-19 on the use of digital technology in the NHS*. The Nuffield Trust (report). Retrieved September 11, 2023, from: https://www.nuffieldtrust.org.uk/research/the-impact-of-covid-19-on-the-use-of-digital-technology-in-the-nhs.

ICASA. (2023). *The state of the ICT sector in South Africa*. ICASA (report). Retrieved from https://www.icasa.org.za/uploads/files/State-of-ICT-Sector-Report-March-2018.pdf?TSPD_.

ICRC. (2022). *ICRC proposes digital red cross/crescent emblem to signal protection in cyberspace*. ICRC (article). Retrieved November 5, 2022: https://www.icrc.org/en/document/icrc-proposes-digital-red-crosscrescent-emblem-signal-protection-cyberspace.

ID4Africa. (2021). *LiveCast EP23: The Dark Side of Identity: Mitigating the Risks*. ID4Africa (video). Retrieved November 2, 2022, from: https://id4africa.com/livecast-ep23-the-dark-side-of-identity-mitigating-the-risks/.

ID2020. (2018). *ID2020 Manifesto*. ID2020 (webpage). Retrieved October 25, 2022, from: https://id2020.org/manifesto.

ID4Africa. (n.d.). *About*. ID4Africa (webpage). Retrieved September 20, 2022, from: https://id4africa.com/about/.

Ilcan, S., & Phillips, L. (2010). Developmentalities and Calculative Practices: The Millennium Development Goals. *Antipode, 42*(4), 844–874.

Ilori, T. (2020). *Data protection in Africa and the COVID-19 pandemic: Old problems, new challenges and multistakeholder solutions*. African Internet Rights (report). Retrieved from September 10, 2023, from: https://africaninternetrights.org/en/updates/data-protection-africa-and-covid-19-pandemic-old-problems-new-challenges-and.

Information Regulator. (2020). *Media statement on Covid-19*. Information Regulator (press release). Retrieved May 3, 2022, from: https://inforegulator.org.za/wp-content/uploads/2020/07/ms-20200319-COVID19.pdf.

Information Regulator. (2021). *Media statement: Information Regulator to take further action regarding the WhatsApp Privacy Policy* (press release). Retrieved September 26, 2023, from: https://inforegulator.org.za/wp-content/uploads/2020/07/ms-20210513-WhatsAppPrivacyPolicy.pdf.

Information Regulator. (2022). *Information Regulator monitors the Department of Health on POPIA compliance*. Information Regulator (press release). Retrieved September 3, 2023, from: https://inforegulator.org.za/wp-content/uploads/2020/07/Final-MEDIA-STATEMENT-INFORMATION-REGULATOR-MONITORS-THE-DEPARTMENT-OF-HEALTHS-POPIA-COMPLIANCE-22-APRIL-2022.pdf.

Information Regulator. (2023). *Information Regulator refers National Department of Health to the Enforcement Committee regarding personal information collected during Covid-19*. Information Regulator (press release). Retrieved September 11, 2023, from: https://inforegulator.org.za/wp-content/uploads/2020/07/Media-Statement_Information-Regulator-Refers-NDOH-to-the-Enforcement-Committee.pdf.

International Bank for Reconstruction and Development/ The World Bank. (2010). *Cost-Benefit Analysis in World Bank Projects*. World Bank (report). Retrieved September 11, 2023, from: https://openknowledge.worldbank.org/bitstream/handle/10986/2561/624700PUB0Cost00Box0361484B0PUBLIC0.pdf?sequence=1&isAllowed=y.

Ipsos. (2019). *The spread of techlash*. Ipsos (article). Retrieved September 11, 2023, from: https://www.ipsos.com/en/spread-techlash.

Irwin, D. A., & Ward, O. (2021). *What is the "Washington Consensus"?* PIIE (blog). Retrieved April 11, 2023, from: https://www.piie.com/blogs/realtime-economic-issues-watch/what-washington-consensus.

ITU. (2020). *Pandemic in the Internet Age: communications industry responses*. ITU (report). Retrieved September 11, 2023, from: https://reg4covid.itu.int/wp-content/uploads/2020/06/ITU_COVID-19_and_Telecom-ICT.pdf.

ITU. (2021). *Pandemic in the Internet age: From second wave to new normal, recovery, adaptation and resilience*. ITU (report). Retrieved September 11, 2023, from: https://www.itu.int/hub/publication/d-pref-ef-pandemic_01-2021/.

ITU. (2022). *Measuring digital development: Facts and Figures 2022*. ITU (report). Retrieved September 11, 2023, from: https://www.itu.int/hub/publication/d-ind-ict_mdd-2022/.

Iyer, N. (2021). *Digital Identity in Uganda: Case study conducted as part of a ten-country exploration of socio-digital ID systems in parts of Africa.* Research ICT Africa (case study). Retrieved March 20, 2024, from: https://researchictafrica.net/wp/wp-content/uploads/2021/11/Uganda_31.10.21.pdf.

Iyer, N., Chair, C., & Achieng, G. (2021). *Afrofeminist Data Futures*. Pollicy (report). Retrieved September 11, 2023, from: https://archive.pollicy.org/wp-content/uploads/2021/03/Afrofeminist-Data-Futures-Report-ENGLISH.pdf.

Jacobson, T., & Chang, L. (2019). Sen's capabilities approach and the measurement of communication outcomes. *Journal of Information Policy, 9*(2019), 111–131.

Jarvis, D. S. L. (2007). Risk, Globalisation and the State: A Critical Appraisal of Ulrich Beck and the World Risk Society Thesis. *Global Society, 21*(1), 23-46.

Jassat, W., Ozougwu, L., Munshi, S., Mudara, C., Vika, C., Arendse, T., Masha, M., Welch, R., Govender, N., Ebonwu, J., Groome, M., Joseph, A., Madhi, S. A., Cohen, C., Blumberg, L. (2022). The intersection of age, sex, race and socio-economic status in COVID-19 hospital admissions and deaths in South Africa. *South African Journal of Science, 118*(5/6), 1-14.

Johnson, D. (2020). *Assessment of contact tracing options for South Africa*. Research ICT Africa (report). Retrieved September 11, 2023, from: https://researchictafrica.net/wp/wp-content/uploads/2020/10/Contact-tracing-survey-report-David-Johnson-Oct2020.pdf.

Johnstone, J. (2007). Technology as empowerment: A capability approach to computer ethics. *Ethics and Information Technology, 9*, 73-87.

Jones, K. (2023). *AI governance and human rights: Resetting the relationship*. Chatham House (report). Retrieved from https://www.chathamhouse.org/sites/default/files/2023-01/2023-01-10-AI-governance-human-rights-jones.pdf.

Joseph, J. (2012). *The Social in the Global: Social Theory, Governmentality and Global Politics*. Cambridge: Cambridge University Press.

Justice and Correctional Services. (2020). *COVID-19 impact on judiciary; OCJ & Information Regulator 2020/21 APPs; with Deputy Minister of Justice*. Parliamentary Monitoring Group (transcript). Retrieved September 11, 2023, from: https://pmg.org.za/committee-meeting/30196/.

Kaminski, M. E. (2023). Regulating the Risks of AI. *Boston University Law Review, 103*(22-21), forthcoming.

Kapoor, I. (2002). The Devil's in the Theory: A Critical Assessment of Robert Chambers' Work on Participatory Development. *Third World Quarterly, 23*(1), 101–117.

Karim, R., Newaz, M. S., & Chowdhury, R. M. (2018). Human rights-based approach to science, technology and development: A legal analysis. *Journal of East Asia and International Law, 11*(1), 163–181.

Kentridge, W. (2022). *Sybil*. UK: Royal Academy.

Kganyago, L. (2023). *Press Statement: Statement of the Monetary Policy Committee*. South African Reserve Bank (press release). Retrieved February 20, 2023, from: https://www.resbank.co.za/content/dam/sarb/publications/statements/monetary-policy-statements/2023/january-/Statement of the Monetary Policy Committee January 2023.pdf.

Kibuacha, F. (2021). *Report: Mobile Phone and App Usage in Africa and Asia*. GeoPoll (blog). Retrieved February 21, 2023, from: https://www.geopoll.com/blog/community-phone-app-usage-report-africa-asia/.

Klaaren, J., Breckenridge, K., Cachalia, F., Fonn, S., & Veller, M. (2020). South Africa's COVID-19 Tracing Database: Risks and rewards of which doctors should be aware. *The South African Medical Journal, 110*(7), 617-620.

Kleine, D. (2010). ICT4WHAT? Using the choice framework to operationalise the capability approach to development. *Journal of International Development, 22*(5), 674–692.

Kleine, D. (2011). The capability approach and the 'medium of choice': steps towards conceptualising information and communication technologies for development. *Ethics and Information Technology, 13*(2), 119–130.

Kleinig, J. (1978). Crime and the Concept of Harm. *American Philosophical Quarterly, 15*(1), 27–36.

Kogen, L. (2020). Evaluations and Impact Assessments in Communication for Development. In J. Servaes (Ed.), *Handbook of Communication for Development and Social Change*. Singapore: Springer. (pp. 716–729).

Kothari, U. & Minogue, M. (2002). (Eds.) *Development Theory and Practice: Critical Perspectives*. Hampshire: Palgrave.

Kunzle, A., Young, K., Poku, P., Manhart, S., Etulain, T., & Saunders, C. (2021). *ID2020 Risk Appetite Statement Ethics and Risk Advisory Committee.* ID2020 (report). Retrieved September 11, 2023, from: https://id2020.org/uploads/files/ID2020-Risk-Appetite-v1.0.pdf.

Kuziemski, M. (2018). *A Precautionary Approach to Artificial Intelligence*. Project Syndicate (article). Retrieved November 3, 2022, from: https://www.project-

syndicate.org/commentary/precautionary-principle-for-artificial-intelligence-by-maciej-kuziemski-2018-05.

Kvale, S. (2007). *Doing Interviews*. London: Sage Publications Ltd.

Lash, S. (2018). Introduction: Ulrich Beck: Risk as Indeterminate Modernity. *Theory, Culture & Society, 35*(7–8), 117–129.

Latonero, M., Hiatt, K., Napolitano, A., Clericetti, G., & Penagos, M. (2019). *Digital Identity in the Migration & Refugee Context: Italy case study.* Carr Centre (report). Retrieved September 11, 2022, from: https://carrcenter.hks.harvard.edu/files/cchr/files/datasociety_digitalidentity.pdf.

Lawlor, L., & Nale, J. (2014). *The Cambridge Foucault Lexicon.* Cambridge: Cambridge University Press.

León, M., Rehbein, L., Labbé, C., Van Deursen, A. J. A. M., & Cerda, C. (2021). Psychological, cultural and socio-structural factors associated with digital immersion in Chilean adolescents. *Journal of Children and Media, 16*(1), 21–40.

Lessig, L. (2006). *Code and Other Laws of Cyberspace: Version 2.0*. New York: Basic Books.

Leung, L., Lamb, C. F., & Emrys, L. (2009). *Technology's refuge: The use of technology by asylum seekers and refugees*. Saarbrücken: Lap Academic Publishing.

Lewis, C. (2020). *Regulating Telecommunications in South Africa: Universal Access and Service*. London: Palgrave Macmillan.

Lewis, D. (2020, December 14). *Why many countries failed at COVID contact-tracing - but some got it right* (amended). Nature (article). Retrieved September 11, 2022, from: https://media.nature.com/original/magazine-assets/d41586-020-03518-4/d41586-020-03518-4.pdf.

Lidskog, R., & Sundqvist, G. (2012). Sociology of risk. In S. Roeser, R. Hillerbrand, P. Sandin, & M. Peterson (Eds.), *Handbook of Risk Theory: Epistemology, Decision Theory, Ethics, and Social Implications of Risk*. New York: Springer. (pp. 1001–1027).

Lie, J. H. S. (2015a). *Developmentality: An Ethnography of the World Bank-Uganda Partnership*. New York: Berghahn Books.

Lie, J. H. S. (2015b). Developmentality: indirect governance in the World Bank–Uganda partnership. *Third World Quarterly, 36*(4), 723–740.

Lievrouw, L. (2014). Materiality and media in communication and technology studies: An unfinished project. In T. Gillespie, P. J. Boczkowski, & K. A. Foot (Eds.), *Media technologies: Essays on communication, materiality and society*. London: MIT Press. (pp. 21-51)

Litonjua, M.D. (2012). Third World/Global South: from Modernisation, to Dependency Liberation, to post-development. *Journal of Third World Studies, XXIX,* 25-56.

Liuzzo, G., Bentley, S., Giacometti, F., Bonfante, E., & Serraino, A. (2014). The Term Risk: Etymology, Legal Definition and Various Traits. *Italian Journal of Food Safety, 3*(1), 36–39.

Livingstone, S. (2009). Maximising opportunities and minimising risks for children online: From evidence to policy (EU Kids Online: Developing evidence-based policy). *Intermedia, 37*(4), 50–53.

Livingstone, S. (2013). Online risk, harm and vulnerability: reflections on the evidence base for child Internet safety policy. *Journal of Communication Studies, 18*(35), 13–28.

Livingstone, S. (2014). Risk and harm on the internet. In A. Jordan & D. Romer (Eds.), *Media and the well-being of children and adolescents*. Oxford: Oxford University Press. (pp. 129-146).

Livingstone, S., Hasebrink, U., & Görzig, A. (2012). Towards a general model of determinants of risk and safety. In S. Livingstone, L. Haddon, & A. Görzig (Eds.), *Children, Risk and Safety on the Internet: Research and Policy Challenges in Comparative Perspective*. Bristol: Policy Press. (pp. 323-337).

Livingstone, S., & Helsper, E. (2013). Children, internet and risk in comparative perspective. *Journal of Children and Media, 7*(1), 1–8.

Louw, P. E. (2020). The Pax Americana and Development. In J. Servaes (Ed.), *Handbook of Communication for Development and Social Change*. Singapore: Springer. (pp. 168–191).

Love, P. (2016). *Debate the Issues: New Approaches to Economic Challenges*. OECD (report). Retrieved September 11, 2022, from: https://www.cbd.int/financial/doc/sdgs-devcoop.pdf.

Lupač, P. (2018). *Beyond the Digital Divide: Contextualizing the Information Society*. Bingley: Emerald Publishing Group.

Lurvink, K. (2020). The insurance of mass murder: The development of slave life insurance policies of Dutch private slave ships, 1720-1780. *Enterprise and Society, 21*(1), 210–238.

Lutz, C. (2019). Digital inequalities in the age of artificial intelligence and big data. *Human Behavior and Emerging Technologies, 1*(2), 141–148.

Lutz, C., & Hoffmann, C. P. (2017). The dark side of online participation: exploring non-, passive and negative participation. *Information, Communication & Society, 20*(6), 876–897.

Madlingozi, T. (2007). Post-Apartheid Social Movements and the Quest for the Elusive 'New' South Africa. *Journal of Law and Society, 34*(1), 77-98.

Madlingozi, T. (2018). *Mayibuye iAfrika? : disjunctive inclusions and black strivings for constitution and belonging in "South Africa".* (Doctoral Thesis, Birbeck University of London). Retrieved September 11, 2023, from: https://www.proquest.com/docview/2344275513?parentSessionId=ZggodLTSaDt1Dnz2zHUf%2BL4iGqio2Ux3xSXeMU93XII%3D&pq-origsite=primo&accountid=9630.

Madon, S. (2004). Evaluating the developmental impact of E-governance initiatives: An exploratory framework. *Electronic Journal of Information System in Development Countries, 20*(5), 1-13.

Madon, S., & Schoemaker, E. (2021). Digital identity as a platform for improving refugee management. *Information Systems Journal, 31*(6), 929–953.

Mahecic, A. (2008, May). *UNHCR releases 2,000 more tents for South Africa xenophobia victims*. UNHCR (press release). Retrieved April 20, 2023, from: https://www.unhcr.org/uk/news/stories/unhcr-releases-2-000-more-tents-south-africa-xenophobia-victims.

Mair, P. (2008). Concepts and concept formation. In D. Della Porta & M. Keating (Eds.), *Approaches and Methodologies in the Social Sciences: A Pluralist Perspective*. Cambridge: Cambridge University Press. (pp. 177–197).

Makulilo, A. B. (2016). *African Data Privacy Laws*. New York: Springer International Publishing.

Malherbe, P. (2020). *Halfmiljoen laai reeds Covid-19-app af*. Netwerk24 (news article). Retrieved April 29, 2022, from: https://www.netwerk24.com/netwerk24/sake/tegnuus/halfmiljoen-laai-reeds-covid-19-app-af-20200921.

Maluleke, R. (2022). *Quarterly Labour Force Survey (Q3:2022)*. Stats SA (webpage/report). Retrieved September 11, 2023, from: https://www.statssa.gov.za/publications/P0211/Presentation%20QLFS%20Q3%202022.pdf.

Manby, B. (2020). The Sustainable Development Goals and 'legal identity for all': 'First, do no harm.' *World Development, 139*(105343), 1-12.

Mansell, R. (1999). Information and communication technologies for development: assessing the potential and the risks. *Telecommunication Policy, 23*(1), 35–50.

Mansell, R. (2012). *Imagining the Internet: communication, innovation and governance*. London: Oxford University Press.

Mansell, R. (2014). Power and interests in Information and Communication and Development: Exogenous and Endogenous Discourses in Contention. *Journal of International Development, 26*(1), 109–127.

Mansell, R. (2017). Inequality and Digitally Mediated Communication: Divides, Contradictions and Consequences. *Javnost - The Public, 24*(2), 146–161.

Mansell, R. (2020, April 23). *Coronavirus contact tracing apps – a proportionate response?* Media@LSE (blog). Retrieved February 19, 2022, from: https://blogs.lse.ac.uk/medialse/2020/04/23/coronavirus-contact-tracing-apps-a-proportionate-response/.

Mansell, R. (2021). Adjusting to the digital: Societal outcomes and consequences. *Research Policy, 50*(9), 1-10.

Mansell, R., & Steinmueller, E. (2002). *Mobilizing the Information Society: Strategies for Growth and Opportunity*. London: Oxford University Press.

Manyozo, L. (2012). *Media, Communication and Development: Schools and Approaches*. Los Angeles: Sage Publishing Ltd.

Manyozo, L. (2017). *Communicating Development with Communities*. London: Routledge.

Marantz, A. (2019). *Silicon Valley's Crisis of Conscience: Where Big Tech goes to ask deep questions*. The New Yorker (news article). Retrieved September 11, 2023, from: https://www.newyorker.com/magazine/2019/08/26/silicon-valleys-crisis-of-conscience.

Marcucci, S., Alarcón, N. G., Verhulst, S. G., & Wüllhorst, E. (2023). *Mapping and Comparing Data Governance Frameworks A benchmarking exercise to inform global*

data governance deliberations. GovLab (article). Retrieved September 11, 2023, from: https://arxiv.org/abs/2302.13731.

Marda, V. (2020). Papering over the cracks. In L. Taylor, G. Sharma, A. Martin, & S. Jameson (Eds.), *Data Justice and Covid-19: Global Perspectives*. Meatspace Press. (pp. 28-33).

Martin, A, Schoemaker, E., Weitzberg, K., & Cheesman, M. (2021). *Researching digital identity in time of crisis*. The Alan Turing Institute (workshop report). Retrieved September 12, 2023, from: https://www.turing.ac.uk/sites/default/files/2021-08/3c_workshop_reporttimes_of_crisis_.pdf.

Martin, Aaron. (2021). Aadhaar in a Box? Legitimizing Digital Identity in Times of Crisis. *Surveillance & Society, 19*(1), 104–108.

Martin, Aaron, & Taylor, L. (2020). Exclusion and inclusion in identification: regulation, displacement and data justice. *Information Technology for Development, 27*(1), 50–66.

Martin, M. (2022). *The Crisis of Extreme Inequality in SADC Fighting austerity and the COVID-19 pandemic.* Oxfam, Development Finance International & Norwegian Church Aid (report). Retrieved September 12, 2023, from: https://oxfamilibrary.openrepository.com/bitstream/handle/10546/621370/rr-sadc-cri-100522-en.pdf.

Mason, J. (2002). *Qualitative Researching (Second Edition)*. London: Sage Publishing Ltd.

MasterCard. (2022). *MasterCard-branded National eID Card Launched in Nigeria*. MasterCard (press release). Retrieved October 21, 2022, from: https://newsroom.mastercard.com/mea/press-releases/mastercard-branded-national-eid-card-launched-nigeria/.

Mayer-Schönberger, V. (1997). Generational Development of Data Protection in Europe. In P. E. Agre & M. Rotenberg (Eds.), *Technology and Privacy: The New Landscape*. Cambridge: MIT Press. (pp. 219-242).

McDonald, S. M. (2020a). *Technology Theatre*. Centre for International Governance Innovation (blog). Retrieved November 2, 2022, from: https://www.cigionline.org/articles/technology-theatre/.

McDonald, S. M. (2020b). *Technology theatre and seizure*. In L. Taylor, G. Sharma, A. Martin, & S. Jameson (Eds.), Data Justice and Covid-19: Global Perspectives. London: Meatspace Press. (pp. 20–27).

McGregor, L. (2022). *Unforgiven: Face to face with my father's killer*. Johannesburg: Jonathan Ball Publishers.

McVetty, A.K. (2012). Truman's Fourth Point. In McVetty, A. K. (Ed.) *Enlightened Aid: U.S. Development as Foreign Policy in Ethiopia.* Oxford: Oxford University Press. (pp. 83-120).

Mdluli, A. (2021, November 3). *Dr Zweli Mkhize shocked and saddened by claim that he was involved in the murder of whistle-blower Babita Deokaran*. IOL (news article). Retrieved April 22, 2022, from: https://www.iol.co.za/dailynews/news/dr-zweli-mkhize-shocked-and-saddened-by-claim-that-he-was-involved-in-the-murder-of-whistle-blower-babita-deokaran-cacefccd-0fod-43d9-86ed-8333cd21fa63.

Mefalopulos, P. (2020). Multidimensional Model for Change: Understanding Multiple Realities to Plan and Promote Social and Behaviour Change. In J. Servaes (Ed.), *Handbook of Communication for Development and Social Change*. New York: Springer. (pp. 580-594).

Melford, C. (2019). *The Global Disinformation Index*. Disinformation index (blog). Retrieved November 17, 2022, from: https://www.disinformationindex.org/blog/2019-6-26-disinformation-is-an-online-harm/.

Melkote, S. (2003). Theories of Development Communication. In B. M. Mody (Ed.), *International and development communication: a 21st-century perspective*. Thousand Oaks: Sage Publishing Ltd. (pp. 129-146).

Melkote, S., & Steeves, H. L. (2015). Place and role of development communication in directed social change: a review of the field. *Journal of Multicultural Discourse, 10*(3), 385–402.

Merten, M. (2022, April 12). *Mkhize cleared of Digital Vibes wrongdoing – ethics committee uses letter but not spirit of code of conduct*. Daily Maverick (news article). Retrieved April 22, 2022, from: https://www.dailymaverick.co.za/article/2022-04-12-mkhize-cleared-of-digital-vibes-wrongdoing-ethics-committee-uses-letter-but-not-spirit-of-code-of-conduct/.

Micheli, M., Lutz, C., & Büchi, M. (2018). Digital footprints: an emerging dimension of digital inequality. *Journal of Information, Communication and Ethics in Society, 16*(3), 242–251.

Minkley, G. (2019). The pass photograph and the intimate photographic event in South Africa. In P. Hayes, & Minkley, G. (Eds.), *Ambivalent: Photography and Visibility in African History*. Athens: Ohio University Press. (pp. 129-149).

Mkhize, Z. (2020a, July 17). *Health Department Launches COVID Service Portal.* South African Government/SA Coronavirus (press release). Retrieved April 25, 2022, from: https://sacoronavirus.co.za/2020/07/17/health-department-launches-covid-service-portal/.

Mkhize, Z. [@DrZweliMkhize] (2020b, September 1). *Media Statement 1 September 2020 Department of Health launches powerful new tool to strengthen #COVID19 contact tracing The National Department …* . X (formerly known as Twitter) (Tweet). Retrieved April 22, 2022, from: https://twitter.com/DrZweliMkhize/status/1300857016274038785.

Mkhize, Z. [@DrZweliMkhize]. (2020c, December 12). *#COVID19 Statistics in SA as at 09 December. Use the COVID Alert SA app to protect yourself, your loved ones …* . X (formerly known as Twitter) (Tweet). Retrieved April 22, 2022, from: https://twitter.com/DrZweliMkhize/status/1337858001647054849.

Mkhize, Z. [@DrZweliMkhize] (2021, May 21). *#COVID19 Statistics in SA as at 24 May. Use the COVID Alert SA app to protect yourself, your loved ones …* . X (formerly known as Twitter) (Tweet). Retrieved April 22, 2022, from: https://twitter.com/DrZweliMkhize/status/1396913615807074314.

Mohammed, W. F. (2021). Decolonizing African Media Studies. *Howard Journal of Communications, 32*(2), 123–138.

Möller, N. (2012). The Concepts of Risk and Safety. In S. Roeser, R. Hillerbrand, P. Sandin, & M. Peterson (Eds.), *Handbook of Risk Theory: Epistemology, Decision Theory, Ethics, and Social Implications of Risk*. Dordrecht: Springer. (pp. 55-85).

Moore, M, & Tambini, D. (2018). *Digital Dominance: The Power of Google, Amazon, Facebook*. Oxford: Oxford University Press.

Mosse, D. (2004). *Cultivating Development: An Ethnography of Aid Policy and Practice*. London: Pluto Press.

Mothobi, O., Shoentgen, A., & Gillwald, A. (2018). *What is the state of microwork in Africa? A view from seven countries*. Research ICT Africa (report). Retrieved September 11, 2023, from: https://researchictafrica.net/wp/wp-content/uploads/2018/10/After-Access_The-state-of-microwork-in-Africa.pdf.

Mpota, S. S. (2020). The role of religion and traditional medicines in fighting COVID-19 in Tanzania. LSE Firoz Lalji Centre for Africa (blog). Retrieved March 19, 2024, from: https://blogs.lse.ac.uk/africaatlse/2020/08/12/role-religion-traditional-medicines-covid19-tanzania-herbs-magufuli/.

Murove, M. F. (2013). Ubuntu. *Diogenes, 59*(3–4), 36–47.

Murphy, M. (2020, April 21). *Zoom investigates after meetings hijacked by child abuse footage.* The Telegraph (news article). Retrieved September 11, 2023, from: https://www.telegraph.co.uk/technology/2020/04/21/zoom-investigates-meetings-hijacked-child-abuse-footage/.

Musomi, M., Domingo, E. & Ogah, E. (2023). *Digital ID systems in Africa: Challenges, risks and opportunities (discussion paper no. 360).* Brussels: ECDPM. Retrieved March 21, 2024, from: https://ecdpm.org/application/files/5517/0254/4789/Digital-ID-systems-in-Africa-ECDPM-Discussion-Paper-360-2023.pdf.

Mutung'u, G. (2021). *Digital Identity in Kenya: Case study conducted as part of a ten-country exploration of socio-digital ID systems in parts of Africa.* Research ICT Africa (case study). Retrieved March 20, 2024, from: https://researchictafrica.net/wp/wp-content/uploads/2021/11/Kenya_1.11.21.pdf.

Mutung'u, G. & Rutenberg, I. (2020) Digital ID and the Risk of Statelessness. *The Statelessness & Citizenship Review, 2*(2), 348–354.

Myburgh, P.-L. (2021a, September 22). *Digital Vibes: Zweli Mkhize's pal splurged Covid funds on Gucci gear, Smeg appliances and monthslong holiday*. Daily Maverick (news article). Retrieved April 22, 2022, from: https://www.dailymaverick.co.za/article/2021-09-22-digital-vibes-zweli-mkhizes-pal-splurged-covid-funds-on-gucci-gear-smeg-appliances-and-monthslong-holiday/.

Myburgh, P.-L. (2021b, August 3). *R1m from Digital Vibes deal bankrolled hair salon, nail boutique for Minister Zweli Mkhize's son, daughter-in-law*. Daily Maverick (news article). Retrieved April 22, 2022, from: https://www.dailymaverick.co.za/article/2021-08-03-r1m-from-digital-vibes-deal-bankrolled-hair-salon-nail-boutique-for-minister-zweli-mkhizes-son-daughter-in-law/.

Mythen, G. (2004). *Ulrick Beck: A critical introduction to the Risk Society*. London: Pluto Press.

Mythen, G. (2005). From 'Goods' to 'Bads'? Revisiting the Political Economy of Risk. *Sociological Research Online, 10*(3), 191-203.

Mythen, G. (2018). Thinking with Ulrich Beck: security, terrorism and transformation. *Journal of Risk Research, 21*(1), 17–28.

Mythen, G. (2021). The Critical Theory of World Risk Society: A Retrospective Analysis. *Risk Analysis, 41*(3), 533–543.

Mythen, G., Burgess, A., & Wardman, J. K. (2018). The prophecy of Ulrich Beck: signposts for the social sciences. *Journal of Risk Research, 21*(1), 96–100.

Nachega, J. B., Atteh, R., Ihekweazu, C., Sam-Agudu, N. A., Adejumo, P., Nsanzimana, S., Rwagasore, E., Condo, J., Paleker, M., Mahomed, H., Suleman, F., Ario, A. R., Kiguli-Malwade, E., Omaswa, F. G., Sewankambo, N. K., Viboud, C., Reid, M. J. A., Zumla, A., Kilmarx, P. H. (2021). Contact Tracing and the COVID-19 Response in Africa: Best Practices, Key Challenges, and Lessons Learned from Nigeria, Rwanda, South Africa, and Uganda. *The American Journal of Tropical Medicine and Hygiene, 104*(4), 1179–1187.

Nachega, J. B., Grimwood, A., Mahomed, H., Fatti, G., Preiser, W., Kallay, O., Mbala, P. K., Muyembe, J.-J. T., Rwagasore, E., Nsanzimana, S., Ngamije, D., Condo, J., Sidat. M., Noormahomed, E. V., Reid, M., Lukeni, B., Suleman, F., Mteta, A., Zumla, A. (2021). From Easing Lockdowns to Scaling up Community-based Coronavirus Disease 2019 Screening, Testing, and Contact Tracing in Africa - Shared Approaches, Innovations, and Challenges to Minimize Morbidity and Mortality. *Clinical Infectious Diseases, 72*(2), 327–331.

Napoli, P. M., & Obar, J. A. (2014). The Emerging Mobile Internet Underclass: A Critique of Mobile Internet Access. *The Information Society, 30*(5), 323–334.

National Planning Commission. (2012). *National Development Plan 2030: Our future - make it work*. National Planning Commission: The Presidency of the Republic of South Africa (report). Retrieved September 12, 2023, from: https://www.gov.za/sites/default/files/gcis_document/201409/ndp-2030-our-future-make-it-workr.pdf.

Naudé, W., & Cameron, M. (2020). *Failing to Pull Together: South Africa's Troubled Response to COVID-19 (IZA DP No. 13649).* IZA/ Institute of Labor Economics (discussion paper). Retrieved September 12, 2023, from: https://docs.iza.org/dp13649.pdf.

NCA. (2022). *Punitive Measures for Unregistered SIM Cards Kick in September 5 – National Communications Authority*. NCA (press release). Retrieved November 6, 2022, from: https://nca.org.gh/2022/09/05/punitive-measures-for-unresgistered-sim-cards-kick-in-september-5.

Ndemo, B., & Thegeya, A. (2022). A Prototype Data Governance Framework for Africa. In B. Ndemo, N. Ndung'u, S. Odhiambo, A. Shimeless (Eds.), *Data Governance and Policy in Africa*. London: Palgrave McMillan. (pp. 9-29).

Ndenze, F. (2023). *President Ramaphosa Declares National State of Disaster in Electricity Crisis*. The Presidency of South Africa (press release). Retrieved February 20, 2023, from: https://www.parliament.gov.za/news/president-ramaphosa-declares-national-state-disaster-electricity-crisis.

Ndlozi, M. (2020). *Question to the Minister of Health*. Parliamentary Monitoring Group (webpage/discussion forum). Retrieved April 19, 2022, from: https://pmg.org.za/committee-question/14887/.

Nederveen Pieterse, J. (2010). *Development Theory (Second Edition).* London: Sage Publishing Ltd.

Newby, H. (1992). Risk analysis and risk assessment: The Social Limits of Technological Change. *Process Safety and Environmental Protection, 75*(3), 133-137.

Ngwenya, N. (2021). *Digital Identity in Zimbabwe: Case study conducted as part of a ten-country exploration of socio-digital ID systems in parts of Africa.* Research ICT Africa (case study). Retrieved March 20, 2024, from: https://researchictafrica.net/wp/wp-content/uploads/2021/11/Zimbabwe_31.10.21.pdf.

NICD. (2020, January 27). *Increasing cases of novel coronavirus (2019-nCoV): Update on South Africa's preparedness.* NICD (press release). Retrieved April 25, 2022, from: https://www.nicd.ac.za/increasing-cases-of-novel-coronavirus-2019-ncov-update-on-south-africas-preparedness/.

NICD. (2022). *National Covid-19 Daily Report*. NICD (press release). Retrieved April 27, 2022, from: https://www.nicd.ac.za/diseases-a-z-index/disease-index-covid-19/surveillance-reports/national-covid-19-daily-report/.

NICD (n.d.). *NMC Covid-19 Documents*. NICD (webpage). Retrieved May 18, 2022, from: https://www.nicd.ac.za/nmc-overview/nmc-covid-19-documents/.

Nilsen, A. G. (2016). Power, Resistance and Development in the Global South: Notes Towards a Critical Research Agenda. *International Journal of Politics, Culture and Society, 29*(3), 269-287.

Noble, S. (2018). *Algorithms of oppression: How search engines reinforce racism*. New York: NYU Press.

Nordhaus, W. D. (1969). An Economic Theory of Technological Change. *The American Economic Review, 59*(2), 18–28.

Nordling, L. (2020, April 7). *South Africa hopes its battle with HIV and TB helped prepare it for COVID-19*. Science (news article). Retrieved September 12, 2023, from: https://www.science.org/content/article/south-africa-hopes-its-battle-hiv-and-tb-helped-prepare-it-covid-19.

Nortier, C. (2020, October 13). *Covid Alert SA app: The fine balance between public health, privacy and the power of the people*. Daily Maverick (news article/opinion piece). Retrieved April 20, 2022, from: https://www.dailymaverick.co.za/article/2020-

10-13-covid-alert-sa-app-the-fine-balance-between-public-health-privacy-and-the-power-of-the-people/.

Nyabola, N. (2018). *Digital Democracy, Analogue Politics: How the Internet Era is Transforming Politics in Kenya*. London: Bloomsbury Publishing.

Nyabola, N. (2022). *Strange and difficult times: notes on a global pandemic*. London: Hurst & Company.

Nyamnjoh, F. B. (2023). *Foreword.* In T. Roberts., & T. Bosch (Eds.), Digital Citizenship in Africa: Technologies of Agency and Repression. Zed Books: London. (pp. xv-xxi).

Nyst, C., Pannifer, S., Whitley, E., & Makin, P. (2016). *Digital Identity: Issue Analysis.* Consult Hyperion (report). Retrieved September 12, 2023, from: https://chyp.com/wp-content/uploads/2020/06/PRJ.1578-Digital-Identity-Issue-Analysis-Report-v1_6-1.pdf.

O'Mahoney, J., & Vincent, S. (2014). Critical Realism as an Empirical Project: A Beginner's Guide. In P. K. Edwards, J. O'Mahoney, & S. Vincent (Eds.), *Studying Organizations Using Critical Realism: A Practical Guide*. Oxford: Oxford University Press. (pp. 1-20).

Oatway, J., & Skuy, A. (2021, June 21). *Documenting violence against migrants in South Africa – a photo essay.* The Guardian (photo essay). Retrieved April 20, 2023, from: https://www.theguardian.com/world/2021/jun/21/documenting-violence-against-migrants-in-south-africa-a-photo-essay.

Ochom, J. (2022, March 19). *The Case For A Human Rights-Based Approach To Technology*. Human Rights Pulse (article). Retrieved April 24, 2023, from: https://www.humanrightspulse.com/mastercontentblog/the-case-for-a-human-rights-based-approach-to-technology.

Oduro-Marfo, S., & Falconer, T. A. (2021*). Digital Identity in Ghana: Case study conducted as part of a ten-country exploration of socio-digital ID*. Research ICT Africa (case study). Retrieved September 12, 2023, from: https://researchictafrica.net/wp/wp-content/uploads/2021/11/Ghana_31.10.21.pdf.

OECD. (2020). *COVID-19 and Africa: Socio-economic implications and policy responses.* OECD (report). Retrieved September 12, 2023, from: https://read.oecd-ilibrary.org/view/?ref=132_132745-u5pt1rdb5x&title=COVID-19-in-Africa-Regional-socio-economic-implications-and-policy-priorities.

Okunoye, B. (2022a). Digital identity for development should keep pace with national cybersecurity capacity: Nigeria in focus. *Journal of Cyber Policy*, *7*(1), 24-37.

Okunoye, B. (2022b). Mistrust in government within authoritarian states hindering user acceptance and adoption of digital IDs in Africa: the Nigerian Context. *Data & Policy, 4* (37), 1-12.

Okunoye, B. (2021). *Digital Identity in Nigeria: Case study conducted as part of a ten-country exploration of socio-digital ID systems in parts of Africa.* Research ICT Africa (case study). Retrieved March 20, 2024, from: https://researchictafrica.net/wp/wp-content/uploads/2021/11/Nigeria_31.10.21.pdf.

Oldekop, J. A., Horner, R., Hulme, D., Adhikari, R., Agarwal, B., Alford, M., Bakewell, O., Banks, N., Barrientos, S., Bastia, T., Bebbington, A. J., Das, U., Dimova, R., Duncombe, R., Enns, C., Fielding, D., Foster, C., Foster, T., Frederiksen, T., Gao, P., Gillespie, T., Heeks, R., Hickey, S., Hess, M., Jepson, N., Karamchedu, A., Kothari, U., Krishnan, A., Lavers, T., Mamman, A., Mitlin, D., Monazam Tabrizi, N., Müller, T. R., Nadvi, K., Pasquali, G., Pritchard, R., Pruce, K., Rees, C., Renken, J., Savoia, A., Schindler, S., Surmeier, A., Tampubolon, G., Tyce, M., Unnikrishnan, V., Zhang, Y. F. (2020). COVID-19 and the case for global development. *World Development, 134*(2020), 1-4.

Parikka, J. (2012). New Materialism as Media Theory: Medianatures and Dirty Matter. *Communication and Critical/Cultural Studies, 9*(1), 95–100.

Pearson, R., & Richardson, D. (2019). Insuring the Transatlantic Slave Trade. *The Journal of Economic History, 79*(2), 417–446.

Pelizzo, R., Kinyondo, A., & Nwokora, Z. (2018). Development in Africa. *World Affairs, 181*(3), 256–285.

Perrigo, B. (2013). *What to Know About Aadhaar, India's Biometric Identity System*. Time (news article). Retrieved September 26, 2022, from: https://time.com/5409604/india-aadhaar-supreme-court/.

Peters, J. D. (2015). *The Marvelous Clouds: Toward a Philosophy of Elemental Media*. Chicago: University of Chicago Press.

Peters, J. D. (2017). "You Mean My Whole Fallacy Is Wrong": On Technological Determinism. *Representations, 140*(Fall 2017), 10–26.

Phiri, C. (2020). *Minister Ronald Lamola appoints Justice Kate O'Regan as Coronavirus COVID-19 Designate Judge*. Department of Justice and Constitutional Development (press release). Retrieved May 17, 2022, from: https://www.gov.za/speeches/minister-ronald-lamola-appoints-justice-kate-o'regan-coronavirus-covid-19-designate-judge-3.

Pisa, M., Dixon, P., & Nwankwo, U. (2021). *Why Data Protection Matters for Development: The Case for Strengthening Inclusion and Regulatory Capacity*. Center for Global Development (report). Retrieved September 12, 2023, from:

https://www.cgdev.org/sites/default/files/why-data-protection-matters-for-development.pdf.

Pisa, M., & Nwankwo, U. (2021). *Are Current Models of Data Protection Fit for Purpose? Understanding the Consequences for Economic Development*. Center for Global Development (report). Retrieved September 12, 2023, from: https://www.cgdev.org/sites/default/files/are-current-models-data-protection-fit-purpose-understanding-consequences-economic.pdf.

Piton, F. (2021). Papers to ward off the threat: Identity cards, documentary uncertainty, and genocide in Rwanda. In S. A. Dalberto & R. Banégas (Eds.), *Identification and Citizenship in Africa: Biometrics, the Documentary State and Bureaucratic Writings of the Self*. London: Routledge. (pp. 144-159).

Plowright, D. (2011). *Using Mixed Methods: Frameworks for an Integrated Methodology*. London: Sage Publishing Ltd.

Praekelt.org. (n.d.). *COVID-19 Connect South Africa*. Praekelt (webpage). Retrieved April 25, 2022, from: https://www.praekelt.org/covid-19-response-in-sa.

Privacy International. (2022, September 6). *Letter from global CSOs to the World Bank.* Privacy International (webpage/letter). Retrieved September 27, 2022, from: https://www.unwantedwitness.org/download/Letter-from-global-CSOs-to-the-World-Bank.pdf.

Pule, N. (2021). *Digital Identity in Lesotho: Case study conducted as part of a ten-country exploration of socio-digital ID systems in parts of Africa.* Research ICT Africa (case study). Retrieved March 20, 2024, from: https://researchictafrica.net/wp/wp-content/uploads/2021/11/Lesotho_31.10.21.pdf.

Raign, C. (1992). Introduction: Cases of 'What is a case?' In C. Ragin & S. Becker (Eds.), *What is a case? Exploring the foundations of social inquiry*. Cambridge: Cambridge University Press. (pp. 1–15).

Ramaphosa, C. (2020a, November 11). *Statement by President Cyril Ramaphosa on progress in the national effort to contain the Covid-19 pandemic*. The Presidency (statement). Retrieved April 21, 2022, from: https://www.thepresidency.gov.za/speeches/statement-president-cyril-ramaphosa-progress-national-effort-contain-covid-19-pandemic%2C-union-buildings%2C-tshwane-3.

Ramaphosa, C. (2020b, July 12). *Statement by President Cyril Ramaphosa on progress in the national effort to contain the COVID-19 pandemic*. The Presidency (statement). Retrieved April 21, 2022, from: https://www.thepresidency.gov.za/speeches/statement-

president-cyril-ramaphosa-progress-national-effort-contain-covid-19-pandemic%2C-union-buildings%2C-tshwane.

Ramaphosa, C. (2020c, August 15). *Statement by President Cyril Ramaphosa on progress in the national effort to contain the Covid-19 pandemic*. The Presidency (statement). Retrieved April 21, 2022, from: https://www.thepresidency.gov.za/speeches/statement-president-cyril-ramaphosa-progress-national-effort-contain-covid-19-pandemic%2C-union-buildings%2C-tshwane-1.

Ramaphosa, C. (2020d, March 15). *Statement by President Cyril Ramaphosa and leaders of political parties represented in Parliament on the Coronavirus outbreak*. The Presidency (statement). Retrieved April 21, 2022, from: https://www.thepresidency.gov.za/press-statements/statement-president-cyril-ramaphosa-and-leaders-political-parties-represented.

Ramaphosa, C. (2020e, September 16). *Statement by President Cyril Ramaphosa on progress in the national effort to contain the COVID-19 pandemic*. The Presidency (statement). Retrieved April 21, 2022, from: https://www.thepresidency.gov.za/speeches/statement-president-cyril-ramaphosa-progress-national-effort-contain-covid-19-pandemic%2C-union-buildings%2C-tshwane-2.

Ramaphosa, C. (2020f, June 17). *Address by President Cyril Ramaphosa on South Africa's response to the coronavirus pandemic*. The Presidency (statement). Retrieved April 21, 2022, from: https://www.thepresidency.gov.za/speeches/address-president-cyril-ramaphosa-south-africa's-response-coronavirus-pandemic%2C-union-buildings%2C-tshwane-4.

Ramaphosa, C. (2020g, March 30). *Message by President Cyril Ramaphosa on COVID-19 pandemic.* The Presidency (statement). Retrieved April 21, 2022, from: https://www.thepresidency.gov.za/speeches/message-president-cyril-ramaphosa-covid-19-pandemic.

Ramaphosa, C. (2020h, April 9). *Message by President Cyril Ramaphosa on COVID-19 pandemic*. The Presidency (statement). Retrieved April 21, 2022, from: https://www.thepresidency.gov.za/speeches/message-president-cyril-ramaphosa-covid-19-pandemic-0.

Ramaphosa, C. (2021, February 28). *Statement by President Cyril Ramaphosa on progress in the national effort to contain the COVID-19 pandemic*. The Presidency (statement). Retrieved April 21, 2022, from: https://www.thepresidency.gov.za/speeches/statement-president-cyril-ramaphosa-progress-national-effort-contain-covid-19-pandemic-0.

Ramaphosa, C. (2022, April 4). *Statement by President Cyril Ramaphosa on the termination of the National State of Disaster in response to the Covid-19 pandemic*. The Presidency (statement). Retrieved April 21, 2022, from: https://www.thepresidency.gov.za/speeches/statement-president-cyril-ramaphosa-termination-national-state-disaster-response-covid-19-pandemic.

Ramírez, R., & Brodhead, D. (2013). *Utilization focused evaluation: A primer for evaluators*. Penang: Southbound.

Rappert, B. (2003). Technologies, Texts and Possibilities: A Reply to Hutchby. *Sociology, 37*(3), 565-580.

Razzano, G. (2020). *Digital Hegemonies for Covid-19 (Data and Pandemic Politics series).* Global Data Justice (paper). Retrieved September 12, 2023, from: https://globaldatajustice.org/gdj/188/.

Razzano, G. (2021). *Digital Identity in South Africa: case study conducted as part of a ten-country exploration of socio-digital ID systems in parts of Africa*. Research ICT Africa (report). Retrieved September 12, 2023, from: https://datacatalog.worldbank.org/dataset/identification-development-.

Razzano, G., Gillwald, A., Aguera, P., Ahmed, S., Calandro, E., Matanga, C., Rens, A., Van der Spuy, A. (2020). *SADC PF Discussion Paper: The Digital Economy and Society*. Research ICT Africa (paper). Retrieved September 12, 2023, from: https://researchictafrica.net/wp/wp-content/uploads/2020/11/digital-economy-report_04.pdf.

Research ICT Africa. (2020). *Digital Futures: South Africa's Digital Readiness for the "Fourth Industrial Revolution".* National Planning Commission: The Presidency of the Republic of South Africa (report). Retrieved September 12, 2023, from: https://researchictafrica.net/wp/wp-content/uploads/2021/01/021220_Digital-Futures_SAs-Digital-Readiness-for-4IR_01.pdf.

Reuters. (2021). *South African regulator seeking legal advice on WhatsApp's new privacy policy*. Reuters (article). Retrieved February 27, 2023, from: https://www.reuters.com/world/africa/south-african-regulator-seeking-legal-advice-whatsapps-new-privacy-policy-2021-05-13/.

Riesch, H. (2012). *Levels of Uncertainty*. In S. Roeser, R. Hillerbrand, P. Sandin, & M. Peterson (Eds.), Handbook of Risk Theory: Epistemology, Decision Theory, Ethics, and Social Implications of Risk. Dordrecht: Springer. (pp. 87-110).

Rist, G. (2014). *The History of Development: From Western Origins to Global Faith* (Fourth Ed.). London: Zed Books.

Roberts, T. (2019). *Digital Development: What's in a Name?* Appropriating Technology (blog). Retrieved February 23, 2024, from: https://appropriatingtechnology.org/digital-development-whats-in-a-name.

Roberts, T. & Bosch, T. (Eds.) (2023). *Digital Citizenship in Africa: Technologies of Agency and Repression.* Zed Books: London.

Roberts, T. & Bosch, T. (2023). *Introduction: Spaces of digital citizenship in Africa.* In T. Roberts., & T. Bosch (Eds.), Digital Citizenship in Africa: Technologies of Agency and Repression. Zed Books: London. (pp. 1-32).

Robeyns, I. (2005). The Capability Approach: a theoretical survey. *Journal of Human Development, 6*(1), 93-114.

Robinson, L. (2009). A taste for the necessary: A Bourdieuian approach to digital inequality. *Information, Communication & Society, 12*(4), 488–507.

Robinson, L., Cotten, S. R., Ono, H., Quan-Haase, A., Mesch, G., Chen, W., Schulz, J., Hale, T. M., Stern, M. J. (2015). Digital inequalities and why they matter. *Information, Communication & Society,* 18(5), 569–582.

Rodney, W. (1972). *How Europe Underdeveloped Africa*. London and Dar es Salaam: Tanzania Publishing House and Bogle-L Ouverture Publications.

Roeser, S., Hillerbrand, R., Sandin, P., & Peterson, M. (2012). *Handbook of Risk Theory: Epistemology, Decision Theory, Ethics, and Social Implications of Risk*. Dordrecht: Springer.

Rogers, E. (1976). *Communication and development: The passing of the dominant paradigm. Communication Research,* April 3, 213-240.

Romer, P. M. (1988). Endogenous Technological Change. *Journal of Political Economy, 5*(2), 71-102.

Romer, P. M. (1994). The Origins of Endogenous Growth. *The Journal of Economic Perspectives, 8*(1), 3–22.

Roos, A. (2016). Data Protection Law in South Africa. In A. B. Makulilo (Ed.), *African Data Privacy Laws*. New York: Springer International Publishing. (pp. 189–228).

Rupprecht, A. (2016). 'Inherent vice': marine insurance, slave ship rebellion and the law. *Race & Class, 57*(3), 31–44.

Saher, R., & Anjum, M. (2021). Role of technology in COVID-19 pandemic. In K. Hameed, S. Bhatia, & S. Ahmed (Eds.), *Researches and Applications of Artificial Intelligence to Mitigate Pandemics*. (pp. 109–138).

Schectman, J., Bing, C., & Stubbs, J. (2020). *Special Report: Cyber-intel firms pitch governments on spy tools to trace coronavirus*. Reuters (article). Retrieved May 4, 2022, from: https://www.reuters.com/article/us-health-coronavirus-spy-specialreport-idUSKCN22A2G1.

Scheerder, A. J., van Deursen, J. A. M., & van Dijk, A. G. M. (2019). Negative outcomes of Internet use: A qualitative analysis in the homes of families with different educational backgrounds. *The Information Society, 35*(5), 286–298.

Scheyvens, R.; Banks, G. & Hughes, E. (2016). The Private Sector and the SDGs: The Need to Move Beyond 'Business as Usual'. *Sustainable development, 24*, 371-382.

Schneier, B. (2009). *Beyond Security Theater*. Schneier on Security (blog). Retrieved January 17, 2023, from: https://www.schneier.com/essays/archives/2009/11/beyond_security_thea.html.

Schoemaker, E, Kirk, T., & Rutenberg, I. (2019). *Kenya's Identity Ecosystem*. Caribou Digital (report). Retrieved September 12, 2023, from: https://www.cariboudigital.net/wp-content/uploads/2019/10/Kenyas-Identity-Ecosystem.pdf.

Schoemaker, Emrys, Baslan, D., Pon, B., & Dell, N. (2021). Identity at the margins: data justice and refugee experiences with digital identity systems in Lebanon, Jordan, and Uganda. *Information Technology for Development, 27*(1), 13–36.

Schuurman, F. (1993). *Beyond the Impasse: New Directions in Development Theory*. London and New Jersey: ZED Books.

Schwab, K. (2016). *The Fourth Industrial Revolution: What it is, how to respond*. WEF (article). Retrieved September 12, 2023, from: https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/.

Scott-Villiers, P. (2004). Personal Change and Responsible Well-Being. In L. Groves & R. Hinton (Eds.), *Inclusive Aid: Changing Power and Relationships in International Development*. London: Earthscan. (pp. 199–209).

Scott, J. C. (1990). *A Matter of Record: Documentary Sources in Social Research*. London: Polity Press.

Scott, J. C. (2004). Types of Documents. In M. Lewis-Beck, A. Bryman, & T. F. Liao (Eds.), *The SAGE Encyclopedia of Social Science Research Methods*. Thousand Oaks: Sage Publishing Ltd. (pp. 281–284).

Section 27. (2020). *Privacy in the pandemic: the (mostly) untold story of digital contact tracing in South Africa.* YouTube (recording). Retrieved September 12, 2023, from: https://www.youtube.com/watch?v=v07lPzU6dOI.

Seery, E., Okanda, J., & Lawson, M. (2019). *A Tale of Two Continents: Fighting inequality in Africa*. Oxfam (briefing paper). Retrieved September 12, 2023, from: https://www-cdn.oxfam.org/s3fs-public/file_attachments/bp-tale-of-two-continents-fighting-inequality-africa-030919-en.pdf.

Sen, A. (1999). *Development as freedom*. Oxford: Oxford University Press.

Sen, Amartya. (2004). Dialogue capabilities, lists, and public reason: Continuing the conversation. *Feminist Economics, 10*(3), 77–80.

Serpa, S. & Ferreira, C.M. (2019). Micro, Meso and Macro Levels of Social Analysis. *International Journal of Social Science Studies*, *7*(3), 120-1234.

Servaes, J. (2003). *Approaches to development: studies on communication for development*. UNESCO (report). Retrieved September 12, 2023, from: https://unesdoc.unesco.org/ark:/48223/pf0000134647.

Sharon, T. (2021). Blind-sided by privacy? Digital contact tracing, the Apple/Google API and big tech's newfound role as global health policy makers. *Ethics and Information Technology*, 23(s1), 45–57.

Singer, N. (2014, May 18). *Never Forgetting a Face*. The New York Times (article). Retrieved September 23, 2022, from: https://www.nytimes.com/2014/05/18/technology/never-forgetting-a-face.html.

Skeggs, B. (2004). *Class, Self, Culture*. London: Routledge.

Skeggs, B. (2019). The forces that shape us: The entangled vine of gender, race and class. *Sociological Review, 67*(1), 28–35.

Smart Africa. (2020a). *Blueprint: Smart Africa Alliance – Digital Identity.* Smart Africa (policy). Retrieved September 13, 2023, from: https://smartafrica.org/wp-content/uploads/2020/12/BLUEPRINT-SMART-AFRICA-ALLIANCE-–-DIGITAL-IDENTITY-LayoutY.pdf.

Smart Africa. (2020b). *Emergency Call for Proposals: Digital Solutions for Governments to Tackle the Coronavirus (COVID-19) Pandemic in Africa*. Smart Africa (press release).

Retrieved September 13, 2023, from:
https://smartafrica.org/careers_archive/emergency-call-for-proposals-digital-solutions-for-governments-to-tackle-the-coronavirus-covid-19-pandemic-in-africa/.

Smart Africa. (2022). *About*. Smart Africa (webpage). Retrieved October 7, 2022, from: https://smartafrica.org.

Smuha, N. A. (2021). Beyond the Individual: Governing AI's Societal Harm. *Internet Policy Review, 10*(3), 1-32.

Souter, D. (2016a). *Inside the Information Society: A short history of ICT4D*. Association for Progressive Communications (blog). Retrieved March 21, 2023, from: https://www.apc.org/en/node/22236/.

Souter, D. (2016b). *Inside the Information Society: Assessing the impact of ICT4D.* Association for Progressive Communications (blog). Retrieved March 21, 2023, from: https://www.apc.org/en/node/22245/.

Souter, D. (2017). *Inside the Information Society: ICTs, SDGs and the future.* Association for Progressive Communications (blog). Retrieved March 21, 2023, from: https://www.apc.org/en/node/22456/.

Souter, D., & Van der Spuy, A. (2021). *Covid-19 Impact on E-Commerce: Global Report*. UNCTAD (report). Retrieved September 12, 2023, from: https://unctad.org/system/files/official-document/dtlstict2020d13_en.pdf.

South African Government. (2020, March). *Disaster Management Act: Regulations related to Covid-19*. Government Gazette (policy). Retrieved September 11, 2023, from: https://www.gov.za/sites/default/files/gcis_document/202003/4314825-3cogta.pdf.

South African Government (1996). *Constitution of the Republic of South Africa (No. 108 (1996)*. South African Government (policy). Retrieved February 22, 2022, from: https://www.gov.za/documents/constitution-republic-south-africa-1996.

Southwood, R. (2022). *Africa 2.0: Inside a continent's communications revolution*. Manchester: Manchester University Press.

State of the Nation. (2022). *State Capture Commission Report*. Republic of South Africa (report). Retrieved February 23, 2023, from: https://www.stateofthenation.gov.za/state-capture-commission-recommendations

Stats SA. (2020a). *GDP: Quantifying SA's economic performance in 2020.* Statistics South Africa (article). Retrieved March 27, 2023, from: https://www.statssa.gov.za/?p=14074.

Stats SA. (2020b). *Quarterly employment statistics (QES): June 2020*. Statistics South Africa (article). Retrieved September 12, 2023, from: https://www.statssa.gov.za/?p=13379.

Stewart, F. (2005). Groups and Capabilities. *Journal of Human Development, 6*(2), 185–204.

Stiglich, L., & Davis, M. (2022). *Experimentalism and the Fourth Industrial Revolution*. Open Data Institute (report). Retrieved September 12, 2023, from: https://www.theodi.org/wp-content/uploads/2022/12/ODI_Experimentalism-and-the-Fourth-Industrial-Revolution_Final-Report.pdf.

Stocker, V., Lehr, W., & Smaragdakis, G. (2023). COVID-19 and the Internet: Lessons Learned. In J. Whalley, V. Stocker, & W. Lehr (Eds.), *Beyond the Pandemic: Towards a Digitally Enabled Society and Economy*. Bingley: Emerald Publishing Limited. (pp. 17-70).

Sturgiss, E. A. & Clark, A. M. (2020). Using critical realism in primary care research: an overview of methods. *Family Practice, 37(1)*, 143-145.

Sulla, B., Zikhali, P., Cuevas, P. F. (2022). *Inequality in Southern Africa : An Assessment of the Southern African Customs Union*. World Bank (report). Retrieved October 25, 2022, from: https://documents1.worldbank.org/curated/en/099125303072236903/pdf/P1649270c02a1f06b0a3ae02e57eadd7a82.pdf.

Swierstra, T., & te Molder, H. (2012). Risk and Soft Impacts. In S. Roeser, R. Hillerbrand, P. Sandin, & M. Peterson (Eds.), *Handbook of Risk Theory: Epistemology, Decision Theory, Ethics, and Social Implications of Risk*. Dordrecht: Springer. (pp. 1049-1091).

Szreter, S., & Breckenridge, K. (2012). Editor's Introduction - Recognition and Registration: the Infrastructure of Personhood in World History. In K. Breckenridge & S. Szreter (Eds.), *Registration and Recognition: Proceedings of the British Academy*. Oxford: Oxford University Press. (pp. 1–36).

Tambini, D. (2019). *Reducing online harms through a differentiated duty of care.* FLJS (policy brief). Retrieved September 12, 2023, from: https://www.fljs.org/content/reducing-online-harms-through-differentiated-duty-care-response-online-harms-white-paper.

Taylor, L. (2017). What is data justice? The case for connecting digital rights and freedoms globally. *Big Data & Society, 4*(2), 1–17.

Taylor, L., & Broeders, D. (2015). In the name of Development: Power, profit and the datafication of the global South. *Geoforum, 64*(2015), 229–237.

Taylor, L., Floridi, L., & Van Der Sloot, B. (Eds.) (2017). *Group Privacy: New Challenges of Data Technologies*. Dordrecht: Springer.

Taylor, L., Sharma, G., Martin, A., & Jameson, S. (Eds.) (2020a). *Data Justice and Covid-19: Global Perspectives*. London: Meatspace Press.

Taylor, L., Sharma, G., Martin, A., & Jameson, S. (2020b). What does the Covid-19 response mean for global data justice? In L. Taylor, G. Sharma, A. Martin, & S. Jameson (Eds.), *Data Justice and Covid-19: Global Perspectives*. London: Meatspace Press. (pp. 8–19).

The Economist. (2000, May 13). *The hopeless continent*. The Economist (article). Retrieved October 7, 2022, from: https://www.economist.com/weeklyedition/2000-05-13.

The Guardian. (2020, April 10). *Confirmed worldwide Covid-19 death toll passes 100,000 – as it happened*. The Guardian (article). Retrieved April 25, 2022, from: https://www.theguardian.com/world/live/2020/apr/10/coronavirus-live-news-global-deaths-near-95000-as-boris-johnson-leaves-intensive-care?filterKeyEvents=false&page=with:block-5e90af5a8f08db3109f206f4#block-5e90af5a8f08db3109f206f4.

The Presidency, South Africa. (2021). *Report to the President of the Republic of South Africa: Investigation of the National Department of Health/Digital Vibes (Pty) Ltd contracts (Proclamation No R. 23 of 2020)*. Special Investigating Unit (report). Retrieved September 13, 2023, from: https://www.gov.za/sites/default/files/gcis_document/202201/final-consolidated-report.pdf.

The Presidency, South Africa. (2019, April 9). *President appoints Commission on Fourth Industrial Revolution*. The Presidency (press release). Retrieved September 13, 2023, from: https://www.thepresidency.gov.za/press-statements/president-appoints-commission-fourth-industrial-revolution.

Thiel, A. (2020). Biometric identification technologies and the Ghanaian 'data revolution'. *The Journal of Modern African Studies*, *58*(1), 115-136.

Thomas, G. (2011). A Typology for the Case Study in Social Science Following a Review of Definition, Discourse, and Structure. *Qualitative Inquiry, 17*(6), 471–567.

Tight, M. (2019). *Documentary Research in the Social Sciences*. London: Sage Publications Ltd.

Tisné, M. (2020). *The Data Delusion: protecting individual data isn't enough when the harm is collective*. Luminate (report). Retrieved September 13, 2023, from: https://luminategroup.com/storage/1023/The-Data-Delusion---July-2020.pdf.

Toyama, K. (2011). *Technology as amplifier in international development*. Proceedings from iConference '11, New York, 75-82.

Trikanad, S., & Bhandari, V. (2022). *Surveillance Enabling Identity Systems in Africa: Tracing the Fingerprints of Aadhaar.* Center for Internet & Society (report). Retrieved January 7, 2023, from: https://cis-india.org/internet-governance/surveillance-enabling-identity-systems-in-africa.

Tshabalala S. (2017, October). *South Africa in the fourth industrial revolution: A new opportunity to create more jobs and a better society*. Standard Bank (article). Retrieved September 17, 2022, from: https://corporateandinvestment.standardbank.com/CIB/About-us/Insights-Hub/South-Africa-in-the-fourth-industrial-revolution:--A-new-opportunity-to-create-more-jobs-and-a-better-society.

Tufte, T. (2017). *Communication and Social Change: A Citizen Perspective*. Cambridge: Polity.

Tyler, I. (2015). Classificatory Struggles: Class, Culture and Inequality in Neoliberal Times. *The Sociological Review, 63*(2), 493–511.

Tysoe, J., & Knott-Craig, A. (2020). *Connected: A brief history of global telecommunications.* Johannesburg: Bookstorm.

UN Broadband Commission for Sustainable Development. (2017). *Recommendations for Action: bridging the gender gap in Internet and broadband access and use*. Broadband Commission (report). Retrieved September 12, 2023, from: www.broadbandcommission.org/Documents/publications/WorkingGroupDigitalGenderDivide-report2017.pdf.

UNDP (n.d.). *What does the HDI measure?* UNDP (video). Retrieved 29 March 2023, from: https://hdr.undp.org/data-center/human-development-index#/indicies/HDI.

UN General Assembly. (2015). *Transforming our world: The 2030 Agenda for Sustainable Development (Resolution A/Res/70/1)*. UN Digital Library (policy). Retrieved September 12, 2023, from: http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E.

UN General Assembly. (2021). *UNHRC Resolution on the promotion, protection and enjoyment of human rights on the Internet.* UN Digital Library (resolution). Retrieved September 12, 2023, from: https://digitallibrary.un.org/record/3937534?ln=en.

UN Secretary-General High-level Panel on Digital Cooperation. (2019). *The age of digital interdependence*. UN Secretary-General (report). Retrieved September 12, 2023, from: https://digitalcooperation.org/wp-content/uploads/2019/06/DigitalCooperation-report-web-FINAL-1.pdf.

UN Secretary-General. (2019). *Roadmap for Financing the 2030 Agenda for Sustainable Development*. UN Secretary-General (report). Retrieved September 21, 2023, from: https://www.un.org/sustainabledevelopment/wp-content/uploads/2019/07/UN-SG-Roadmap-Financing-the-SDGs-July-2019.pdf.

UNDESA. (2020). *Compendium of Digital Government Initiatives in response to Covid-19*. UNDESA (report). Retrieved September 12, 2023, from: https://publicadministration.un.org/egovkb/Portals/egovkb/Documents/un/2020-Survey/UNDESA Compendium of Digital Government Initiatives in Response to the COVID-19 Pandemic.pdf.

UNHRC. (2020). *COVID-19: Exceptional measures should not be cover for human rights abuses and violations – Bachelet*. OHCHR (article). Retrieved March 27, 2023, from: https://www.ohchr.org/en/statements/2020/04/covid-19-exceptional-measures-should-not-be-cover-human-rights-abuses-and?LangID=E&NewsID=25828.

Unwin, T. (2007). No end to poverty. *Journal of Development Studies, 45*(3), 929-953.

Van der Spuy, A. (2017). *What if we all governed the Internet? Advancing Multistakeholder Participation in Internet Governance*. UNESCO (report). Retrieved April 22, 2023, from: https://en.unesco.org/sites/default/files/what_if_we_all_governed_internet_en.pdf.

Van der Spuy, A., Bhandari, V., Trikanad, S., & Paul, Y. T. (2021). *Towards the Evaluation of Socio-Digital ID Ecosystems in Africa: Comparative analysis of findings from ten country case studies*. Research ICT Africa (report). Retrieved September 8, 2023, from: https://researchictafrica.net/wp/wp-content/uploads/2021/11/Comparative-Report_5.11.21-2.pdf.

Van der Spuy, A., & Souter, D. (2018). *Women's Digital Inclusion: Background Paper for the G20*. Association for Progressive Communications (report). Retrieved September 3, 2023, from: https://www.apc.org/sites/default/files/WomensDigitalInclusion_BackgroundPaper.pdf.

van der Straaten, J. (2020). Identification for Development It Is Not: 'Inclusive and Trusted Digital ID Can Unlock Opportunities for the World's Most Vulnerable'- a Review. *SSRN Electronic Journal, 2020.*

van Deursen, J. A. M., & Helsper, E. J. (2015). The Third-Level Digital Divide: Who Benefits Most from Being Online? In L. Robinson, S. R. Cotten, J. Schulz, T. M. Hale, & A. Williams (Eds.), *Communication and Information Technologies Annual: Studies in Media and Communications.* Bingley: Emerald Publishing Limited. (pp. 29–52).

Van Deursen, J. A. M., & Helsper, E. J. (2018). Collateral benefits of Internet use: Explaining the diverse outcomes of engaging with the Internet. *New Media and Society, 20*(7), 2333–2351.

Van Deursen, J. A. M., Helsper, E. J., Eynon, R., & Van Dijk, A. G. M. (2017). The Compoundness and Sequentiality of Digital Inequality. *International Journal of Communication, 11*(2017), 452-473.

van Deursen, J. A. M., & van Dijk, A. G. M. (2019). The first-level digital divide shifts from inequalities in physical access to inequalities in material access. *New Media & Society, 21*(2), 354–375.

van Dijk, A. G. M. (2006). Digital divide research, achievements and shortcomings. *Poetics, 34*(4–5), 221–235.

Van Hoorn, I. (2008, June 11). *UN: 'Foreigners and South Africans can live together'*. The Mail & Guardian (article). Retrieved September 22, 2023, from: https://mg.co.za/article/2008-06-11-un-foreigners-and-south-africans-can-live-together/.

Van Loon, J. (2002). *Risk and Technological Culture: Towards a sociology of virulence*. London: Routledge.

Van Wyk, P., & Myburgh, P.-L. (2021). *Digital Vibes scandal: The story behind the story*. Daily Maverick (webinar). Retrieved April 22, 2022, from: https://www.dailymaverick.co.za/article/2021-10-19-digital-vibes-scandal-the-story-behind-the-story/.

Veale, M. (2020). Sovereignty, privacy and contact tracing protocols. In L. Taylor, G. Sharma, A. Martin, & S. Jameson (Eds.), *Data Justice and COVID-19: Global Perspectives*. London: Meatspace Press. (pp. 34–39).

Vennesson, P. (2008). Case studies and process tracing: theories and practices. In D. Della Porta & M. Keating (Eds.), *Approaches and Methodologies in the Social Sciences: A Pluralist Perspective.* Cambridge: Cambridge University Press. (pp. 223–239).

Voigt, E. (2020). *COVID-19: The trial and error of digital contact tracing in SA*. Spotlight (article). Retrieved April 20, 2022, from: https://www.spotlightnsp.co.za/2020/07/28/covid-19-the-trial-and-error-of-digital-contact-tracing-in-sa/.

Waisbord, S. (2017). Foreword. In T. Tufte (Ed.), *Communication and Social Change: A Citizen Perspective*. Cambridge: Polity Press.

Wang, H. Lo. (2020). *New York Health Departments Try To Fill Coronavirus Contact Tracing Jobs: Coronavirus Updates*. NPR (article). Retrieved February 22, 2023, from: https://www.npr.org/sections/coronavirus-live-updates/2020/05/08/852123327/wanted-in-new-york-thousands-of-covid-19-contact-tracers.

Ward, S. C., Bagley, C., Lumby, J., Hamilton, T., Woods, P., & Roberts, A. (2016). What is 'policy' and what is 'policy response'? An illustrative study of the implementation of the Leadership Standards for Social Justice in Scotland. *Educational Management Administration and Leadership, 44*(1), 43–56.

Warren, C. A. (2002). Qualitative Interviewing. In J. Gubrium, & J. A. Holstein (Ed.), *Handbook of interviewing research context and method*. London: Sage Publishing Ltd. (pp. 83–102).

WC Provincial Parliament. (2020). *Ad Hoc Committee on Covid-19: National Department of Health on Matters of Citizen Surveillance for COVID-19 Tracking and Tracing*. YouTube (recorded meeting). Retrieved April 27, 2022, from: https://www.youtube.com/watch?v=YMGbVLQgGZc.

WEF. (2020a). *Accelerating Digital Inclusion in the New Normal*. WEF (report). Retrieved September 12, 2023, from: http://www3.weforum.org/docs/WEF_Accelerating_Digital_Inclusion_in_the_New_Normal_Report_2020.pdf.

WEF. (2020b). *Critical Frontier: Leveraging Technology to Combat COVID-19*. WEF (report). Retrieved September 12, 2023, from: http://www3.weforum.org/docs/WEF_Critical_Frontier_Leveraging_Technology_Combat_COVID_19_2020.pdf.

Whitelaw, S., Mamas, M. A., Topol, E., & Van Spall, H. G. C. (2020). Applications of digital technology in COVID-19 pandemic planning and response. *The Lancet Digital Health, 2*(8), 435–440.

WHO. (2020a, March 11). *WHO Director-General's opening remarks at the media briefing on COVID-19*. WHO (press release). Retrieved April 25, 2022, from:

https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020.

WHO. (2020b, February 25). *A second COVID-19 case is confirmed in Africa*. WHO Regional Office for Africa (press release). Retrieved February 22, 2023, from: https://www.afro.who.int/news/second-covid-19-case-confirmed-africa.

WHO. (2020c, June 4). *Digital tools for COVID-19 contact tracing*. WHO (report). Retrieved February 22, 2023, from: https://www.who.int/publications/i/item/WHO-2019-nCoV-Contact_Tracing-Tools_Annex-2020.

Willems, W. (2021). Beyond platform-centrism and digital universalism: the relational affordances of mobile social media publics. *Information, Communication and Society*, *24*(12), 1677-1693.

Williams, R. (1985). *Towards 2000*. Harmondsworth: Penguin.

Williams, Renu. (2021*). Slain Gauteng health manager Babita Deokaran's sister shares heartfelt and angry letter about her murder*. Daily Maverick (article). Retrieved April 22, 2022, from: https://www.dailymaverick.co.za/article/2021-08-26-slain-gauteng-health-manager-babita-deokarans-sister-shares-heartfelt-and-angry-letter-about-her-murder/.

Willis, K. (2021). *Theories and Practices of Development (Third Edition).* London: Routledge.

Wiltshire, G., & Ronkainen, N. (2021). A realist approach to thematic analysis: making sense of qualitative data through experiential, inferential and dispositional themes. *Journal of Critical Realism, 20*(2), 159–180.

Wimmer, J., & Quandt, T. (2007). Living in the Risk Society: An interview with Ulrich Beck. *Journalism Studies, 7*(2), 336–347.

World Bank. (2016a). *ID4D Country Diagnostic: Nigeria*. World Bank (report). Retrieved September 12, 2023, from: https://documents1.worldbank.org/curated/en/136541489666581589/pdf/113567-REPL-Nigeria-ID4D-Diagnostics-Web.pdf.

World Bank. (2016b). *World Development Report 2016: Digital Dividends*. World Bank (report). Retrieved September 12, 2023, from: https://documents1.worldbank.org/curated/en/896971468194972881/pdf/102725-PUB-Replacement-PUBLIC.pdf.

World Bank. (2017). *Identification for Development: Africa Business Plan*. World Bank (report). Retrieved September 12, 2023, from:

http://documents.worldbank.org/curated/en/484791507732929415/Identification-for-Development-ID4D-Africa-business-plan-IDA-18-FY18-20.pdf.

World Bank. (2019a). *ID4D Practitioner' Guide (version 1.0)*. World Bank (report). Retrieved September 12, 2023, from: https://documents1.worldbank.org/curated/en/248371559325561562/pdf/ID4D-Practitioner-s-Guide.pdf.

World Bank. (2019b). *Inclusive and Trusted Digital ID Can Unlock Opportunities for the World's Most Vulnerable*. World Bank (article). Retrieved October 25, 2022, from: https://www.worldbank.org/en/news/immersive-story/2019/08/14/inclusive-and-trusted-digital-id-can-unlock-opportunities-for-the-worlds-most-vulnerable.

World Bank. (2022b). *Poverty Overview*. World Bank (article). Retrieved February 15, 2023, from: https://www.worldbank.org/en/topic/poverty/overview.

World Bank. (2023a). *Africa Overview*. World Bank (article). Retrieved February 15, 2023, from: https://www.worldbank.org/en/region/afr/overview.

World Bank. (2023b). *South Africa Overview.* World Bank (webpage). Retrieved February 20, 2023, from: https://www.worldbank.org/en/country/southafrica/overview.

WSIS. (2003). *Declaration of Principles (WSIS-03/GENEVA/DOC/4-E)*. ITU (policy). Retrieved September 13, 2023, from: https://www.itu.int/net/wsis/docs/geneva/official/dop.html.

Wymant, C., Ferretti, L., Tsallis, D., Charalambides, M., Abeler-Dörner, L., Bonsall, D., Hinch, R., Kendall, M., Milsom, L., Ayres, M., Holmes, C., Briers, M., & Fraser, C. (2021). The epidemiological impact of the NHS COVID-19 app. *Nature 594*(7863), 408–412.

Yeung, K. (2020). Instruments for pandemic governance. In L. Taylor, G. Sharma, A. Martin, & S. Jameson (Eds.), *Data Justice and Covid-19: Global Perspectives*. London: Meatspace Press. (pp. 50–57).

Yilma, K. (2022). African Union's Data Policy Framework and Data Protection in Africa. *Journal of Data Protection and Privacy, 5*(3).

Yin, R. (2018). *Case Study Research: Design and Methods (Sixth Edition)*. London: Sage Publishing Ltd.

Yoo, Y. (2013). Computing in Everyday Life: A Call for Research on Experiential Computing. *MIS Quarterly, 37*(2), 357–370.

Zahuranec, A. J., Chafetz, H., & Verhulst, S. (2023, February 10). *COVID isn't going anywhere, neither should our efforts to increase responsible access to data*. WEF (article) Retrieved March 12, 2023, from: https://www.weforum.org/agenda/2023/02/covid-data/.

Zheng, Y. & Walsham, G. (2011). Technology, capabilities and critical perspectives: What can critical theory contribute to Sen's capability approach? *Ethics and Information Technology, 13*(2), 69-80.

Zondo, R. (2022). *Commission of Inquiry into Allegations of State Capture*. Zondo Commission (report). Retrieved February 23, 2023, from: https://www.statecapture.org.za/site/information/reports.

Zuboff, S. (2015). Big other: Surveillance Capitalism and the Prospects of an Information Civilization. *Journal of Information Technology, 30*(1), 75–89.

Zuboff, S. (2019). *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power*. New York: Public Affairs.

APPENDIX I: Pilot interview guide for nested case

Initial protocol as tailored for a tech entrepreneur.

Introductory questions: What is being proposed?

1. Why did you design, finance and/or implement the product?
2. What does your project entail?
3. Can the problem be solved with non-digital interventions?
4. Where, when and how is your product being rolled out?
5. Who else is involved in this digital development intervention from a design, funding/financing, and/or implementation perspective?
6. Who is the intended audience for the product? If it is already implemented, who is using and not using it?
7. What challenges have you faced in designing, financing/funding, and/or implementing the product?
8. What does success look like for you (in terms of the product)?

Perception(s) of risk

9. What are the potential risks of the product at a design phase? What kinds of risks are they?
10. What are the potential risks of the product as far as financing or funding it is concerned? What kinds of risks are they?
11. What risks do you think could be introduced by the product while or after it is implemented? What kinds of risks are they? Is there a possibility of the product being used for purposes you did not intend for it to be used for?

Responses to risk

12. How have you prepared or planned for the potential for such risks or harms? If yes, how?
13. Did you undertake a cost-benefit analysis and/or risk assessment in developing the product?
14. What policies, rules, or regulations did you take into consideration in designing, developing and/or deploying the product?
15. What, do you think, are the rights and responsibilities you as a [insert specific position] have in designing, financing/funding and/or implementing the product?
16. Have you taken or do you plan to take specific actions to prevent negative outcomes? If yes, what are they?

The impact of resources – addressing risk

17. How have you used financial resources to respond to these risks?
18. How have you drawn on cultural networks to respond to these risks?
19. How have you drawn on your social identity and societal belonging to respond to these risks?
20. How do personal factors like psychological and physical well-being impact your response to these risks?
21. What role do you think these resources have played in assessing and responding to risks?

Assessing outcomes

22. What do you think is the likelihood of these risks being realised – i.e., of these risks turning into harms?
23. Who or what are such risks likely to impact?
24. Do you think some people might be more susceptible to negative outcomes? If yes, who?
25. Do non-users experience these risks? How and why?
26. How do you think your actions impacted the product's design, finance/funding, and/or deployment?
27. How do you think your actions impacted the success (or not) of the product?
28. How do you think your actions impacted whether or not users experience risk?
29. How do you think your actions impacted whether or not users experience harm?
30. What would you do differently in the future?

APPENDIX II: Interview protocol for nested case (rev)

This template was adapted for each stakeholder depending on background research into their organisation and positions. Explanatory notes are provided in italics below questions where needed, including to which SRQ a question is intended to elicit an answer (if any).

Q1. Could you tell me more about the intervention and how you became involved in it?

Note: this introductory question was asked to set the scene, to elicit background information about the respondent and their organisation, and to encourage the respondent to talk freely about what they know. It was also asked to provide background information for the empirical RQ in general.

Q2. What partnerships were involved in the development of the intervention?

Note: this question was asked to gain an understanding of digital development processes/practices in general, and to cast light on the empirical RQ in general.

Q3. What kinds of impacts, outcomes, or consequences do you hope or plan for the intervention to have? (Are these positive or negative?)

Note: this question was designed to provide information about the perceptions stakeholders have of both digital development processes/practices and the risks contained in them (SRQ1).

Q4. Can you imagine the possibility of uncertain or unintended outcomes (risk) arising from the intervention? What might these be?

Note: this question was included to gain more insights into stakeholders' perceptions and understanding of the risks that accompany digital development processes/practices in general (SRQ1).

Q5. Is the intervention aimed at a specific type of user or audience? If yes, can you tell me more about them or it?

Note: This question is aimed at understanding perceptions of the distribution of risks that accompany digital development processes/practices (SRQ2).

Q6. How do you think the intervention might affect the target audience's well-being? Why?

Note: This question is aimed at understanding perceptions of the distribution and management of risks that accompany digital development processes/practices, including digital development risks (SRQ2).

Q7. Are there some people or users who might be more likely to experience potentially positive or potentially negative consequences related to the intervention? If yes, who and why?

Note: This question is aimed at understanding perceptions of the distribution and management of risks that accompany digital development processes/practices (SR2).

Q8. What impact do you think the intervention might have more broadly, e.g., in the community or country?

Note: this question is aimed at understanding perceptions of risks that accompany digital development processes/practices in general (SRQ1) and the distribution/management of such risks (SRQ2).

Q9. Have you taken any actions to achieve positive outcomes or avoid risks pertaining to the intervention? If yes, what are they and were they successful, in your view?

Note: this question is aimed at understanding how stakeholders perceived of mitigation mechanisms and their own roles and responsibilities in responding to risks (SRQ2).

Q10. Were there any laws, policies, rules, or regulations you took into account in developing the intervention?

Note: this question is aimed at understanding how stakeholders perceived of mitigation mechanisms and their own roles and responsibilities in responding to risks (SRQ2).

Q11. In the future, what would you do different if developing another intervention?

Note: question is both included to elicit informal feedback which might be relevant to SRQ2, and to provide the respondent with adequate space for further discussion should they have more to say before the interview ends.

APPENDIX III: Interview protocol for nested case (example)

Example of adapted guide for a specific government employee.

Q1. Could you tell me more about the context and aspects of the Covid-19 pandemic you decided to respond to?

Q2. Could you explain why you wanted to develop a contact-tracing app?

Q3. Why did you decide to rely on and use Google/Apple's API?

Q4. How did the Discovery partnership come about? Did Discovery hand over the management of the app to the government (argued in Sept 2020 that it would do so in three months' time)? *Why the agreement for three months?*

Q5. What kinds of impacts, outcomes, or consequences do you hope or plan for CovidAlert SA to have?

Q6. Did you consider the possibility of uncertain or unintended outcomes (risk) arising from the app? What might these be?

Q7. Could CovidAlert SA and data gathered from it be used for other purposes in the future?

Q8. How many people use the app?

Q9. Was CovidAlert SA aimed at a specific type of user or audience? If yes, can you tell me more about them (or it)? The app is free – do you think everyone in SA can benefit from it?

Q10. How do you think CovidAlert SA might affect people's lives and opportunities? *Why?*

Q11. Are there some people or users who might be more likely to benefit from CovidAlert SA? *If yes, who and why? Are there some people or users who might be more likely to be harmed by the intervention? If yes, who and why?*

Q12. What impact do you think CovidAlert SA might have more broadly, e.g., in the community or country, in the a) short-term, b) medium-term, and c) long-term?

Q13. Have you taken any actions to achieve positive outcomes or avoid risks pertaining to CovidAlert SA? *If yes, what are they and have they been effective in achieving positive outcomes or avoiding risks?*

Q14. Were there any laws, policies, rules, or regulations you took into account in developing CovidAlert SA?

Q15. In the future, what would you do different if responding to a crisis like Covid-19?

APPENDIX IV: Interview protocol for overarching case

As for the nested case, this template was adapted for each interviewee, depending on their background and organisation. Explanatory notes are provided in italics below questions where needed, including which SRQ a question is intended to elicit an answer to (if any).

Q1. Could you share a brief bio, and how you landed up working in this space?

Note: this introductory question was asked to set the scene, to elicit background information about the respondent and their organisation, and to encourage the respondent to talk freely about what they know.

Q2. Your organisation has extensive experience in identification management in diverse locations. Is *digital* necessarily better when it comes to identification processes?

Note: this question was asked to gain a general understanding of the respondent's perceptions of digital development processes/practices (empirical RQ in general), coupled with the risk(s) associated with digitisation (SRQ2).

Q3. How do the digital responses your organisation proposes work to overcome entrenched analogue conditions – e.g., some populations simply do not want to be counted, or the legacy of colonial registration systems?

Note: this question was again asked to gain a general understanding of the respondent's perceptions of digital development processes/practices (empirical RQ in general), coupled with the risk(s) associated with digitisation (SRQ2).

Q4. Why does an organisation like yours work on digital ID?

Note: this question was asked to gain a general understanding of the respondent's perceptions of digital development processes/practices (empirical RQ in general).

Q5. How have the SDGs impacted the digital ID space on the continent? What are the other reasons for digital ID's popularity?

Note: this question was asked to gain a general understanding of the respondent's perceptions of digital development processes/practices (empirical RQ in general).

Q6. What is the demand on the ground for digital ID?

Note: this question was asked to examine how each respondent both understands digital development processes/practices in general (empirical RQ) and how their efforts to promote digital IDs might impact users (SRQ1).

Q7. Your organisation tends to promote the use of public-private partnerships for the delivery of digital IDs on the continent. What are the risks involved in these partnerships? How do you counter them?

Note: this question was asked to gain an understanding of digital development processes/practices in general, and to cast light on the overarching RQ, to understand perceptions of accompanying risks (SRQ1), and to examine how each respondent reflected upon their responsibility for mitigating these risks (SRQ2).

Q8. In your work, do you consider the possibility of uncertain or unintended outcomes (risk) arising from the choice and design of digital IDs? What might these be? How do you respond to them?

Note: This question is aimed at understanding perceptions of the distribution/management of the risks that accompany digital development processes/practices (SRQ2).

Q9. Do you consider whether some people or users might be more likely to benefit from/be harmed by digital IDs? If yes, who and why?

Note: This question is aimed at understanding perceptions of the distribution/management of the risks that accompany digital development processes/practices (SR2).

Q10. What do the NGOs and IGOs working in this space do in terms of risk assessment (beyond financial audits)?

Note: this question is aimed at understanding how stakeholders perceived of mitigation mechanisms and their own roles and responsibilities in responding to risks that accompany digital development processes/practices (SRQ2).

APPENDIX V: Interview protocol for overarching case (example)

This interview guide (which has been anonymised) was used to interview the director of a continent-wide advocacy organisation that promotes the use of digital ID on the continent.

Q1. I've read a lot about your history and work, but would you mind briefly telling me why it is that you find yourself in the digital ID space today?

Q2. How or why did you start [the organisation]?

Q3. How did your work evolve from facial recognition tech to promoting digital IDs?

Q4. Is *digital* necessarily better than analogue/paper?

Q5. In your experience, can digital responses overcome entrenched analogue conditions – e.g., some populations simply do not want to be counted?

Q6. What is the demand on the ground for digital ID?

Q7. We see a lot of reliance on digital technology to respond to and mitigate the impacts of the Covid-19 pandemic – from contact-tracing apps to vaccine passports. Is anything actually different or unusual here compared to the normal hype cycle of technology than what you have experienced in digital ID?

Q8. You've been in this somewhat niche field since it started. Has anything changed since the Sustainable Development Goals' recognition of the need for legal ID for all?

Q9. Who in your view sets the policy agenda pertaining to digital IDs on the continent?

Q10. How do development actors choose to prioritise certain things, like digital ID?

Q11. There seems to be opposing views about the potential of digital ID on the continent – some positive, some fatalistic. Why are there tensions?

Q12. Some organisations (including yours) promote the use of public-private partnerships for delivering digital ID. Why? Are there risks involved in these partnerships? How do you address them?

Q13. How do you feel about traditionally public sector tasks being outsourced to private sector?

Q14. In a *New York Times* piece you are quoted to argue that you think the industry still has to own up, step up to the plate, and accept responsibility for unexpected consequences. Could you elaborate?

Q15. What are the risks of digital ID being used for development on the continent?

Q16. Do you consider whether some people or users might be more likely to benefit from the intervention(s)? If yes, who and why? Are there some people or users who might be more likely to be harmed by the intervention? If yes, who and why?

Q17. Do you think development actors are doing enough to protect data subjects?

Q18. You mention in a paper that ID has become a commodity – and you also link it to concerns about surveillance capitalism. Why? How do these play into data colonialism/sovereignty concerns?

Q19. What does the future hold for digital ID in Africa? What are the trends?

APPENDIX VI: Consent form

STUDY: THE COLLATERAL IMPLICATIONS OF DIGITAL DEVELOPMENT EFFORTS

Anri van der Spuy
PhD candidate: Media and Communications, LSE

PARTICIPATION IN THIS RESEARCH STUDY IS VOLUNTARY

In the table below, please read each statement and circle 'YES' or 'NO' in the corresponding column.

I have read and understood the information sheet dated 12/01/21, or it has been read to me. I have been able to ask questions about the study and my questions have been answered to my satisfaction.	YES / NO
I consent voluntarily to be a participant in this study and understand that I can refuse to answer questions and that I can withdraw from the study at any time up until first publication of any results, without having to give a reason.	YES / NO
I agree to the interview being audio recorded.	YES / NO
I understand that the information I provide will be used for a dissertation and further research publications and that the information will be anonymised.	YES / NO
I agree that my (anonymised) information can be quoted in research outputs.	YES / NO
I agree that my real name can be used for quotes.	YES / NO
I understand that any personal information that can identify me – such as my name, address, will be kept confidential and not shared with anyone other than the researcher.	YES / NO
I give permission for the anonymised information I provide to be deposited in a data archive so that it may be used for future research.	YES / NO

Participant name:

Signature: _____ Date: _____

Interviewer name: Anri van der Spuy

Signature: _____ Date: _____

For more information, please contact: Anri van der Spuy (a.van-der-spuy@lse.ac.uk)

STUDY INFORMATION SHEET (12/01/2021)

Anri van der Spuy
Department of Media and Communications, London School of Economics and Political Science

Thank you for considering participating in this research, for which fieldwork is taking place between January 2021 and March 2022. This information sheet outlines the purpose of the study and provides a description of your involvement and rights as a participant.

WHY THIS RESEARCH IS BEING DONE?

This research investigates the ways in which people and organisations involved in processes of designing, developing and/or implementing information and communication technologies (ICTs) for development purposes evaluate, perceive, and respond to the opportunities and risks associated with such ICTs. The research will focus specifically on the case of digital interventions developed in response to COVID-19 in South Africa to gain a better understanding of how related digital development interventions might expose people to new, different and global opportunities and risks. The research will be conducted via interviews and documentary analysis methods, and the data be analysed narratively and thematically. The research is partly funded by Research ICT Africa, a non-profit think-tank based in Cape Town, South Africa.

IS PARTICIPATION VOLUNTARY?

Your participation in this research is completely voluntary. You may decline to answer any question for any reason. You may withdraw from the research at any time for any reason until publication. If you do decide to take part, you will be asked to sign a consent form, which you can sign and return in advance of the interview or sign at the meeting. If you withdraw from the study, I will not retain the information you have given thus far, unless you consent for me to do so.

WHAT IS INVOLVED IN PARTICIPATING?

If you choose to participate in this research, your participation will involve completing an interview with me (the researcher). The interview should take between thirty minutes and an hour. The interview topics include questions about you and your work pertaining to the development of a digital development intervention in response to COVID-19. I will use the collected data for my PhD project, as well as for a research project conducted by Research ICT Africa on data governance practices in African contexts. The data you provide may also be used in future examination of this research topic and may appear in other publications.

ARE RESPONSES CONFIDENTIAL?

I will keep a record of personal details, such as your name and job title. In transcripts of interviews or in any writing I produce, it may be useful to reference your name and job title, but this will be subject to your consent. You can see a copy of the draft research project if you so wish. The records from this study will be kept as confidential as possible. Only myself and my supervisors will have access to the files and any audio tapes. All digital files, transcripts and summaries will be given codes and stored separately from any names or other direct identification of participants. Any hard copies of research information will be kept in locked files at all times. You are free to refuse to take part or to withdraw at any time.

RISKS, DISCOMFORTS, AND BENEFITS

I have taken all reasonable steps to minimise the risks of this research. Even so, you might still experience some risks related to your participation, even when I am careful to avoid them. These risks may include some discomfort to you based on the nature of the information that you might share. If it happens to be the case, you may decline to answer any question for any reason at any time.

WHO HAS REVIEWED THIS APPROACH?

This study has undergone ethics review in accordance with the LSE Research Ethics Policy and Procedure.

DATA PROTECTION PRIVACY NOTICE

The LSE Research Privacy Policy can be found at:
https://info.lse.ac.uk/staff/divisions/Secretarys-Division/Assets/Documents/Information-Records-Management/Privacy-Notice-for-Research-v1.1.pdF.

The legal basis used to process your personal data will be legitimate interests. The legal basis used to process special category personal data (e.g., data that reveals racial or ethnic origin, political opinions, religious or philosophical beliefs, trade union membership, health, sex life or sexual orientation, genetic or biometric data) will be for scientific and historical research or statistical purposes.

To request a copy of the data held about you (if any), please contact:
glpd.info.rights@lse.ac.uk.

QUESTIONS OR COMPLAINTS?

If you have any questions about the study, you may direct them to me, Anri van der Spuy, PhD candidate, London School of Economics and Political Science (a.van-der-spuy@lse.ac.uk). If you have any concerns or complaints regarding the conduct of this research, please contact the LSE Research Governance Manager via research.ethics@lse.ac.uk.

If you are happy to take part in this study, please sign the consent sheet attached.