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Evolutionary Dynamics of New Media Forms: The Case of the Open Mobile Web

Indrek Ibrus

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Declaration

I confirm that the work presented in this thesis for the examination for the PhD degree of the London School of Economics and Political Science is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

Signature

Abstract

This thesis is designed to improve our understanding of the evolutionary dynamics of media forms, with a special historical focus on the recent processes of Web and mobile convergence and the early development of the cross-platform Web. It aims to investigate the dynamics that have underpinned the creation, evolution and conventionalisation of new media forms in the open mobile Web following the launch of 3G mobile networks.

In theoretical terms the thesis explores the possibilities for the analytical integration of evolutionary approaches that traditionally have shed light on the discrete components of the evolutionary 'ensemble' that comprises media's textual forms, their technologies and organisational systems. Among the theoretical pillars the study builds on is, first, the cultural semiotic approach (Lotman) that is utilised for interpreting the textual dynamics constituting the form evolution. Second, evolutionary economics (Schumpeter, Freeman and others) is included for interpreting the market dynamics that condition the formation of the media industries. Third, systems theoretical sociology (Luhmann) is deployed in order to understand the broader dynamics of social organisation in late modernism. The integration of these approaches provides the conceptual framework that focuses on the following phenomena: dialogic interchange among industry sub-systems as enabling innovations and the emergence of new sub-systems; the self-organisation of the sub-systems in the contingent environment; the role of memory and systemic 'path-dependencies' in guiding the processes of self-organisation; and the nature of the power relations that shape the dialogic processes.

The empirical study focuses on textual as well as organisational developments. The semiotic analysis of mobile websites reveals the intertextual relations of the new forms with other media domains, especially the desktop Web. The interviews with representatives of industry stakeholders provide insights into the dialogic practices between the parties engaged in designing the mobile Web, and how, via these practices, the new platform, its media forms and institutional structures were shaped. The findings point to the historical formation of two main industry sub-systems – 'infrastructure enablers' and content providers – with different preferred alternatives for the design of the cross-platform Web. The thesis demonstrates how the formation of these groups was conditioned by their systemic path-dependencies, but also by the mesh of dialogic relationships among them and by the resulting changes in the discursive constellations framing the organisation of the industry and the norms for its media forms. The study points to the first signs of the historically momentous emancipation of the mobile Web-media forms, their shaking free of path-dependency on the desktop Web.

Acknowledgements

The general sentiment of this thesis is that 'history matters' – the work we do builds on previous work done and it is the dialogical contacts with many others, their insights and knowledge that guide us along our chosen paths. Hence, I need to acknowledge the valuable guidance by several people who have, perhaps unintentionally, shaped my academic path, my interests and choices, in some cases long before this work was formally started. In this light, I am grateful for the care and guidance I received as an undergraduate student at the University of Tartu, Estonia, from Peeter Vihalemm and Marju Lauristin, then professors at the journalism department. I am thankful also to Peeter Torop, professor of semiotics at the same institution for opening the gates to the path and issues I am still dwelling on. More immediately, it was my Master's studies at the University of Oslo that helped me address the range of questions that I later took with me to the London School of Economics and Political Science (LSE). The guidance I got there from professors Terje Rasmussen and Gunnar Liestøl as well as from Anders Fagerjord was crucial for starting my work towards the conceptual framework presented in this thesis.

However, all this work was only of a preparatory nature for this thesis. Once I enrolled as a PhD student at LSE my work here has relied so much on the help and guidance from the faculty of the media and communications department. Firstly, there are not enough words to express my gratitude to Professor Robin Mansell, my supervisor. She has been educating me, she has been encouraging me, she has been pushing me. She has also constrained me when needed. She opened many new conceptual doors for me, but also pointed to the need to be careful with opening too many – interdisciplinarity borders with superficiality. All her advice on managing one's life in academia will continue to be the 'handbook' of my further academic life.

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Contents

List of acronyms

1G	first-generation wireless telecommunications technology
2G	second-generation wireless telecommunications technology
3G	third-generation wireless telecommunications technology
ACS	acceleration and compression system
AJAX	asynchronous JavaScript and XML
AMPS	advanced mobile phone system
API	application programming interface
B2C	business-to-consumer
BPWG	Best Practices Working Group
CDMA	code division multiple access
CEPT	European Conference of Postal and Telecommunications Administrations
cHTML	compact HTML
CMS	content management system
CSS	cascading style sheets
DDWG	Device Description Working Group
DIAL	device-independent authoring language
DIWG	Device Independence Working Group
EC	European Commission
ETSI	European Telecommunications Standards Institute
GAP	global authoring practices for the mobile Web
GPRS	General Packet Radio Service
GSM	global system for mobile communications
GUI	graphical user interface
HSDPA	high-speed downlink packet access
HTML	hypertext mark-up language
HCI	human-computer interaction
HTTP	Hypertext Transfer Protocol
ICANN	Internet Corporation for Assigned Names and Numbers
ICT	information and communication technology
IMS	IP Multimedia Sub-system
IMT-2000	International Mobile Telecommunications-2000
IP	Internet Protocol
IPR	intellectual property right
IPTV	Internet Protocol television
ISP	Internet service provider
IT	information technology
ITU	International Telecommunication Union
KPI	key performance indicator
LCD	liquid crystal display
OECD	Organisation for Economic Co-operation and Development
OMA	Open Mobile Alliance
MB	megabyte
MEF	Mobile Entertainment Forum
MMA	Mobile Marketing Association
MMF	Mobile Marketing Forum
MPHPT	Ministry of Public Management, Home Affairs, Posts and Telecommunications, Japan

MWI	Mobile Web Initiative
MWBP	Mobile Web Best Practices
Ni-MH	nickel metal hydride
NMT	Nordic Mobile Telephone
PC	personal computer
PDA	personal digital assistant
PTT	Post, Telegraph and Telephone (Telecommunications) (historical incumbent operator in a country)
R&D	research and development
SMS	short message service
SNS	social network service
SSR	small-screen rendering
TAMS	text analysis mark-up system
TCP	Transmission Control Protocol
TDMA	time division multiple access
TLD	top-level domain
UK	United Kingdom
UMTS	universal mobile telecommunications system
URL	uniform resource locator
URI	uniform resource identifier
US	United States
USP	unique selling proposition
UTRA	UMTS terrestrial radio access
VGA	video graphics array
W3C	World Wide Web Consortium
WAP	Wireless Application Protocol
W-CDMA	wideband code division multiple access
WML	wireless mark-up language
WURFL	wireless universal resource file
XDIME	XHTML with device-independent mark-up extensions
XHTML	extensible hypertext mark-up language
XHTML MP	XHTML Mobile Profile
XML	extensible mark-up language

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1 Introduction

1.1 Introduction

This chapter provides an introduction to the study of the evolutionary dynamics of new media forms. It focuses on a particular historical case study, the opening up of the mobile platform to the 'big Web', a move that affected the process of convergence between the two platforms. It introduces the core agenda and motivations for the study, demonstrating the pressing immediacy of the issue – the rapid ongoing development of the mobile accessible Web – and connects it to the research agenda established by Raymond Williams more than 30 years ago: that is, the study of the institutional shaping of our current media, its forms and technologies. For, as is shown in this study, it is the early decisions made about the design of our media that shape the future of these media. This chapter establishes the primary motivation for this thesis: to study how, by whom and for whom innovations in the new media field are negotiated and what the alternatives have been for the design of the new media. At the end of the chapter the central research questions for the study are introduced and the structure of the thesis outlined.

1.2 The pressing immediacy to study the historical emergence of the mobile Web

This thesis aims at investigating the evolutionary dynamics of new media forms by working towards developing an interdisciplinary approach for studying the parallel and interdependent evolutions in media forms, technology, the economy and the organisational settings of the media and communications industries. In order to do so, the focus is on a particular empirical case – the early evolution of the media forms developed for the mobile Web, a new media platform that, especially after the development of the 3G (third-generation wireless telecommunications technology) mobile network in the mid-2000s, has experienced rapid growth and development.

One of the first studies to have a similar research focus was Raymond Williams' (1974) work on the early evolution of the forms and technologies of television – on the associated contingencies, indeterminacies and social struggles underpinning these (Freedman, 2002). As noted by Roger Silverstone (2003: xii) in the preface to a new edition of Williams' 1974 book, the then nascent technological world with which Williams engaged especially at the end of his book (cable delivery systems, recordable

video, home video, satellite transmission and reactive and interactive devices) was at that point institutionally unformed. Some formations could, in the case of television,

> ... lower the price of entry so that producers outside the mainstream could begin to offer alternative programming: some could provide an opportunity for communities to communicate amongst themselves; others could give consumers more choice over their programming. But equally all could be captured by dominant interests, in which communities became fronts for commercial interests, interaction was constrained by those who control the gateways, and the internationalisation of media content, and the capacity of small producers to reach wider audiences, just as equally overwhelmed by programme-dumping transnational media conglomerates. (Silverstone, 2003: xii)

As Silverstone suggests, the situation was contingent for the evolution of the medium of television as a technology and a cultural form. And so it would be again with yet another new medium – the mobile Web. Silverstone suggests that in 1974 Williams asked his readers to acknowledge the immediacy of the situation and the significance of decisions taken then to form the television medium. I propose that it is time to ask the next generation of his readers to do the same thing – with the emerging media including the Internet technologies and their cultural forms. This thesis, in its motivations, acknowledges that reccurring immediacy, and is responsive to the research agenda established by Williams three decades ago.

This new immediacy has been apparent since at least 2004 when the first 3G mobile networks were launched and the operators started to market intensely a penumbra of data services, including those for browsing Internet content on mobile phones. The industry's motivation has been apparent: 'With four billion connected mobile phones on the planet – compared to one billion PCs – handhelds offer developers the mother of all opportunities: ubiquity and mass market' (Clarke, 2009).

The customers' responses to the industry's activities have generally been favourable. M:Metrics' (2006) study conducted in December 2005 (six months before the empirical research for this study began) demonstrated that, despite 3G users accounting at that point for a low percentage of mobile phone users overall in the UK and Germany, they were five times more likely to use the nascent multimedia capabilities of handsets, including 'retrieving news and information via browser'. At that point the market was focused on applications like recording, viewing and sending videos, texting or downloading games, ringtones or wallpapers, while browsing the Internet commanded less attention. A year later, when the field research for this study

was well underway, the focus had changed notably – another study by the same company now focused firmly on mobile browsing, reporting again that the growing adoption of 3G handsets had spurred the adoption of mobile data services (M:Metrics, 2007). And despite the fact that over this 12-month period those using their phones to browse 'news/information' had grown by only 0.7% in the UK, more recent growth has been explosive.

Opera, the leading mobile browser vendor, has reported that the number of page views via its Opera Mini browser has been growing on average by 10% on month-on-month comparisons (see Opera Software, 2009). Annual growth in 2006 was 1,270%, and in the following years, respectively, 352%, 424% and 308%. A similar growth rate is projected to continue – another survey from Nielsen (see Tellabs, 2009) in early 2009 suggested that 58% of US consumers and 55% of European users who already accessed data services planned to increase their usage over the next two years. Among non-users, 27% of US consumers and 28% of Europeans were planning to start using the mobile data services (Forrester, 2009).

The rapid growth in user take-up has been translating into growth in the industry's revenues. In 2007 when the empirical research for this study was taking place, the European Union's (EU) mobile data market grew by 40% (GSM Association, 2008). In 2008, data revenues accounted for over 20% of all global service revenues of the operators (Sharma, 2008)[1]. In 2009 the global data services market (excluding the hugely popular messaging market) was estimated to grow by 26.2%[2] (iSuppli, 2009). The rapid take-up of data subscriptions and their market growth started to spill over to 'neighbouring' market segments. As stated by Nielsen Mobile in Summer 2008, the mobile Internet in terms of user take-up had reached a critical mass as an advertising medium (Nielsen Mobile, 2008). This was widely recognised as evidenced by the surfacing of several new ad-networks specialised for the mobile Web (AdMob, AdWhirl, JumpTap, Millennial Media, Quattro Wireless, etc.). AdMob, one of the leading such networks,[3] reported that the number of monthly ad requests in their network almost tripled in the course of 2008 (Admob, 2009)[4].

Such growth in advertising income has been animating the content industry. As

[1] For the first half of 2009 that number increased by 5% (Sharma, 2009). For the leading operators, data services were contributing 40% of the overall revenues.
[2] To reach US$87.7 billion and approximately US$188 billion by 2013.
[3] In November 2009 AdMob was announced to have been bought by Google.
[4] According to Juniper Research (Holden, 2009) the sharp increase in mobile Internet ad spend was about to translate into US$500 million globally for 2009 and was expected to rise to US$2 billion per annum by 2014.

reported in industry accounts (Kiss, 2008), there was 'fresh excitement' and activity in the online publishing sector regarding the mobile output: in 2007 only 44% of the UK publishers were producing content for mobiles but that had risen to 66% by April 2008. Competition was fiercest among the social networking providers – relating to the explosive popularity of their new mobile websites among the mobile users. The number of users in the US who accessed social network sites (SNS) on their mobile on a daily basis increased by 427% in 2008 (comScore, 2009a). According to Facebook's public announcements (see Chang, 2008; Cutler & Krzykowski, 2009) the number of users who log in to their service at least once a month grew from five million in January 2008 to 65 million in August 2009 – 13 times greater in 20 months. Access to SNS while on the move was seen as the main driver for subscribing to the mobile Web (Mobile Entertainment Forum, 2009)[5].

In this context it is interesting to consider how the popularity of social networking started to influence the device design. In August 2009, 18% of young adults in the US were reported to cite social media features as the most important factor when deciding what phone to buy (VerticalNews, 2009). Mobile operators like 3 in the UK or handset vendors such as INQ responded by developing special Facebook or Twitter phones – devices that had the respective feeds as a default on the home screen and the chatting function made prominent. Other industry sections responded by cooperating to create a new gadget category – the always-connected mobile broadband device (see mocoNews, 2008). In other words, particular forms of content and their usage practices started to affect new technologies and device designs in this time period. The emerging focus on social media was generally seen as reviving the 'flagging equipment market', including the then struggling base station market. As Mike Roberts, a principal analyst at Informa, put it:

> The mobile industry is still largely structured around its key product to date, narrowband voice, but that structure is breaking down fast due to the boom in mobile data traffic. The rapid transition from voice to data traffic will lead to a fundamental overhaul of mobile networks, as mobile operators and vendors shift their focus from voice to the mobile broadband internet. This

[5] According to comScore (2009b) a third of European mobile social networkers did not access anything else from their mobiles except their favourite SNS. According to Opera Software (2008a) 40% of mobile traffic worldwide was to social networks in the first quarter of 2008. However, as reported by many (ABI Research, 2008; Reedy, 2008; BBC News, 2009), as time went by the mobile space became increasingly dominated by contenders that had a preceding fixed-Internet presence – Facebook, MySpace, Twitter topping the lists and passing in popularity the mobile-only SNS. This tendency indicates the increasing dominance of cross-platform content production as compared to single-platform strategies.

> in turn will help drive a wider overhaul of mobile business models and strategy. (cited in Middleton, 2008)

It is because of these contingencies, the things that could happen and the immediacy of the need to understand the associated risks and potentials that the early evolution of the open mobile Web was chosen as a case study for this thesis.

1.3 Premise: Internet as an 'ensemble' in motion

These examples and the data and quotations above help us to appreciate a complex recent dynamic that has shaped how the media and its technology are evolving. We see how the networks appear to have conditioned user behaviour, how new usage patterns affected new business models and forms of content and how these pushed for new investments in networks and in new kinds of devices. We need to understand, first, the interdependencies in the ongoing evolution of the mobile Web that have been establishing its further trajectories of development. And second, that the development of the 'mobile Web' is, in one way or another, part of the broader evolution of the Internet. This evolution, then, consists of the infinite amount of such micro-interdependencies. The Internet, far from being a 'single medium which sprung fully formed into our lives' (Lievrouw & Livingstone, 2002), is instead an indefinite compilation of technologies and forms of media and communication that all continue to evolve. All its sub-particles as well as the Internet as a whole, like all other innovations, are undergoing a lengthy and highly social process of research, development, design and redesign, hand-in-hand with the co-construction of a 'market', its 'needs' and its institutions (Livingstone, 2005: 18; Mansell & Silverstone, 1996b).

In this context I borrow the definition of 'new media' proposed by Lievrouw and Livingstone (2002: 7) for whom the concept consists of the following triad:

- artefacts or devices that enable and extend our abilities to communicate;
- communication activities or practices we engage in to develop and use these devices;
- social arrangements or organisations that form around the devices and practices.

They emphasise that the three elements are inextricable and mutually determining, making up an 'ensemble' (see also Bijker, 1995). Elsewhere (Lievrouw & Livingstone, 2009), when summarising the state of the art in new media studies, they stress that a move away from accounts of linear relationships between production, text and audience

is what has, justifiably, characterised new media studies. In line with general theories of mediation (see Silverstone, 2000; Livingstone, 2009) they posit that it is the dynamic links and interdependencies among the artefacts, practices and organisations, the multiple, concurrent consideration of all elements of the new media infrastructure as an ensemble, that the focus of both theory and method development in new media studies should continue to move towards. It is a suggestion that this thesis will investigate and build on.

Another important characteristic of new media, emphasised by Lievrouw and Livingstone (2002: 8) that this study brings into special focus, is the 'recombinant' nature of modern new media. This is related to the phenomenon discussed above – the complexity of their evolution. If the different particles of the 'Internet' are constantly innovated by a considerable variety of actors then this process, to a large extent, can be understood as consisting of recombining existing and past technologies, media forms and knowledge. This characteristic of new media development has been addressed and analysed within textually oriented (post-structuralist) new media studies, as evidenced by the surfacing of concepts such as 'remediation' that, as indicated by Bolter and Grusin, refers to the 'mediation of mediation'. They argue that in the modern new media context each act of mediation depends on other acts of mediation. 'Media are continually commenting on, reproducing, and replacing each other, and this process is integral to media. Media need each other in order to function as media at all' (Bolter & Grusin, 1999: 55). How such 'remediating', the recombinant repurposing of the forms of previous media to create new forms of media, has been taking place during the historical lineage of media evolution is also of interest in another approach – media archaeology (Huhtamo, 1994, 1995, 1997, 2004; Kittler, 1990, 1999; Zielinski, 1996, 1999, 2006). This thesis builds on these approaches in the theoretical development for this study and, by building additionally on the semiotics of Yuri Lotman, Umberto Eco, Charles S. Peirce, Gunther Kress, Theo van Leeuwen and others, the aim is to take another step in the conceptualisation of the textual evolution of media forms. In abstract terms, the matter that this thesis takes up is that if 'media are mediating each other' and new media tend to remediate the previous ones, then when are they different media and when, through their intermediations, do they become an ultimately indistinguishable textual entity/space/form/platform? Will they converge to implode at some point, in Baudrillardian (1983) terms? And if not, who then draws the boundaries between them and why? If a new medium/form is designed, then we should not acquiesce to statements like 'media remediates', but instead ask why is it designed to remediate in a

particular way. Another way of putting this – to bring in the theoretical language introduced in detail later in Chapter 3 – is to ask what its conventionalisation and emancipation into a new and independent medium with its own norms, characteristic forms and systems of governance (when it supposedly ceases to remediate and starts only to mediate) depends on? These, in the case of the nascent mobile Web, are some of the themes for this thesis to explore.

Another important starting point for this work is the proposition that the complex of textual, technological and social interdependencies is not approachable through visions of singular disciplines and, therefore, a multidisciplinary perspective is required (Mansell & Silverstone, 1996a: 1). Since the aim of this thesis is to study how the new media forms are designed by specific actors in specific circumstances in the social environment, there is, therefore, a need for the integration of different disciplinary perspectives that have traditionally been used to shed light on discrete components of this 'ensemble' of forms, actors and systems of social organisation. It is for this reason that this thesis will offer an integrated use of a varied set of disciplinary approaches – semiotics for interpreting the textual dynamics inherent in form evolution in cultures; the economics of innovation studies for understanding the market dynamics that condition the formation of the modern media and communications industries in late capitalism; and systems theoretical sociology to understand the broader dynamics of social organisation in late modernism. The choice of particular approaches and the omission of others is justified and explained in detail later in Chapter 3.

1.4 Agenda for the study

As maintained by Mansell (1996: 17), perceptions of what constitutes an advance in technical and institutional systems have increasingly been understood as the result of the evolution of socio-economic and technical systems through both discourse and practice. These discourses and practices could be understood as interdependent since the discourses establish the rules and norms for the practices and the latter, in turn, constrain reality for the first. But both of them, in their interdependence, are changed as a result of dialogic interactions, of discursive interchange between societal sub-systems. It is for this reason that in Chapter 3 dialogic interactions are presented as central for the conceptual framework of this thesis. But as will be shown, this is not only for their role in facilitating knowledge exchange and in conditioning innovations and the dynamic

that takes societies into evolutionary flux, but also for enabling the conduct of power and the resulting mechanics of control.

> These dialogues result in the selection of alternative values that become embedded in the technical systems. When this is acknowledged, we can begin to understand how the accumulation of these choices affects the way social and technical systems interact. The results of research of this kind can help us to imagine alternatives to the guiding principles that are shaping our mediated experience and that otherwise may be regarded as 'facts' – that is, unalterable features of the digital technological regime. (Mansell, 2002)

The research agenda proposed in this quotation provides the guiding principle that this thesis subscribes to. What this also implies is that despite the mix of disciplinary theories and methods – that is, a substantial focus on the methods and analytics of semiotics and cultural studies and their integration with perspectives drawn from the economics of innovation studies – in many regards, the core research agenda of this thesis is inherited from a strand of work in the tradition of the political economy of the media. It is the agenda for the political economy of the new media as suggested by Mansell (2004) that this thesis is responsive to. Concerned about the 'unproblematic' pluralist takes on new media development, she proposes a set of 'most important' questions for future studies of the new media, two of which are important in providing the motivation for this thesis (see Mansell, 2004: 103).

- How is technological innovation in the new media field being structured; by whom and for whom is it being negotiated?

- What are the alternatives?

The first of these relates directly to the empirical research presented in this thesis, the second, to its analytical outcomes – the historical significance of this study for understanding the future development of the mobile (or rather, the ubiquitous and cross-platform) Web. The first of these questions is in accord with what I indicated above as the first premise of this thesis – the complexity of the interdependencies between an indefinite number of actors that constitute media evolution. This presumed complexity points to a need to assess at as many historical instances as is feasible what the realistic scope for choice available to the producers of media and its technologies has been, what the degrees of freedom available to them have been to mould the vast technological

system encompassed by past, present and future generations of information and communication technologies (ICTs) and their institutional settings (Mansell & Silverstone, 1996a: 3). The discontinuities resulting from the shifting tectonic plates of the global information and communication economy, together with related changes in the interactions of different industries, of production and consumption, of state and market, of local and global interests, has been suggested (Silverstone & Mansell, 1996: 213-14) to produce uncertainty and conflict among all the stakeholders that participate in the media development and design processes. As a result, their capabilities to participate in the media design, in the related negotiations or practices of production, tend to be in flux – in some cases, depending on associated power relations such that the scope for manoeuvre may be great, while in others, it might be slight (Mansell & Silverstone, 1996a: 6).

Insofar as I am interested in studying the recent evolution of the mobile Web and its media forms, my focus must be on the transformation in the capabilities of the various stakeholders, institutions and individuals to engage in the design of media and its technologies and in establishing the rules of conduct that govern the innovation process in this sector. For this reason, this thesis focuses on the power relationships that can be shown to condition the (interdependent) changes in institutional, technical and textual boundaries. However, it should be emphasised that when I am referring to the complexity of social relationships that guide the evolution of media and their technologies, or when I am talking about the flux of these relationships and about the always limited freedoms of different actors, this should not imply that these relationships are, at any point in time, equal in terms of the power that the different actors hold or in terms of how much control they can, comparatively, exercise over the processes of designing and governing the media and their technologies. Although it may be agreed that the power that is held is always contested and that the loci of control are constantly shifting (Silverstone & Mansell, 1996: 214), still, these loci are perceptibly shifting towards those who control the standardising of software code and the codifying of practices and conduct. If we assume that the negotiations that lead to the standards for media technologies are underpinned by power relations in society and industry, this is likely to influence the selection of values that become embedded in the technical systems of the media. The designs of media, their forms and technologies, will likely favour certain forms of social organisation, cementing the position of those in control and reproducing existing social inequalities and conditions of scarcity through, for instance, the use of copyright, controlling access, bundling services, ‘walling off’

electronic spaces through the use of payment systems or by favouring some kinds of new media over others (Mansell, 2004: 98). Therefore, among the aims of this thesis is to investigate in which ways, in the case of the early development of the mobile Web, the different stakeholders have exercised their power to arrive at their favoured design for this evolving platform, and how the structuring of the mobile Web has been informed by various dominant and alternative principles, values and power relations.

There have been a few studies with similar mission statements, but they are mainly focused on the processes of fixed-Web development and standardisation. Galloway (2004, 2006a, 2006b; Galloway & Thacker, 2007), for example, has developed a 'cultural studies' approach to analysis of the way power underpins the structuring of Internet Protocols (IPs) in ways that, he argues, have yielded, not technologies of freedom, but rather technologies of control. Lovink (2003: 330-46) has argued that after a short period during the mid-1990s, a 'massification of the net' set in, involving its commodification. He has illustrated how the battle for an open or closed (i.e., privately controlled) Internet has been fought on the level of software and network architecture, and pointed to standardisation bodies being the main arenas for this fight.

> Step by step we are approaching the final battle of the 'War on Standards'. With the age of web pioneers and visionaries declared history, and the net going through its phase of massification and speculation, we are approaching the next stage – codification – with a few corporations and governments left as final players. (Lovink, 2003: 340)

His argument that the World Wide Web Consortium (W3C, the primary arena for the standardisation of the Web platform and its technologies) has not been effective in maintaining its (untrue) image as a neutral ground for negotiating standards is complemented by Salter's (2005: 305) analysis of how the capitalist property relations have colonised the Web and have led to the industry's dominant position in standardisation in the W3C. Salter suggests that it is through the inclusion of democratic structures and civil society in the consortium that code and standards could be arrived at that reflect not only concerns about profit and specific commercial interests, but also encode other values, such as the public good and cultural integrity. Halpin (2008) suggests that the most immediate problem is the struggle to keep the non-hierarchical and non-centred structure of the Web open, universal and free so as to enable the spread of new revolutionary forms of culture and societal organisation.

These and similar concerns are the relevant motivations for this thesis and signpost the themes to be addressed. With the 'regular Web' being extended to the mobile domain and being converged with the specific institutional legacies and ambitions of the mobile telecommunications sector, these matters are relevant to cross-platform output, and their importance could become amplified. Starting with users being 'locked in' to specific operators, their bundles and devices, content being 'walled in' to operators' portals, 'app-stores' (content markets) being controlled by specific device vendors and extending to technologies like IMS (IP Multimedia Sub-system) which, despite the fierce fights around 'net neutrality' in the fixed-net seems ready to evolve in the 'mobile periphery of the net' into an elaborate, standardised and cross-platform form of a non-neutral Internet (Weinmann, 2009: 29-30). It is for such reasons that I examine in Chapter 6 the dynamics of mobile Web standardisation at W3C and the related power struggles, to investigate how these dynamics and struggles are linked to various institutional or systemic legacies of the participating stakeholders and their associated preferences for the platform design. The aim is to address how these dynamics bear on the particular design of the 'ubiquitous Web' and its evolutionary trajectory.

My interest in this 'evolution' introduces the last premise that underpins this study – that the policy implications of these developments must be considered in the light of the observation that 'history matters'. As maintained by Garnham, we can only emancipate ourselves from the hold of a 'societal habit' by understanding historically how, why and with what consequences our institutions and routines were informed. 'If we wish to take a critical stance towards the existing structure and performance of the media we need to know why they are the way they are, what historical variations there may have been, if any, between historical periods and between societies or cultures, what historically rooted practices are inscribed in the institutions of social communication we have inherited' (Garnham, 2000: 18). Studying the dynamics that have taken us to a particular structuring of our media may enable us to recognise alternatives and path-dependencies and to consider whether these may be reversed. The process of 'unconcealment' (Heidegger, 1962; Mansell, 2002: 269) undertaken in this thesis is intended to contribute to our understanding of some of the reasons for the particular shape of our Web-based media and to hint at how it may develop in the future.

As will be demonstrated in detail in Chapter 4, the empirical research for this study was conducted from mid-2006 until mid-2007 and was designed to investigate the evolution of the mobile accessible Web during the period that started with the launch of

3G networks in the Western world and ended in Summer 2007. As such, the development of the mobile Web provided a large case study of 'live' development of a nascent media platform to be analysed using the conceptual framework proposed in Chapter 3. This large case study was designed to consist of four sub-studies. The first of these (presented in Chapter 5) focused on how T-Mobile, an international mobile network operator, arrived at what was then a notable market innovation – unrestricted and unlimited 'real Web' browsing on mobile phones. If this sub-study focused on the evolution and shaping of the 'mobile Web' concept at the 'grassroots level' – one company acting in the contingent environment – then the second sub-study took a meta-view of the industry change and of the dialogic relationships among a variety of stakeholders conditioning this change. The site for this sub-study (see Chapter 6) was the then new mobile Web standardisation initiative at W3C and its specific focus was on the standardisation of the mobile Web as a certain whole – as a new (but convergent with desktop Web) platform for media content. The third sub-study again focused on the views and approaches of content and service industries on how to produce content for this new platform, presenting their views about whether the two platforms (mobile and desktop) should converge or diverge and on what terms either of the alternatives should take place (see Chapter 8). With these three sub-studies the research was designed to focus on views and discourses of different industry fractions and on the different levels and sites of the industry dynamic. The aim was to arrive at an analytical overview of the most relevant dynamics conditioning the early development of the platform and its media forms. For each of these three sub-studies, first, interviews were conducted with relevant industry representatives and, later, discourse analysis was applied to these interview texts. The aim of the discourse analysis was to glean the pertinent power relations in the industry and to investigate how the domain, its different composites, texts and institutions were defined and bounded by these discourses.

Lastly, the study was also supported by the semiotic textual analysis (presented in Chapter 7) that constituted the fourth sub-study of this thesis. The semiotic analysis was applied to a corpus of mobile websites from the time frame of August 2006. The aim was to investigate what the 'genre' was like at the time, and what the intertextual relations were between the mobile Web and the rest of the culture, especially desktop Web. By studying these relations the aim was to establish what the realities were that these discourses were assumed to be defining, i.e., how these discourses and texts were conditioning each other.

1.5 Research questions

This research aims to investigate how and for what reasons the innovative media forms created for nascent media platforms were designed in a certain way, how they are connected to the forms of older or parallel media and how these new designs evolved and came to be redesigned over time. Most importantly, how do they grow 'old', i.e., how do they emancipate as media by becoming, in various ways, codified – conventionalised or standardised? My central research question is:

- What are the dynamics that have underpinned the creation, evolution and conventionalisation of new media forms in the open mobile Web following the launch of 3G mobile networks?

These dynamics are understood to accrue from a complex set of dialogic relations among different actors, institutions and social sub-systems. The theoretical sub-questions in response to the need to study these dynamics are:

- How are the textual dynamics of media evolution constituted by the dialogic interactions among agents involved in designing new media forms, by the inner dynamics of related social sub-systems and by the dialogic interactions among these sub-systems?

- Are these dynamics dependent on the legacies and memory of the associated sub-systems? How are these legacies, hierarchies and culture constituted and maintained by their underlying power relations and how are these relations further negotiated in the process of the evolution of these systems? How is the change in these relations reflected in the evolution of the textual forms of new media?

1.6 Overview of the thesis

The structure of the thesis is as follows.

Chapter 2 examines the pre-histories of the modern mobile Web. It discusses the social, cultural and economic conditions, that, through their interplay in different eras, especially through the 20th century, conditioned the emergence and further development of mobile media, their constituting institutions, forms and audiences – this

is the setting, the further evolution of which the empirical research of this study is designed to study.

Chapter 3 outlines the conceptual framework. The main emphasis is on the integration of the disciplinarily distant evolutionary approaches (cultural semiotics, evolutionary economics, systems theoretical sociology) to study the complex dynamics of modern media change consisting of changes in textual forms, technologies, markets, discourses and institutions. The theoretical intersections of these approaches are considered with a focus on the following: dialogic interchange between social sub-systems enabling innovations and the emergence of new societal structures, their self-organisation in the contingent social environment, the role of memory and societal 'path-dependencies' in guiding the processes of self-organisation and affecting the nature of related power relations that shape the dialogic processes among the relevant stakeholders. The chapter proposes a conceptual framework for the analysis of this complexity.

Chapter 4 outlines the research methodology. The research questions and the conceptual framework are operationalised in a set of pragmatically motivated, object-related research questions. The chapter discusses two main research methods – a semiotic textual analysis of the mobile Web-media forms and discourse analysis. The chapter discusses the data collection procedures and the strengths and weaknesses of the research design, including the challenge of achieving analytical synergies between the components of the study.

Chapter 5 presents the empirical findings of the interview-based research at one of the 'core sites' of this study – T-Mobile International, one of the major global mobile operators. T-Mobile provided a valuable site to start mapping the interdependencies in the evolution of the open mobile Web at a 'grassroots level' – how one industry institution, as a result of a variety of dialogic processes both within the company as well as between the company and other players, arrived at the significant market innovation – the opening of the mobile platform to the (virtually) unrestricted and unlimited real-Web browsing, supported by a monthly flat fee pricing scheme.

Chapter 6 presents the empirical findings of the discourse analysis applied to interviews with people who were participating in the mobile Web standardisation at the industry 'meta-level', in the W3C negotiations. The chapter focuses on the industry power struggles around the question of whether the mobile Web should be designed to emancipate into an independent content platform or become just another 'keyhole' into the big Web.

Chapter 7 presents the empirical findings of the third sub-study, the textual analysis of the mobile Web-media forms as of 2006. The focus is on how the new mobile-specific forms can be shown to relate intertextually to the rest of the culture and its textual forms. The results of two analytical exercises are presented: first, the relations between different mobile and desktop websites and second, the specifics of the 'mobile website' as a new form.

Chapter 8 presents an analysis of the meta-discourses and perspectives of those interviewees who were creating the mobile media forms inspected in Chapter 7. Their discourses on the norms for mobile Web content design are examined.

Chapter 9 integrates the analytical results of the empirical chapters, and discusses these in the light of the conceptual framework presented in Chapter 3. It suggests what the principal agents and relevant societal sub-systems were that participated in the dialogues that modelled the mobile Web as a new medium, and analyses how the dialogical dynamic between these domains seems to have conditioned the evolution of the new media platform, its media and its productive sub-systems.

Chapter 10 concludes the thesis. The challenges to the study and the lessons learned are discussed and future research directions outlined.

2 The histories of the mobile Web

2.1 Introduction

Before starting to study the recent developments in the evolution of mobile media, it is important to ask, where did mobile media come from? As Huhtamo (2004), a media archaeologist, points out, there is nothing self-evident in the connection between 'mobile' and 'media'. He has shown how, to the inhabitants of medieval villages who rarely travelled, the need to be in perpetual contact with distant others would have made little sense. Hence, he has suggested that the idea of moving around with portable communications devices and consuming particular forms of media on this platform is cultural, rather than universal, and that these forms have emerged when certain social, cultural and economic conditions are met. The focus of this chapter, therefore, is on the phenomena of the historical emergence and further development of mobile media, its constituting institutions, forms and audiences – the setting whose further evolution the empirical research of this study takes up to study.

2.2 Prolegomena. From the formation of expectations to the first commercialisations

In tracking down the evolution of the earliest of the cultural desires for the mobile media we can start with the development of preconditions for spatial mobility. Huhtamo (2004) and Levinson (2004: 17) suggest that, although the concept of mobility in its modern sense would have been somewhat impenetrable in traditional societies, the initial need for this may have been motivated, first, by the development of roads and, thereafter, by official needs (messenger services) and commercial imperatives (the distributions of goods). 'However, for mobile media to gain ground, the desire/necessity of mobility needs to meet the desire/necessity of media in conjunction with the experience' (Huhtamo, 2004). In this sense such traditional travel companions as books, newspapers and notebooks have, in the phenomenological sense, always constituted media that inject into our lifeworlds an idea of distant otherness and an act of communication with this distant being – be it in time or space. As such, these forms of communication established the typified being-with-equipment in the Heideggerian sense, the behavioural artifices that paved the way first for devices like walkmans and later for laptops and for browsing news sites on the mobile screen (see de Vries, 2005: 22-3; Geser, 2005: 238; Richardson, 2005).

However, the more direct precursor to the mobile communications that established the 'horizon of expectations' for the immediate conversations with the distant other was the invention of the telegraph (see Du Boff, 1980; Yates, 1986; Carey, 1989: 201-30). When Marconi at the end of the 19th century conducted his first successful tests of radio communication he termed the new technology a 'wireless telegraph'. In the context of the further development of mobile communications, its technologies, artefacts and forms of consumption, it is important to recognise how the technological set-up and societal structures of the time started to shape these early forms – after the initial deployment and seeding period in maritime contexts, first, wireless receivers and, later, sending receivers were converged with another then nascent mobile technology – automobiles. Above we saw how roads are argued to have conditioned the need for the being-with-equipment. However, this also conditioned the expectations for faster and more efficient mobility in the form of motorised cars – which emerged as the first enabling platform and a market for the then heavy mobile wireless communication technologies. As noted by Jessop (2006: 44), in the many decades that followed, these two technologies formed a complementary relationship, establishing social and technological connections that have shaped the modern forms of the mobile phone (see also Fortunati, 2001).

The first trials with radio receivers being placed in cars started in the course of the first decade of the 1900s, but the first version of a truly mobile two-way radio telephone system was developed for cars in 1924 by Bell Laboratories in the United States. Bell's parent company, the incumbent telephone operator, AT&T, however, did not pioneer the (auto)mobile communications technology as it had little interest in developing new technologies and services that might have cannibalised its lucrative telephone service. Hence, instead, the early evolution of the wireless technologies and services was driven in the 1920s by the US police who struggled with the consequences of motorised crime and prohibition (Huurdeman, 2003; Farley, 2005) and therefore were motivated to turn this new communications technology into a means of spatial control and coordination. It was the cooperation and knowledge transfer between the then nascent (but appropriately named car radio specialist) Motorola and the law enforcement institutions that pushed both the technology development as well as the subsequent growth of the market. And it was not only in policing where the demand for two-way radios arose, but also in the newly and increasingly mobile 'utilities industry, truckers, taxicabs, forest rangers, and other operations' (Steinbock, 2003: 77).

But the increasing usage of radio services meant that the radio frequency spectrum – then a scarce resource – filled up quickly and started to restrict the capacities of networks. The idea for beginning to overcome this scarcity and turning the mobile communications eventually from an industry utility into a mass market commodity, the cellular concept, was born in 1947. However, there were several reasons, technical as well as social, that prevented its application until the mid-1970s. When D.H. Ring and his Bell Labs colleague W.R. Young in the US first articulated the cellular concept (see Farley, 2005), the scientific work had many technical obstacles to overcome: for instance, to acquire the ability to work at increasingly high frequencies (800-900 MHz), digital switching microprocessors and many other technical solutions that had to be invented. In this respect, the development of the media form and business market had to wait for the scientific sub-system to reach a certain level in its development cycle. But Agar (2004: 22-7) stresses that technology comes to be 'there' only when it fits the wider world. His suggestion is that the world that was highly regulated and ruled by the large PTTs (Post, Telegraph and Telephone [Telecommunications]) was slow to produce innovations. These monopolistic enterprises that governed the tele-communications sector in most countries from the 19th century until the 1980s were seen to be more interested in securing an equilibrium around their monopolistic markets than looking for change. When Bell Labs came up with the cellular concept, its development gradually migrated to Motorola since, for AT&T, it was seen to threaten its fixed-line plant. But for Motorola it held the promise of a core service with high profit potential which would work against its rivals (Steinbock, 2003: 40). Once in the lead, this strategy won and the first generation of mobile communications technologies was developed. This, together with computerisation and broad development of data communication, led to a revolution in telecommunications that gradually swept away the old monopolies and, as Agar (2004: 26) stresses, that revolution was part of a global sea-change in both technology as well as politics. The rest of this chapter will discuss the nature, course and initial outcomes of this change.

2.3 1G and 2G: standardisation

The development of global continuities in mobile media did not, however, start in the US, but in Northern Europe, when in 1969 the Nordic Mobile Telephone (NMT) group was established by the state-owned telecommunications enterprises of Sweden, Finland, Denmark and Norway. The outcome was the first international air interface standard, NMT, that was launched in 1981. There were already that same year 20,000 mobile

telephone users in Sweden – more than anywhere else in Europe. But in the historical and evolutionary context what was significant about NMT was its international scope – it was launched as a standard for the whole Nordic area. Hence, roaming was easy; one could use the same phone when travelling between Helsinki and Oslo. Furthermore, one internationally shared standard enabled the development of a growing international market for technology vendors and phone manufacturers. The phones for NMT were provided initially by Nordic companies such as the Danish Dancall and Storno, Swedish Ericsson and Finnish Mobira, the early mobile arm of Nokia. Hence, we can say that a transnationally shared standard was the first step in the evolution of the modern global mobile communications market and contributed to the success of the Nordic vendors in this.

The European Commission (EC) was impressed with the rapid regionalisation of the NMT standard and decided to support and lead the slate of initiatives that aimed to replicate the triumph of NMT at a pan-European level, but now in digital format (NMT, AMPS [advanced mobile phone system] and the other parallel standards were all analogue). This formed the original horizon of expectations for the GSM (global system for mobile communications), the first platform for modern mobile multimedia and data services. But, as demonstrated by several analysts (Pelkmans, 2001; Steinbock, 2003: 49), the related goals were manifold, technical as well as political and economic. For our purposes it is important to note that consolidation of European markets and the potential for the exploitation of the economies of scale were seen by the EC as a means for boosting the birth of region-wide players that could challenge Europe's main competitors, Japan and the US and their industry leaders (Russell, 2004: 8).

This logic proved to be valid. In 1982, the so-called *Conférence Européenne des Administrations des Postes et des Télécommunications* (CEPT, European Conference of Postal and Telecommunications Administrations), an organisation that comprised all European incumbent telecommunications operators, recommended that all 26 of its member nations harmonise spectrum allocations and technical specifications for cellular systems and agreed to coordinate technical standards for cellular systems within the newly formed Groupe Spéciale Mobile (GSM – later known as the global system for mobile communications). The second pivotal decision came in 1989, when an EU institution, the European Telecommunications Standards Institute (ETSI), took over the lead in GSM development. The main argument for shifting GSM to ETSI was the absence of the equipment manufacturers in the CEPT. Hence, once ETSI was launched in 1988, it became open to all relevant parties. With this shift the standards-setting

process moved away from the legacy of the telecommunications monopolies and became responsive to the development of competitive markets in mobile telecommunications. In the end, the standard was crafted by the major telecommunications operators and local equipment manufacturers, under the direction of ETSI.

The first GSM network was launched in 1991 in Finland and by 1995 European coverage was nearly complete. But what made the European standard historically important was the momentum it created, such that it began to be adopted around the world. By 1996, GSM networks were launched in 103 countries, from Australia to Russia. GSM was not the only standard on offer, but it was strongly lobbied for and, as a significant number of countries were already using it, for the new countries adopting it it was seen as a safer bet for achieving continuity and compatibility in telecommunications services – the same motivations that originally provided the motivation for the European Union (EU) in its development.

However, we should also recognise how the success of the GSM put European firms on a sound footing at this time for competing in the emerging global telecommunications markets. The key to this was intellectual property rights (IPRs). Motorola, Nokia, Alcatel, Ericsson and Siemens, which had staked a claim to some of the 'essential patents' in GSM, brokered bi-lateral cross-licensing agreements with each other and, in the end, imposed their strategy on GSM, which led to prohibitively expensive licensing conditions implemented for other players (Garrard, 1998: 140; Russell, 2004: 10). Hence, when GSM expanded across the world that meant dominance in the widening market for the three big 'European' vendors – Nokia, Ericsson and Motorola (which had an extensive European presence). By the end of 1995 they shared about 75% of the GSM terminal market. That dominance continued into the early 3G era. We can therefore say that it was the digital 2G (second-generation wireless telecommunications technology) standard and European regulatory policies that helped give these three companies their original push and an advantage that they continue to build on.

2.4 2G: Evolving designs of the mobile, its media and the formation of their audiences

As seen above, the early markets where the wireless communication technologies were commercialised were the motorised security and utilities industries. Then 1G (first-generation wireless telecommunications technology) evolved into a niche upmarket service and the brick-like phones were mostly used for business by middle and upper-

class males**.** This trend was similar all over the world (see Roos, 1993; Arceneaux, 2005: 24; Goggin, 2006b: 10). However, with 2G this started to change. Technical advances such as digitalisation and the improvement of nickel (Ni-MH, nickel metal hydride) batteries led to a qualitative change in mobile terminal design – i.e., to their miniaturisation. All of a sudden, mobile phones had become small and light enough to routinely carry around. The new design attracted new customers, turning the former business tool into an everyday object, an upscale accessory and a ubiquitous consumer product (see Vincent & Harper, 2003: 6). For instance, Keller (2005) has demonstrated how in Estonia in the course of the 1990s the role of the mobile phone as a commodity turned gradually from being a status symbol into a hedonistic lifestyle-related consumer product.

The initial response from the handset vendors to the global 'consumerisation' of the mobile phones was the segmentation of the device markets according to the presumed characteristics of different consumer groups. The industry generated the taxonomies and meta-discourses for these segments that matched the presumed customer needs with categories like quality, price, industrial design, features, performance, support and user interface. The existing taxonomy of 'genres' of mobile handsets is arguably the outcome of various matches of these discursive categories. It is significant that many of the new 'customer categories' were based on the continuity with other more established design discourses, especially with the conventions of the fashion industry (see Kiljander & Järnström, 2003: 16). That association was nevertheless effective as Fortunati (2002: 54), for instance, reports how in Italy mobiles that were formerly associated with the upper classes slowly became ubiquitous fashion accessories that communicated 'about' the person (see also Katz & Sugiyama, 2006). A related emergent phenomenon at the time was the independent circulation of faceplates as a means for customisation and 'domestication' of the phone (Hjorth & Kim, 2005; Hjorth, 2006). These were used for demonstrating their owner's social capital – his or her allegiance to a football club or a popular icon, for instance. However, Lacohée et al. (2003) have shown how the idea that the mobile is on constant show and is therefore a fashion accessory has fed into an advertising rhetoric promoting continuous upgrading to avoid being ashamed (a real danger especially for teenagers at the time, as reported by Ling & Yttri, 2002). In this context rather telling was Nokia's recognition (see Kiljander & Järnström, 2003: 16) that manufacturers who were able to 'understand and predict' customer needs tended to be the most successful.

What this, in effect, refers to is the phenomenon that operators and manufacturers turned first to lifestyle attributes of the handset design to avoid the 'commodity trap' (where the manufacturers could only compete on the price of the substitutable, undifferentiated commodities). However, as Spurgeon and Goggin (2007: 320) posit, there came a point where emphasis on handset design ceased to provide the leverage in a crowded market. And that, eventually, motivated them to take the next step and initiate a new buffet of customisable value-added data services. As demonstrated by Hillebrand (2002: 407), the evolution of these services started formally in the earliest days of GSM planning when the participating operators addressed the basic requirements for the data services in the first action plan for GSM. However, we should recognise that even the 1G phones were screen-based devices. The LCD (liquid crystal display) screens were there for guiding user interaction with the electronic device. It could be suggested that it was on this basis of the early forms of LCD screens – calculators, watches, handheld video games, etc. – that the specific interface conventions for the mini-screens started to evolve. But as Manovich (2001: 88-93) has argued, this development was, in essence, part of the larger evolution of HCI (human-computer interaction) conventions that have evolved on various platforms and technologies from the early 1950s. And the latest stage for that evolution was the forms of networked communication and interaction. Hence, we can assume that this background – the preceding forms of portable 'screenic' devices, the development of PC (personal computer) user interfaces, the packet switching technology and Internet networks, together with their various popular applications such as e-mail – made up the horizon of expectations that led to the consideration of mobile handsets as possibly something more than simply devices for verbal communication.

The first service that was designed and standardised for the GSM and resulted eventually in wide uptake and commercialisation was the short message service (SMS). Its basic qualities had already been set out by the GSM group in 1985 and it was launched as part of the standard in the early 1990s. As is now widely known (for an overview of the discussion see Goggin, 2006a: 65-88; also Taylor & Vincent, 2005), the widespread use of text messaging was a success that took the mobile industry partly by surprise – there was very little promotion or mention of SMS in public by network operators until after it had taken off. SMS could be understood as an outcome of the centre-periphery dynamics, that is, where an innovation springs out from the creative use and redesigning of the existing structures and communicative means by independent actors. It is often seen in the literature as a user triumph, the first moment when users

started to take a more direct part in the design of mobile media and the concept of user agency started to become understood in the mobile industry.

The cultures that quickly developed around SMS texting indicated for the industry a possible market for similar services and applications. Messaging from the tiny mobile keypad was a cumbersome exercise, but, paradoxically, because entry barriers to learning to use the service were high, or at least, higher than making a voice call, adolescents saw this as an advantage in that it enabled them to exclude adults (Lacohée et al., 2003: 206). Hence, despite the limited funds of the young users, it was they who took up the first forms of the premium entertainment services built on top of the SMS delivery mechanisms – the markets for ringtones, wallpapers, mobile games and related products for further customisation of the phones. Despite the later arrival of the mobile Internet and its various applications, it was these rather trivial services that continued to drive mobile content markets and constituted a sizable source of income for the operators and media companies.

2.5 Internet-mobile convergence: the first generation

In parallel with the emergence of SMS and the related services, as reported (Funk, 2001: 20; Sigurdson, 2001: 11), there seems to have developed a feeling of urgency in the industry as it was sensed that the Internet had come to stay and that, therefore, the mobile Internet needed to find a way into the future. The first visible solution to achieve the desired convergence of the Internet and mobile phones was in the form of an artefact – the Nokia Communicator 9000 launched in 1996. The innovative aspect that attracted worldwide attention (Sigurdson, 2001: 11) was the concept of a portable pocket-sized electronic office. The Communicator had a QWERTY keyboard, enabled word processing, sending and receiving faxes, sending e-mails and browsing the Web in a limited way – the many features that are now common on the so-called smartphones. It could be argued therefore that the Nokia Communicator established a genre, a point to which I return later in this thesis. However, when it came to its Web browsing utility then, as suggested by Hjelmeroos et al. (2000), consistency between the PC and the mobile browser was not always to be desired (see also Keinonen, 2003: 3). It was realised at the time (Roto, 2006) that mobile phones were not capable of displaying large Web pages and that, therefore, specific mobile-optimised Web pages would be needed.

Relatedly, work was started to provide different services for mobile phones and

for PCs. It started in two different camps and followed different strategies – one eventually celebrated as a success, the other conceived as a failure. The first was the i-mode platform developed by Japanese operator NTT DoCoMo (mobile hand of the former PTT). The second was the Wireless Application Protocol (WAP) developed in cooperation between European and US handset and software vendors and deployed in many regions of the world.

The development of the WAP started formally in 1997, the same year that the Communicator was launched. And in 1997, after a couple of years of negotiations, the WAP Forum was established by Unwired Planet[6], Ericsson, Motorola and Nokia. The Forum was opened to all members after the release of the WAP 1.0 specifications in April 1998. After the first year there were 100 members; after another two years, the number reached 500 – including all the major telecommunications operators, information technology (IT) and software vendors from around the world. As such, it could be argued to have been functioning as the first institutional catalyst for the industry convergence processes that would produce the new domain of the mobile Web and its structures.

However, despite the first steps in industry formation, the platform itself failed to attract users. After being launched in 2000 in several European countries, the operators often marketed it in ways that suggested that it offered PC-level service quality, setting the expectations relatively high. But the user experience of mobile browsing did not meet these expectations. The settings to be connected were hard to configure, circuit-switched networks required long connection times (up to 40 seconds), once connected the speed was slow, WAP sites did not look like websites, the selection of content was very limited as compared to the full Web, browsing costs were seen as being high against the price of desktop browsing and, once connected, users often found themselves being restricted to operators' 'walled gardens' (see Nielsen, 2000; Funk, 2001: 22; Kumar et al., 2003: 81-2; Teo & Pok, 2003a, 2003b). As a result of this, by the end of the year the global number of WAP users was estimated to be only eight million, most of them in South Korea and Taiwan where there were better designed services (Funk, 2001: 19).

In parallel, the development of i-mode emerged as a success. Although developed by a former monopoly, it was now operating in a liberalised market and data services were seen as an opportunity to create differentiation. i-mode was launched in February 1999 and experienced rapid growth. More than 20 million users were attracted in only

[6] Mini-browser vendor that developed most of WAP's specifications, later known as Openwave.

two years and 33 million in three years after the launch (Ishii, 2004: 44). Growth continued at a similar pace. What may have conditioned the differences in take-up and user satisfaction between WAP and i-mode? Based on the work of several commentators (Funk, 2001; Helyar, 2001: 199-203; Sharma & Nakamura, 2003: 162; Lindmark et al., 2004: 353; Tee, 2005: 151), these differences may be explained, first, by differences in the level of medium specificity and the 'emancipation' of the new platform – i.e., how independent these were in relation to desktop Internet and its services. Although both were designed as mobile-specific content platforms, the WAP was ambiguous in its relation to the desktop Web. Second, its initial promise as the Internet on the phone seemed to establish the expectation for continuity between the two. Third, it failed to introduce any new medium-specific forms that would be complementary, not supplementary, in relation to desktop Web and, as such, could have attracted users with new functionalities. The success of the i-mode at the same time was argued by those cited above to have been brought about by communication and entertainment services that, despite being initially rather trivial, were attractive to young people, the target customers for enabling new functionalities. After the critical mass of users was achieved with these services, new layers of sophistication were added. Hence, what the above commentators took away from this lesson for the future was that mobile and desktop Web should be developed, not as supplementary to each other, but as complementary platforms with differing functionalities and entirely new services, users and emancipated, platform-specific forms of content (Funk, 2001: 17; Helyar, 2001; Lindmark et al., 2004: 353).

The second, historically significant reason for the differences in take-up has been argued to be the choice of target audiences. Several commentators have pointed out that WAP was targeted mostly to the elite business market segment, the premium services were expensively priced and were designed to have complex functionalities (Funk, 2003: 11, 2005; Lindmark et al., 2004: 356). The Japanese success, at the same time, relied on activating the young consumer market segment. The cheap devices, low prices for content and the packet-switching technology (then innovative in mobile communications) enabled teenagers (who do not spend time at office desks) to always stay connected with their friends and to consume personalised entertainment products such as messaging, ringtones, wallpapers, games, etc. (for an overview of the discussion see Castells et al., 2007: 127-70). All these easy-to-use products created a positive feedback effect for the platform and subsequently attracted new customers as well as content providers to become engaged and design innovative services for a variety of

target groups. The lesson for the Western service providers was to jump on the bandwagon of the ongoing 'consumerisation' of mobile data services and to target more user segments (Funk, 2005: 114-15).

A third aspect that has been suggested by various commentators to have led to the differences in user reception of the mobile Web in Japan and Europe was the level of coordination in the development of the platform and the inclusion of operators and content providers in the process. In Japan NTT DoCoMo was able to fully control the introduction of the service and the related value chain. Mobile media platforms tie in three classical value chains – networks, devices and content services. In the case of i-mode, DoCoMo fully controlled their integration (Sigurdson, 2001: 18; Lindmark et al., 2004: 354; Tee, 2005: 158). It dictated the terminal design, launch schedules and the retail strategy together with the (subsidised) prices. It designed the platform together with its micro-payment system and it established the guidelines for the content providers. To become an 'official' content provider listed in the portal, applicants had to undergo an extensive screening and evaluation process. The ability to coordinate all these components of the service was seen to enable DoCoMo to guarantee the quality of the service.

In Europe and North America such central coordination was not possible as there was no dominant party that could have controlled the whole value chain and integrated all the components needed for the effective operation of the platform. WAP was, since its start, an evolving concept, a standard that was negotiated between parties of very different kinds. However, as has been addressed (Sigurdson, 2001: 22), one of the fatal aspects in its development was that the initial specification for the WAP was devised one-sidedly by handset and software vendors and little was done to involve the operators and to optimise the platform for their networks in the light of their expertise in service provision or with respect to the preferences of their subscribers. Many of the problems were arguably caused by the absence of a dominant design both for handsets and services (Steinbock, 2003: 374). As Kumar et al. (2003: 82) describe, WAP was a designer's nightmare – there was a lack of shared conventions that might have guided both designers of the content as well as its users. The problems faced by WAP developers – i.e., that applications were differently rendered by different phones and browsers and the incompatibilities between variations of WML (WAP's mark-up language) – all suggest a lack of coordination in the industry.

Hence, in 2000, after months of industry hype and inflated expectations, several Nordic operators considered WAP as a bug-infested pilot experiment and, a year later,

the situation became intolerable for most of the major operators (Steinbock, 2003: 374). In the same year, the industry body, the GSM Association, took the initiative by 'bringing together its operator community to provide clear guidance to handset manufacturers and software developers on the needs of consumers of Mobile Internet services going forward', as stated in its press release (GSM Association, 2001). This step and the further inclusion of operators and content and service providers in the WAP Forum, later (tellingly) renamed the Open Mobile Alliance (OMA), suggests early steps towards industry consolidation along the value chains aimed at improving the mobile Web service offerings around the world.

2.6 3G: faster networks, more integration

For the Western firms, however, to achieve better integration of the IP and wireless communications the first step was to overcome the limitations of their networks. The work towards that had, however, started much earlier, in 1986, when the telecommunications planners held their first gathering to launch the third generation services and technologies (that is, before the first call had ever been made for the second generation). The initial concept was simple – a pocket-sized mobile telephone that could be used anywhere in the world. This recalls the original motives for the '3G' mobile standards and services. The first was based on increasing globalisation and the need to overcome the incompatibilities among standards worldwide. The second motivation that emerged a little later was to develop handsets, connections and services that could handle data in addition to voice signals.

The move towards global continuities is exemplified by the fact that, if for the 2G and GSM it was the EC that played a critical role, the design of 3G was, in contrast, a global initiative that moved gradually from the EU to the International Telecommunication Union (ITU). In the late 1980s, when the ITU began to develop 3G systems, the aim was to harmonise frequency spectrum and radio interface standards worldwide (see Dupuis, 2002: 181). The goal was to achieve a unitary global standard through an initiative that was eventually named the International Mobile Telecommunications-2000 (IMT-2000). According to the objectives set by the ITU, the distinctive characteristics of IMT-2000 were to achieve:

- a high degree of commonality of design worldwide;
- compatibility of services within all the networks;

- high quality of services;
- fairly small terminals for worldwide use;
- capability for multimedia applications and a wide range of services and terminals.

To achieve these goals, however, the industry first had to agree on a single standard for global use. This was a challenge since two distinct industry camps had evolved with their own technical preferences for the new standard. There was, on the one hand, the 'Nordic-Japanese alliance' that supported the CDMA[7]-based, but converted (W-CDMA) suggestion developed by Nokia and Ericsson. But there was also the 'UMTS[8] Alliance' that was based on European-US cooperation and was supported by Siemens, Motorola and Alcatel among many others who were proposing their own TDMA[9]/CDMA-based version for the standard. This intra-industry competition started to endanger the possibility that a globally universal standard could be reached. However, in January 1998, after several rounds of industry negotiations and voting in different industry bodies, a new kind of standard started to emerge. First, Nokia, Ericsson and Siemens prepared a compromise UTRA (UMTS terrestrial radio access), which built on both the W-CDMA and the TDMA/CDMA proposals. And a year later T-Mobile, which had started to operate both in Europe and the US, suggested a proposal for a global compromise – a 3G umbrella solution based on CDMA, covering the major technologies. This was formalised at an ITU conference in the same year. This meant that the key players decided to develop IMT-2000 into a single flexible standard with a choice of multiple access methods (now referred as the 'IMT-2000 family'; see Gow & Smith, 2006: 84-9). 'The idea of a uniform single standard was out; the idea of a single flexible standard was in' (Steinbock, 2003: 54).

In this context another principle that emerged as being critical for the wireless telecommunications industry was the technical continuity with the preceding platforms and air interface standards (van Veen & de Lussanet, 2004; Kunin et al., 2005: 22; Lehr & McKnight, 2005: 165). The firms associated in particular with the globally dominant GSM were trying to build on that dominance and their 'legacy investments' and to offer the customers seamless services regardless of the technological basis (Eylert, 2005: 19; Gruber, 2005: 32). The principle that 'it comes down to deploying 3G as a critical complement to the 2G network, not as a replacement nor as a stand-alone premium

[7] Code division multiple access.
[8] Universal mobile telecommunications system.
[9] Time division multiple access.

service platform'[10], emerged during the standardisation process as industry policy and later became part of the ITU official IMT-2000 approach. In this context, a technical agreement was reached on a dual mode of operation between GSM and UMTS for handsets and connection handover between GSM and UMTS networks as mandatory features.

All these efforts to make the technical transformation seamless for users characterised the 3G standardisation process, its underlying aims and the final outcome as a whole. After the industry had faced the downsides of proprietary standards and limits of cross-licensing with GSM and began working toward the global marketplace, it opted for global technological continuities and compatibilities. The interfaces for 'dialogues' between different standards and their evolutionary phases and various converged technologies seem to have made possible an evolutionary approach for the services offered, creating continuities in terms of the ubiquity of media forms and users' behavioural patterns, their capabilities and media literacies. This again made possible the exploitation of economies of scale as a result of the continuities in world markets.

The outcome is a global market for mobile media services and this market, together with its dominant services, media forms and underlying technologies, is increasingly designed and decided on by the global private sector alone. But this extends beyond vendors only, as once the global standards were established, this created a continuity that the operators could exploit. The networks of operators of both European (Vodafone, T-Mobile) and Asian (Hutchison) origin were spreading around the world and, in this way, new service continuities were created – an aspect that highlights the evolving sources of power in the processes of establishing the characteristics of dominant media forms and their further evolution in the global media culture and market.

2.7 Need for service continuities motivating network convergence and new value chains

Another aim of the mobile industry in the context of extending and merging various existing service continuities was to achieve continuity with the desktop Internet and its various applications. The need for such an integration was established in the research and development (R&D) work[11] for the third generation standard. It was seen that in

[10] As articulated by Julian Hewett, chief analyst with Ovum in 2002.
[11] RACE Vision of UMTS. Workshop on Third Generation Mobile Systems. DGXIII-B. European Commission. Brussels. January 1995.

order to be successful the new standard should offer added value as compared to its predecessors and the response to this demand was seen in the integration of different networks. Whereas GSM had been designed as a stand-alone system, the 3G networks had to become integrated with the networks for fixed telecommunications (da Silva, 2002: 120; Vong Srivastava & Finger, 2006: 9). The planners of 3G services saw that the services available for fixed Internet users had to become available for mobile users as well (see also Vincent & Harper, 2003: 14). Development towards an integrated personal communication environment was envisaged in which users would be able to have access to telecommunications services, irrespective of whether the means of access were fixed or mobile. It was expected that users would demand that services available on fixed networks would also be available on mobile networks and vice versa. Especially significant was the principle that there should, therefore, be no difference in user interface and control procedures. It was stated that this integration should imply for service and content providers that they should not have to create and maintain duplicate platforms for content creation and distribution – the publishing and access would take place in the same online environment, the Internet as we know it.

But how did this, another generation of visions for mobile media, translate into product developments? As has been suggested (Wirtz, 2001: 492; Sharma & Nakamura, 2003: 92; Yang et al., 2004), the efforts towards technological standardisation that were aimed at enabling the convergence of fixed and mobile networks have also led, among other things, to industry convergence and to the break-up of older value chains. The traditionally operator-centric value chains saw new players entering – applications and content providers, various aggregators and service houses. And the bargaining power of these new stakeholders was recognised as being on the rise (Sharma & Nakamura, 2003: 67; Steinbock, 2003: 12). In the context of this phenomenon of what was effectively market horizontalisation, the commentators at the time (see Feldmann, 2005: 171-80; Schweizer, 2006) started to introduce notions like ‘co-opetition’ and ‘value nets’ that were understood to replace the competitive positioning in value chains. These terms refer to the view that due to increasing convergence between the mobile and the Internet and greater attention to network economics, value nets were emerging as a new paradigm for cooperation in the network industries, including wireless communications. Horizontal linkages between players in the value net and inter-firm cooperation were seen as important for the value creation process and for building a new industry and a new attractive market (Sundet, 2007: 89; Vong Srivastava & Finger, 2006: 18). As also pointed out by Wirtz (2001: 495-6), the formation of a new horizontalised market was

interdependent with the industry convergence. The new reconfigured corporate 'value nets' emerged as being specific to the newly converging market.

2.8 Operator portals at a cross-roads

Despite all the cooperation in market building, as shown by Kunin et al. (2005: 12), the unbundling and rebundling of old value chains into new ones was also an object of power struggles. Established players like operators, device manufacturers and content providers (movie studios, broadcasters, record companies, etc.) were accustomed to controlling the mobile content value chain in their respective industry segments. Accordingly, each of these players was determined to preserve a significant stake in the success of their mobile content endeavours and each was vying for a central position in the value chain. Their positioning to do that was different and also dynamically changing. As noted in an OECD (Organisation for Economic Co-operation and Development) report in 2005, the year when most 3G services were launched in Europe, at that stage it was the mobile operator that occupied the central position in the value chain for mobile content because of its direct, ongoing relationship with the customer (Kunin et al., 2005). As Noam (2006: 226) put it, the key to it was spectrum allocation. This means that once the operator was allocated spectrum this enabled it to control downstream terminal equipment and access to a subscriber and leverage this position of 'owning the customer' upstream to the next steps – i.e., routing to its controlled content portal only. In other words, the characteristic of the wireless business in the mid-2000s was that the customer was established as a contractual subscriber who was served vertically by an operator that provided a full set of services – in a way that, by that time, had become unthinkable for other media (Noam, 2007: 24).

This set-up of mobile content services had been developed by 2G services such as offering ringtones, wallpaper downloads, games and so on. The launch of 3G networks did not bring, in the initial stage, any changes in this model since, the European operators in particular, found themselves under pressure to recoup heavy investments in 3G licenses and in the deployment of the network infrastructure. As the initial up-take of 3G mobile phones was slow, the financial markets were pushing mobile operators to take a significant part of the value created in the mobile content market. As a result the operators were extending their 2G platforms and were more demanding in their negotiations with content and service providers on revenue-sharing issues (Sharma & Nakamura, 2003: 181; UMTS Forum, 2005: 7; Goggin & Spurgeon,

2007: 754). Hence, in 2006, when this study commenced, most mobile users obtained mobile content through their operators' branded portals that provided content only from providers with whom the mobile operator had established a relationship. These portals were, therefore, known as 'walled gardens'. The power that the operators achieved by 'owning the subscribers' had developed into a widely recognised industrial norm that it should be the operators that provided customers with a specific bundle of services.

As pointed out by several commentators (Feldmann, 2002: 358; Goggin & Spurgeon, 2007: 755; Spurgeon & Goggin, 2007: 322), this vertical bundling of services also supported the endurance of the users' habit of making regular payments for connectivity and other services. The operators' hope was that these patterns could be extended and translated into a willingness to pay for the exclusive data services as well. The goal was to avoid the 'free lunches' typical of the media content offers via the desktop Web. A shared industry perspective at the time was that the mobile content services should be supply-side driven and should occur principally in operator-controlled proprietary spaces – i.e., their own portals (UMTS Forum, 2001). This general sentiment was especially interesting since in terms of technological standards the industry was increasingly promoting open architectures and 'service interoperability' (UMTS Forum, 2002). Nevertheless, the content offerings remained overwhelmingly proprietary, largely neglecting the experiences with the Internet and mobile (proliferation of SMS communications) where innovation processes occurred in distributed, non-proprietary spaces and tended to be user-driven. Hence, as argued by Goggin and Spurgeon (2007: 765), the design of the mobile content portals, premium rate services and even 3G network standards, could be criticised for the ways in which design values and possibilities were guided mainly by the 'power of capital' rather than by the 'messy innovations of multitudes of users'. In addition, as addressed by Noam (2006: 227; 2007: 26-33), the operators' market power with respect to content providers usually resulted in unilaterally established guidelines for the design of the services and content forms. This meant operator selectivity over content that resulted in a reduction or lack of customer choice of content. This again was seen to jeopardise innovations in content provision due to the closed nature of the applications and the software that could be offered by third parties. As argued by Pashtan (2005: 4), there were no incentives in place for content providers to develop new and exciting services.

However, as implied above, with the value chain re-configurations in the first half

of the 2000s the media providers gradually gained strength in bargaining power[12] (Feldmann, 2002: 359). As suggested by Yang et al. (2004: 43-4), in the previously separate fixed-line and wireless telecommunications networks and their respective market segments, it was network access that was the service starting point for users. However, in the situation of fixed and mobile network convergence, it was content that became the new starting point as customers were expected to demand their content regardless of the type of network that they were using. Hence, the newly reconfigured value chain started to highlight the role of content providers as they had the key role in bridging the gaps between different networks and value chain components – i.e., to act as the main drivers for the adoption of mobile content services. As pointed out by Feldmann (2005: 181), the emerging cross-media narratives were about to give them more leverage in their negotiations with operators (see also Ballon, 2009: 261-384).

This was especially so after the launch of 3G networks since in the early stages the customers did not enrol in large numbers. That led to a growing realisation among the operators that content creation was not really their strength and that there would be a role for brands associated with quality content. News or sports content branded by a network operator did not prove to be as compelling for customers as, say, BBC News or SkySports, in the UK. The uptake of what was thought to be a mature sports-alerting service offering tripled when it was relaunched with a major content provider's branding (Tilson et al., 2006). Hence, the operators were observed to be gradually retreating from creating content. In this context, the ability of the operators and content providers to deal with each other's bargaining power was seen as the key in implementing successful revenue-sharing deals – in turn seen as crucial for the overall development of the mobile content market (Sharma & Nakamura, 2003: 182). However, in this context, the ongoing shift in power was reflected in the major content providers' reluctance to enter into exclusive relationships with network operators. Content providers preferred to strengthen their existing Web-based connections with customers across most or all mobile networks (Tilson et al., 2006).

At the same time, it began to be recognised that while the operators' portals as 'walled gardens' could provide customers with the most popular content, the operators were still unable to make deals with all the possible content providers that their

[12] The term is used here strictly as an economic term, referrring to two of Porter's (1998) five market forces: the abilities of either buyers or suppliers to influence the setting of prices. Feldmann's (2002: 359) suggestion was that the media companies as suppliers gained in bargaining power, because content was seen to be the main driver of the adoption of mobile communications services in the business-to-consumer (B2C) sector.

customers wished to use (e.g. local newspapers or sites covering specialised interests). As subscribers, similarly to the Internet users, also appeared to be seeking such 'long tail' content when browsing the Internet on their mobile devices, revenues from surfing and browsing 'off-portal' content (i.e., content from the unrestricted Internet) were on the rise (iGR, 2006). For instance Vodafone and Orange reported increasing traffic and a significant margin from off-portal browsing in 2005 (Pearse, 2005). Off-portal content as an attraction to users and open Internet browsing as an income source emerged as increasingly appealing solutions for many operators as these allowed them to leave content creation and management to the media-centric vendors. Relatedly, there was evidence that pricing models for mobile content and browsing were in flux as operators and other value chain members started to experiment with new solutions. A few operators around the world started to recognise that the existing models for pricing schemes with per-minute or per-kilobyte charges were unsuitable for the broader adoption of content as metered access and unpredictable costs would deter users from extensive browsing and from obtaining rich content (see Odlyzko, 2001). Hence, different kinds of flat fee models begun to be trialled for mobile content and data services. In addition to these developments, regulators started to put pressure on operators to open up their platforms for free and non-discriminating service provision. The Japanese authority, MPHPT (Ministry of Public Management, Home Affairs, Posts and Telecommunications), for instance, was exerting pressure on DoCoMo to open its portal space as well as to offer contractual benefits to selected content providers. In another example from France, the Commercial Court ruled against France Telecom's attempt to lock users into its own WAP portal (Feldmann, 2005: 190-1).

For all these reasons the relationships between mobile operators and various content and service providers were, in the mid-2000s, cascading into a period of dynamic change. The consultancy iGR (2006) differentiated between three evolving models of partner management by the operators at this time: fully managed, hybrid ('semi-walled gardens', e.g. i-mode) and open API (application programming interface). The latter was a recent phenomenon in the mobile context when this study commenced

in 2006. With this model the operators left most of the content and service provisioning to the providers but were aiming to use the benefits of the mobile network to provide service differentiation. For example, the mobile operator could provide location determination, privacy, security, user interfaces and presence detection to the content providers, adding an extra layer of value to the service and content. It is in this context that the first empirical sub-study in this thesis becomes historically distinctive. It was the T-Mobile's Web'n'Walk service that set an example for other Western operators by its approach that was introduced in October 2004. The launch of the new service meant that the operator abandoned its t-zones portal and opened up its service to virtually unlimited and unrestricted Web browsing. With this new approach T-Mobile focused on the 'long tail'[14] of niche content and was hoping to earn a measureable margin from increasing traffic. In Chapter 4 we will study in detail the motives behind T-Mobile's strategic choice and its effects on the rest of the market.

2.9 Fragmentation of the Web and its access platforms

In the context of a few operators and devices enabling browsing on the 'real Web', but other operators and the majority of devices still limited to mobile-specific content sites, a new discussion emerged in the industry, i.e., whether it was justified to design special websites for mobile devices only. At this point Nokia, together with several partners, launched a strategy to ensure that all mobile-optimised websites would be recognised by a new .mobi top-level domain (TLD). Approved by the Internet Corporation for Assigned Names and Numbers (ICANN) in 2005 as a sponsored TLD, it was governed by a consortium including Google, Microsoft, Vodafone, T-Mobile, Samsung, Sony-Ericsson and Nokia. The consortium's (informally known as dotMobi) website stated in July 2006: '.mobi should stand as a trust mark for mobile sites and data services that says "This works on my mobile"'.

DotMobi sparked criticism for breaking the principle of the 'device independence' of the Internet. One of the most vocal opponents was Tim Berners-

[14] The phrase the 'long tail' was coined by Chris Anderson (2004) who pointed out that businesses like Netfix and Amazon allow customers to access many more DVDs and books than would be economically viable with physical stores. Each DVD or book in the 'long tail' of the sales distribution represents only a tiny fraction of the sales of 'hits'. Nevertheless, the cumulative sales of all the products in the tail is a huge revenue opportunity. The distribution and inventory costs of these businesses is said to allow them to realise significant profit from selling small volumes of hard-to-find items to many customers, instead of only selling large volumes of a reduced number of popular items. In our context, however, the term 'long tail' is used to indicate the customer's ability to access the wealth of the Web including its marginal, hard-to-find content, and not only the upper 20% of content items that the more restricted media environments tend to limit their customers to.

Lee, inventor of the World Wide Web. He expressed his concern about TLDs that promote the idea that the Web should be divided up into different device-dependent areas (see Berners-Lee, 2004). Berners-Lee, who heads the W3C, thought that .mobi could 'break' the Web. His main argument was that the Web was designed as a universal space and that its universality was its most important feature. He argued that the Web must operate independently of different hardware, software or the network used to access it, of the perceived quality or appropriateness of the information on it and of the culture, language and physical capabilities of those who access it. Berners-Lee pointed out that as a universal information space by definition, the Web is defined by the relationship between a URI (uniform resource identifier, a Web address) and what one finds by using that URI. The URI, he argued, should be universal as it is treated as being universal – people look up URIs in very different conditions and using various devices. Hence, it is useful to be able to quote the URI for some information and then look up that URI in an entirely different context. It was therefore seen as crucial that the Web would stay compatible with all the different devices including mobile phones. What Berners-Lee and other critics, in other words, were worried about, is that the Internet could be split into two because of potential device dependence. In Chapter 6 the second sub-study of the empirical research examines how these fears and the related discussion were taken forward and how this started to influence the industry dynamics and the evolution of the Web standards.

But in addition to the disputed and ambiguous line between the mobile and desktop Webs, the mobile content industry faced a mounting challenge from the fragmentation of the mobile platform itself. This phenomenon was conditioned by the generic dilemma confronted by the handset and software vendors at the time: should their primary focus be on agreeing and meeting standards, or on creating devices and software that would be distinctive, differentiated and desirable in a highly competitive marketplace? It has been argued (Fathom, 2005) that most vendors were skewed towards favouring distinctiveness and differentiation and, as a result, the notion of a 'common' handset specification was always changing. The situation was further complicated by the fact that the handset manufacturers typically offered a broad portfolio of devices, to ensure that there was a device tailored to the sophistication and budget of any consumer.

The problem that emerged for the content providers in this context was that many of the devices were restricted in the content formats that they supported, while

different manufacturers had adopted different formats. In addition, the devices tended to vary hugely in their input interfaces and screen specifications for resolution, aspect ratio and the number of colours supported. And when it came specifically to the mobile web-based content, hasty non-consensual standardisation in the early phases of the WAP mark-up languages (WML[15] and XHTML MP[16]) had resulted, as the relevant technologies and industries continued to evolve, in rather feeble 'output legitimacy' (Werle & Iversen, 2006) of the already established standards and, hence, also in the emergence of their different interpretations by various browser and handset vendors. The outcome was an exceptionally fragmented domain in terms of the various sub-forms of the mark-up languages in use.

Such a proliferation of technical standards was having a profound impact on the profitability of producing mobile content and was arguably holding back growth in the mobile entertainment sector (Fathom, 2005: 7). The mix of proprietary and open standard codecs[17] for media files, the range of operating systems and browsers in use and the parallel usage of different network generations and versions of mark-up languages meant that content providers faced a choice: either to produce their content for all standards and network generations which would be financially prohibitive, or to accept that they were addressing only a sub-set of the potential market for their content. In the mid-2000s most of the content providers attempted to mitigate the risk of reducing the size of the addressable market, or delivering a sub-optimal consumer experience, by re-purposing, re-formatting and porting content to make it available to as large an audience as possible. In Chapter 8 we will learn how such strategies evolved and what their implications were for the evolution of the media forms in the mobile Web.

2.10 Conclusion

This chapter has described a variety of social, cultural and economic conditions that, through their interplay in different eras, especially through the 20th century, have conditioned the emergence and further development of mobile media and its modern array of forms. A central theme I suggest to have emerged through these developments, in the landmarks of mobile media evolution, is one of power struggles. We saw how with the development of the earliest forms of two-way wireless communication, the

[15] Wireless mark-up language.
[16] Extensible hypertext mark-up language mobile profile.
[17] A codec is a computer programme capable of encoding and/or decoding a digital data signal.

devices to be placed on cars, there were already power struggles between the then incumbent US fixed-line operator, the then nascent hardware vendor Motorola and its public sector customers. That struggle between vendors and operators continued with the development of cellular technologies, the standardisation of 1G and, especially, the 2G technologies, where the vendors were seen to gradually gain power at the expense of retreating operators. However, with the development of WAP we saw how the change in power relations within the increasingly global mobile industry resulted in a failure to coordinate the launch of the new content platform. The recognition that emerged from this in the increasingly complex domain was a new need for consolidation, a need to accommodate increasingly crucial user agency and to accommodate the growing importance of content providers in the new value chains of the converging networks. The multiplication of stakeholders in the horizontalising, but progressively complex, power relations increased the contingency and uncertainty in the production systems of the mobile media and, therefore, pointed to the need for awareness on the part of other players, of the need for dialogues. The following chapter suggests a framework for analysing such dialogic relationships, the processes of organisation in the industry and the related power relations that can be shown to condition the changes in the media and to shape its forms.

3 Theoretical framework

3.1 Introduction

This chapter outlines the theoretical framework for the study. The main focus is on the motivations and potential for the integration of the disciplinarily distant evolutionary approaches for studying the complex dynamics of modern media change. The core theoretical pillars in this study are the cultural semiotics of Yuri Lotman, the evolutionary economics tradition and the social systems theory formulated by Niklas Luhmann. The theoretical intersections among these approaches are considered with a particular interest in the following phenomena and principles: dialogic interchange among social sub-systems as enabling innovations and the emergence of new social sub-systems; the self-organisation of these sub-systems in the contingent social environment; the role of memory and societal 'path-dependencies' in guiding these processes of self-organisation; and the nature of related power relations that shape the dialogic processes between the relevant stakeholders and sub-systems. At the end of the chapter the theoretical discussion is summarised in the form of a coherent conceptual framework, designed to study the complexities of modern media evolution.

3.2 Mapping the theoretical space: alternatives and fitting in

3.2.1 *Media archaeology: a theoretical alternative*

In many ways this research is about telling stories about the histories of media forms and suggesting various ways in which one can tell such stories. In this context one has to recognise the importance of the work that has been done within the developing domain of media archaeology – an approach that is grounded on Foucault's critique against the 'old' historicism. With his *Archaeology of Knowledge* (1969) Foucault's agenda was, instead of looking for the objectivist smooth genealogies in historical narratives, to concentrate on the dichotomy of continuities and discontinuities, to look for the discursive dispersions within the existing diachronic continuities. Foucault himself implied that, as such, an archaeology is, in the first place, a rationale for a methodology, it offers a catalogue of analytical-strategic questions for studying 'documents' and invoking historically situated discourses (see Foucault, 2002b: 7; Andersen, 2003: 8). Relatedly, Erkki Huhtamo (1995), one of the driving figures in

turning Foucault's general method into a research agenda for studying media histories, has defined 'media archaeology' as having two main goals: first, the study of the cyclically recurring elements and motives underlying and guiding the development of media culture and, second, the 'excavation' of the ways in which these discursive traditions and formulations have been 'imprinted' in specific media machines and systems in different historical contexts. Huhtamo (1994) argues that these apparently cyclical phenomena that disappear and reappear over and over again in media history, seeming to transcend specific historical contexts, are not random, produced indigenously by conglomerations of specific circumstances. Instead, he claims, all these cases 'contain' certain commonplace elements or cultural motives which have been encountered in earlier cultural processes. He proposed that such motives could usefully be treated as *topoi* – referring to classical rhetoric and Quintilianus, according to whom the *topoi* were 'storehouses of trains of thought' (*argumentorum sedes*), systematically organised formulae serving a practical purpose in composing orations. These *topoi* can be considered as formulae that make up the 'building blocks' of cultural traditions and provide 'pre-fabricated' moulds for experience. In the closely connected field of (post-structural) new media theory this phenomenon of recurring *topoi* and the designing of new media forms by repurposing representational conventions of earlier forms has been designated as the phenomenon of 'remediation' (Bolter & Grusin, 1999; see also Liestøl, 1999: 38). Bolter and Grusin suggest that the representation of one medium in another is the defining characteristic of the new digital media.

It could easily seem that the focus on recurring phenomena and similarities between different media and eras means that (new) media archaeology emphasises the continuities over discontinuities. But as Siegfried Zielinski (1999: 16) explains, in historical perspective, when older constructions are subsumed into new ones, individual elements of the old are nearly always preserved in the new. The previous forms will continue to be present for some time, albeit within changed structures. However, they will be ousted from the centre of everyday reality. Hence, one of the aims of media archaeology, according to Zielinski, is to mark the boundaries of chosen media forms and to define their historically delimited significance as specific cultural configurations within the wider framework of media praxis. This suggests an already firm focus on discovering and defining the discontinuities on the diachronic axes of media evolution.

This focus on historical singularity has been further developed in the works of Friedrich Kittler (1990, 1999, 2009). According to Kittler, discourse analysis begins by registering a corpus of texts of different modalities as material communicative events in

historically contingent, interdiscursive networks that link their producers, archivists, addressees and interpreters (see Winthrop-Young & Wutz, 1999: xxii). What, to Huhtamo, establishes the aim of media archaeology as looking for inscriptions in media forms that are recurrent and, hence, supposedly to some extent, universal, Kittler sets out to look for inscriptions that tell us how the materiality, the technology 'underneath', limits the medium uniquely, that is, how it predisposes a move towards certain forms at the expense of other possibilities (Wellerby, 1990: xii). It is this focus on the unique contingencies that change historically according to the material and technical resources at their disposal that leads Kittler to a radical historicism that seeks to dissolve the universality of concepts such as 'media' or other cultural institutions of meaning making and communication.

3.2.2 *Why turn to evolutionary theories?*

Despite its original and growing contribution to the studies of the history of media and its forms it has to be noted that media archaeology is not a theory of evolution, although occasionally it has a certain set of presumptions about the dynamics that led to the formulation of the 'discourse networks' (Kittler, 1990: 369) of certain eras. In its modern form media archaeology is, instead, mainly a rationale for a rather loose set of methodologies that can be gathered very generally under the title of 'discourse analyses'. As such, it has never had an ambition to make claims about the evolutionary dynamics of media and society. Instead, Kittler, in line with a general Foucauldian agenda (Atterton, 1994), has opposed connections with theories of social evolution and has developed strong criticisms of the theories of Niklas Luhmann (see Kittler, 1994; Winthrop-Young, 2000: 411). The disharmony between media archaeology and evolutionary theories of media and society stems from the distinction that the former aims to describe the structural essence of being on the basis of texts and representational forms of a given period, and examines the differences on a diachronic axis. The latter aims to analyse the contingent dynamics on a synchronic axis, the communication and meta-communication between and within different domains and systems, the accumulation of knowledge and the emergence of new relationships, identities and systems – effecting, as a result, the examination of dependencies on diachronic axes. It is as a result of this difference in analytic foci and the explicit emphasis of this study on the evolution of media forms as a result of societal dynamics that the media archaeology as a research agenda is downplayed in this study in favour of evolutionary approaches.

However, some of its conceptual principles are still borrowed – especially the focus on strategic dislocation of rhetoric *topoi* from earlier media for designing modern new media forms and the related focus on the dichotomy of continuities and discontinuities that constitute the historical development of the media.

3.2.3 *Integration motivated by the 'multidimensionality' of the research object*

The research objects of this study are the old and new conventions, media forms that are used for organising and representing content at the mobile media interfaces. The English term *interface* is eloquent in expressing the nature of the phenomenon – it constitutes an area in between two or more domains, it is the 'bilingual boundary' that translates the codes of 'human communication' into the codes of the machines and vice versa. As Manovich (2001) hints with his concept of 'cultural interfaces', it is clear that if an interface is a creolised code that is part of both these semiotic domains, it is thus also structured by both of these. Hence, it is determined by the dialogues between the normative meta-languages that are modelling these different domains. Very broadly these could be said to be the normative discourses of computer engineering and graphic design. But if we look closely, many more of these are already established – usability design, information architecture, Web design, industrial design, software engineering, systems design, etc. These and many others are rather mature social sub-systems that, in different ways, are 'interfacing' with each other and, hence, participating in designing the new media forms and applications. In this context, Krippendorff (1995a) has shown how the vocabulary of the modern design discourse stems from several sources – the arts, engineering, ergonomics, advertising, popular culture, software manufacturing, etc. As such the meta-discourse of the design sub-domain should be understood as a convergent domain that has taken shape in dialogues among the social systems named. Similarly, the complex mixture of the words 'engineering' and 'design' in the titles of the social institutions taken as examples above is another phenomenon that refers to the merging meta-languages of domains traditionally kept distinct – those of technology and of culture. It is this blurring of boundaries between older domains, their convergence and the emergence of new ones, that is the departure point in this research.

To understand the emergent phenomena that are traditionally seen as parts of different domains, this study seeks to achieve a tentative integration of the different disciplinary academic meta-languages that have been modelling these distinct domains. This means using in an integrated way the theories of cultural dynamics that deal with

the processes of innovation, evolution and conventionalisation in arts and in culture, together with theories of techno-economic evolution, innovation studies and social evolution, in general. The motivation for the integrated use of these different disciplinary approaches is based on the constructivist epistemological agenda of this study. I suggest that if we presume the studied categories and societal sub-systems to be social constructions, then so we should take the academic sub-systems that conduct second-order observations of these systems – the aim should be to question and break out of the closure of the disciplinary perspectives, 'the limited reflective ability of the individual fields, and their attachment with and detachment from other fields' (Andersen, 2003: xi). Deploying the expertise of these disciplines, their specific foci, analytical apparatus and insights will help us to distinguish and better understand the dynamic characteristics of particular sub-systems engaged with new media development. Deploying a variety of disciplinary perspectives would enable us not only to distinguish the operations and motivations of more sub-systems and, in this way, to get closer to mapping the 'true complexity' of the studied processes, but also to facilitate disciplinary dialogues that would establish a ground for what Leydesdorff (1994) has called an emergence of theories of 'relevant interactions' of sub-systems – i.e., in this case a theory of media innovation.

The theories of cultural dynamics employed in this study focus in the first place on the 'textual dynamics' – exploring the evolution of textual forms within the global cultural entirety. They help to define and recognise innovations in the historically specific intertextual context of communicative forms and media artifacts. They are expected to help in studying the heterogeneous textual dynamics, the dialogues and transmissions between different cultural spaces and eras that condition the processes of convergence and divergence in media culture, that establish the ground for new media forms to emerge and that shape their further evolution. The theoretical framework that this study sees as central for studying these dynamics is the semiotics of culture, as proposed by Yuri Lotman (1976, 1981, 1990, 2001, 2009), the leading figure of the renowned Tartu school of semiotics. This approach, although having been in relative disregard by the mainstream of the British media and cultural studies[18], however, has in

[18] The reasons for this disregard have been summarised by Baim (1998), Mills Todd III (2007) and Terentowicz-Fotyga (2007). The most influential of these were the realities of the Soviet Union. As the Soviet authorities were suspicious of the uses of semiotics, they ordered Lotman's home to be searched and himself to be interrogated several times; his writings were usually censored and often simply prevented from being published. In this light he could not realistically theorise power or modern forms of culture openly, but had to restrict himself to studying the history of culture – 18th and 19th-century Russian cultural dynamics. It is for this reason that his 'semiotics of culture' has not appeared to be

recent years started to gain recognition in Western studies of contemporary culture for its commitment to cultural heterogeneity, memory and dialogism as factors effecting processes of cultural evolution (see Eco, 1990; Hartley, 1996; O'Regan, 1996; Hartley & McKee, 2000; Ndalianis, 2004; Baetens & van Looy, 2007; Schönle, 2007). Lotman's core framework will be supported and extended in this study by the semiotic approaches of Thomas Sebeok (1991, 2001), Umberto Eco (1977, 1979, 1984, 2000), Gunther Kress and Theo van Leeuwen (1996, 2001) and others.

The second aspect this thesis aims to examine is whether and how the textual dynamics are interdependent with the institutional and economic dynamics 'behind' them. This means studying phenomena such as resource constraints, cost considerations, competition, market demand and size, economic growth, profitability, institutional structures, industry organisation and technological development as a set of factors that contribute to the complex mesh of interdependencies that make up the evolutionary dynamics of media. To study these relationships this study will employ as its second main theoretical pillar the evolutionary economics tradition that, although being heterodox, is a principal approach for studying the processes of techno-economic evolution. This approach, which built on the works of Josef Schumpeter (1939, 1954), has been further developed by Chris Freeman (1992, 2001), Richard Nelson and Sidney Winter (1982), Carlota Perez (2004), Giovanni Dosi (1984) and many others whose work will be also be drawn on here.

For better linking of the cultural semiotics and evolutionary economics as conventionally rather distinct approaches, a third widely recognised framework for analysing societal evolution will be occasionally employed here – the systems theoretical sociology of Niklas Luhmann (1995). However, it should be emphasised that this study is not unconditionally 'Luhmannian'. His works and many of his followers are employed where the foregoing approaches need to be extended for creating associations between the disciplinary extremes. The social systems theory helps specifically to extend Lotman's theoretical scope by putting emphasis on the institutional structures and social organisation as conditioning both the technical as well as textual innovation.

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immediately relevant to the 'cultural studies' that are known for their interest in the political in the present. Furthermore, because of his estrangement, his translations into English have often come 'too late', and appear as 'unfashionable' or 'secondary' in regard to the themes he took issue with. (However, as has been recognised [Kristeva, 1994], in a round-about way his early work was always a cornerstone of the structuralist project, later 'domesticated' in British cultural studies.) Lastly, as an academic dissident himself, his work emphasises the possibility of personal empowerment, resistance to the dominant discourse in the self-estranged periphery and the resulting discursive pluralism – an option not in line with the canons of critical cultural studies.

It should be emphasised that the choice of juxtaposing these theoretical approaches is not accidental. Despite their disciplinary distance, they can all be understood as organicist evolutionary frameworks. The approaches of Lotman and Luhmann are connected by their roots in various forms of cybernetics, theoretical biology and chemistry (Maturana and Varela, Prigogine, Vernadsky). Since Lotman's semiospheric approach is also increasingly synthesised with Peircian semiotics and its modern biosemiotic face (see, for instance, Sebeok, 2000; Sebeok & Danesi, 2000; Merrell, 2001; Petrilli & Ponzio, 2001; Andrews, 2003; Kotov & Kull, 2006), and Luhmann's work is being integrated with the closely related project of cybersemiotics (Brier, 2008), we can assume their association will evolve. Also similar is the background of evolutionary economics – this too has evolved through dialogues with theoretical biology and cybernetics, complexity theory, etc. Hence, one would expect grounds for fruitful dialogues. However, one should also recognise their differences and the related challenges. Evolutionary economics is a heterodox domain in that some of its driving figures have been rejecting the systems-theoretic conceptualisations of self-organisation, autopoiesis or power. These conceptual differences will be respected in this study; the objective is not to enforce theoretical integration where it would be unjustified. In addition, because of the disciplinary distance and the associations among these particular theoretical traditions being somewhat unprecedented, this thesis is unambiguously for and reflexive about being an 'explorative foray' into the potential of the dialogues between the above-mentioned academic domains. That is, one of the aims of this study is to assess the usefulness of their integration for analysing the complexities of media evolution.

Despite the challenges to this conceptual 'foray', the motivational rationale for this study is that the disciplinary distance and the many notable differences between the particular academic domains should be taken as a worthwhile challenge – for the promise that Lotman (1990: 37) associated with 'illegitimate connections', 'imprecise translations' or 'approximate equivalences' in culture. These, if productive, could give rise to new kinds of texts, concepts and their frameworks – a potential this thesis sets out to test. The prospect for this potential has recently been heightened by parallel work conducted in the ARC Centre of Excellence for Creative Industries and Innovation at Queensland University of Technology in Australia. This work, aimed similarly at the convergence of cultural studies and evolutionary economics, has been focused on the drivers of creativity, innovation and change in contemporary creative processes, economic actions and in the growth of knowledge (see Potts, 2007, 2008; Hartley, 2008,

2009; Potts et al., 2008; Herrmann-Pillath, 2010). It has motivated further integration of the analytical apparatus of cultural semiotics and evolutionary economics in the later stages of this study.

3.3 Innovation in texts and culture

3.3.1 *Defining 'text'*

In order to define the unit of analysis of this study – the 'technology-intense' media forms as heterogeneous 'texts' – and to understand the textual dynamics of media evolution, we first have to define some of the central concepts. In the context of general semiotic theory, this research follows the lead of the theorists who have overcome the structuralist dichotomy of *langue* and *parole* that gives no answer to how changes in language and culture can be motivated. To explain this I start with the Kantian essence (see Kull & M. Lotman, 1995; M. Lotman, 1994, 2001, 2002) of Yuri Lotman's semiotics. The very central notion in his theory is the text and not language, sign, structure or binary oppositions. In terms of Kant's epistemology a text is a certain *Das Ding an Sich*, it comes before language, it is always new (through constantly redefining itself in time in its relations with the outside and generating new contexts, it is like a river or a self-growing logos, in Heraclites' terms). It creates its own languages, its own universe, and is therefore a closed and sovereign structure, an immanent entity for the outside reality. The elements of that structure do not have an independent value or meaning, their role is determined by their structural functions. In Eco's terms (1977, 1979): by overcoding, by the new code that covers the composite text and is born through the rhetorical relations within the text. Text as a system is the first and smallest semiotic entity as everything else (the signs, their meanings, the languages and their grammars) is derived from or depends on it. As such texts should be understood as 'code creating machines'.

This observation – textual overcoding – refers to another central principle – the text, even a verbal one, is always at least bilingual; it is organised by multiple codes and consists of several semiotic systems. For instance, a prayer is organised in addition to the logic of verbal language also by the symbolic message of a particular religion and its specific organising conventions. Another example is poems which are governed by a vast amount of cultural codes that are not derived from the verbal language: metrics, rhythm and plot but especially their rhetorical structure – metaphors, comparisons, metonyms, etc., that we can find in the poem and that make it work poetically. These

make up a system that functions entirely differently from natural language. In 'primary' natural language conventionality (symbolicity in Peirce's sense) dominates, but in rhetorical figures it is determination through similarity (iconicity or diagrammatic relations in Peirce's sense – see, for instance, Danesi & Perron, 2005: 157). The poetic innovations of poems come from a tension of novel co-functioning of such different modes and principles (Lotman, 1976). But even natural language is rarely a system representing the world in a direct or simple way as it is always permeated with metaphors and other rhetorical figures (Lakoff & Johnson, 1980; Sebeok, 1991: 58-9; Danesi, 2003) and hence, verbal signs are hardly ever 'primary' representations of the world (Nöth, 2006: 258) but are literally 'figures' that model the world in a variety of ways. Thus, returning to defining language, I paraphrase Eco to argue that we cannot think of language as a single code, but as a system of interconnected codes.

> What was called 'the code' is thus better viewed as a *complex network of subcodes* which goes far beyond such categories as 'grammar', however comprehensive they may be. One might therefore call it a *hypercode*... which gathers together various subcodes, some of which are strong and stable, while others are weak and transient, such as a lot of peripheral connotative couplings. In the same way the codes themselves gather together various systems, some strong and stable (like the phonological one, which lasts unchanged for centuries), others weak and transient (such as a lot of semantic fields and axes). (Eco, 1977: 125-6)

For Eco any language can in reality be nothing other than a fanciful sum of its speakers' individual competencies on such sub-codes and on how these link up to constitute a larger system, a 'network' (see also Danesi, 2003).

3.3.2 *Remediation, rhetorical heterogeneity and innovation in new media texts*

The question for this thesis, however, is whether and how these principles – that all texts are organised by multiple, modally different codes and sub-codes and that hence all languages come together as indeterminate networks of such codes – apply if the systems of representation under study are not natural languages but the new media forms on our mobile interfaces. In examining this we should first recall the argument presented above that modern media interfaces, as they 'remediate' (Bolter & Grusin, 1999: 45), end up being constellations of *topoi* from many earlier media. In other words: these are considered to be increasingly heterogeneous for the representational conventions, modes and media forms they are 'remediating'. Hence, the argument about the inherently heterogeneous nature of all texts becomes even more plausible with new media.

Furthermore, I propose that this recognition takes us to an approach to rhetoric that was developed during the second half of the 20th century by, among others, Ricoeur (1975), Black (1979), Lakoff and Johnson (1980), Hausman (1984, 1989) and Sebeok and Danesi (2000). In this theoretical domain it is generally perceived that in such situations where between mutually non-juxtaposable signifying elements a relationship of adequacy is established (due to the context they share), they form a rhetorical figure. And the latter are generally seen as the principal mechanism of code and meaning innovation (see, for instance, Hausman, 1984; Merrell, 2006; Petrilli, 2006). As argued by Lotman, it is the collision of two modalities, of conventionality and motivatedness (paradigmatic replacements in metaphors are motivated by similarity and are not conventional) in Peirce's sense, which gives a trope its innovative tension and poetic power.

> What is important is that the meaning-generating principle of the text as a whole lies in the juxtaposition of segments that are in principle not juxtaposable. Their mutual recording creates a language capable of many readings, a fact which opens up unexpected reserves of meaning. A trope /-/ is a mechanism for constructing a content which could not be constructed by one language alone. (Lotman, 1990: 44)

In the context of media interfaces where media conventions from various contexts are dislocated to make up new multimodal tropes[19], it is a widely shared understanding that attempts to translate messages between modally different sign systems – for example, pictures to texts – are impossible. However, it is precisely in the situations where the rhetorical figures are made to integrate the antithetical semiotic structures that efforts to translate are most determined and the results most valuable.

> For the results are not precise translations, but approximate equivalencies determined by the cultural-psychological and semiotic context common to both systems. This kind of 'illegitimate', imprecise, but approximate translation is one of the most important features of any creative thinking. For these 'illegitimate' associations provoke new semantic connections and give rise to texts that are in principle new ones. (Lotman, 1990: 37)

[19] Metaphorical relations in interfaces are a widely discussed topic in new media studies. According to Ipsen (1997: 562), interface metaphors were once created for naming the previously unnamed and generating new modes of reference. Johnson (1997:32) argues similarly that metaphors 'translate' and are of help 'on the bewildering sensory overload of the contemporary mediasphere'. Coyne (1995: 249-302) points to the ubiquity of metaphors in the design and innovation processes.

With this understanding Lotman came close to Peirce's thesis that abductive thinking, associative reasoning on the basis of similarity, is the essence of all creativity (see Merrell, 2006). Following their lead, we could argue that such translations across different semiotic languages and contexts and rhetorical relations within textual systems, their bilingualism constitute the essence of creative thinking (Selg & Ventsel, 2008, 2009), and that this is the main mechanism whereby new communicative applications and their forms are generated. This is the dynamic system that provides culture with innovations and allows it to maintain and multiply its meaning systems (Andrews, 2003: 146). As John Hartley (2002: 117) extends this view, in the field of media it is the constant circulation of ideas that conditions the surfacing of innovations, new forms and products. Innovation in media and culture is equated with transmissions of texts, their convergence and the resulting emergence of the new forms and meanings:

> Innovation… can be seen when the texts of one genre invade the space of another genre. Innovation comes about when the principles of one genre are restructured according to the laws of another, and this 'other' genre organically enters the new structure and at the same time preserves a memory of its other system of encoding. (Lotman, 1990: 137)

This is explained similarly in Eco's philosophy of knowledge where there are two different ways to achieve innovations: factual judgements and metaphors. The factual judgement is the discovered 'object' in Peirce's sense; it is something born outside the language system and only afterwards transformed into semiotic knowledge. But the metaphor is born from an internal disturbance of semiosis. If it succeeds, it produces knowledge because it produces new semiotic judgements and, in the final outcome, obtains results that do not differ from factual judgements. Metaphors, if they are inventive, produce 'information' in the proper sense of the term: an excess of disorder in respect to existing codes.

Returning to the concepts introduced earlier: it is these 'local' tropes, 'remediations' or dislocations of *topoi* in textual wholes that Eco terms sub-codes. It is a mesh of such sub-codes that a new media text consists of and it is through their inventive rhetoric integration that new media are innovated in terms of their representational forms. How does such rhetorical integration of multimodal texts take place? Despite their differences all sub-types of rhetorical tropes are characterised by partial substitution of one code with another, which is somewhat alien to the logic of particular text. For instance, a particular sound, activated when a pointer rolls over a

link, functions as a metaphor – the juxtaposition is achieved through abstract semantic similarity whereas the boundaries between substitute and substituted are rather incommensurate. But when a video story is linked to a verbal news item on the same topic, their relation, because of the apparent association between the two textual entities, could be defined as metonymy (Manovich, 2001: 77). These examples demonstrate that modern hypermedia, because of their many syntactic dimensions (spatial, temporal and linked/associative), may constitute a heterogeneous set of rhetoric relations, bringing along a multilevel net of sub-codes that eventually generate the whole of a particular text (see Burbules, 1998). Hence, as suggested, there is a good reason to define multimodal semiotic wholes as 'rhetorical texts'. Lotman distinguished rhetorical text from non-rhetorical text, arguing that the first can be conceptualised as a structural unity of two or more sub-texts encoded with the help of several, mutually untranslatable, codes. 'Rhetorical texts include all instances of contrapuntal collision of different semiotic languages within a single structure' (Lotman, 1990: 57). Liestøl (1999: 172) adds that if we interpret multimedia expressions with different media types, we generate meanings beyond the expression itself and do that instead on the level of content – i.e., multimodal texts are connected semantically; they work through rhetorical relations within the text. It could be argued that textual wholes constitute meta-tropes through the process of textual overcoding. In this process a text starts functioning autopoietically, declares its borders, its own 'I', what it is not and what remains outside of it. Such a dichotomy, simultaneous movement towards both ultimate integration and growing heterogeneity, is the paradoxical nature of such texts and also of culture as a whole, as it is seen in cultural semiotics.

3.3.3 *From texts to culture: semiospheric dynamics*

The putting together of texts and culture here is not accidental as it is one of the central principles of cultural semiotics that both are part of the same dynamic. Culture is materialised in texts and texts make up a culture. It is through texts that culture communicates and it is through culture as a set of texts that it fulfils its function to preserve its memory. And it is because of that relative 'sameness', ineluctable interdependence, that we need the concept of 'semiosphere' for clearing up their relations and understanding their dynamics. This concept, originally coined by Lotman in an analogy with Vladmir Vernadsky's (1998) 'biosphere' and 'noosphere' and Bakhtin's logosphere (Mandelker, 1994), refers to an abstract semiotic space, a

'semiotic ecology' (Chandler, 2002: 240) or a 'semiotic continuum' that is inherently heterogeneous and enclosed in itself, that functions as a self-referential system (Nöth, 2006: 261) but is also in constant interaction with other similar structures (Kotov, 2002b: 42). If we are interested in the evolution of certain media forms, then Lotman stresses with that concept that 'well-defined and functionally unambiguous systems' never exist in isolation. Instead, they acquire their role and meaning when perceived as one segment of the continuum of multifaceted, multileveled and variegated semiotic formations – i.e., when being immersed in semiotic space (Lotman, 1990: 123-4). As Hartley (1999: 221) elaborates, the semiosphere should be understood as 'the whole environment of sense making, required to make any individual utterance possible'. The existence of this environment is a prerequisite for any single act of communication; it is necessary for the existence and functioning of languages and all forms of communication (Kotov & Kull, 2006). As such, as Lotman (1990: 125) maintained, in contrast to Saussure's original suggestion, the smallest functioning mechanism of meaning-generation is not an individual language but 'the whole semiotic space of the culture in question'. Andrews (2003: 32) points out that Lotman was making a clear shift away from the level of individual signs and their functions in cultural space toward a higher level of network semiosis and system-level phenomena. In this way, as maintained by Chandler (2002: 5), he offered a more unified and dynamic vision of semiosis than any study of a specific medium as if it existed in a vacuum.

According to Lotman there are four central features to semiosphere:

1. Its inherent heterogeneity in terms of languages that fill its continuum
2. Its structural asymmetry
3. Its boundedness by the boundaries of translatory function
4. The principle of binarity – that every textual entity is based on the binary distinction of internal versus external space.

As such the concept of semiosphere is not merely a synonym for culture as has been sometimes suggested (Sebeok, 2000: 532). Rather, it refers to the complex relationship between a culture, its different sub-components and its semiotic environment. Relying on the organicist philosophical strategy, it presumes and analyses isomorphic relations between all the structures and levels of a semiosphere (Mandelker, 1994: 390; Alexandrov, 2000: 347). For instance, if we relate a single website as an inherently heterogeneous but bounded textual entity to the whole 'Web-culture' as another textual

entirety and after that to the whole global 'sphere' of human culture, their differences should be understood only as quantitative – one 'level' cannot exist without the other, one cannot be interpreted without knowledge of the other. Still, as Nöth (2006: 259) explains, Lotman's hierarchy of levels makes up a system of relational stratifications in a way that higher levels are always conceived as semiotic spaces with more dimensions in relation to the spaces of their lower levels that they embrace. This way, Lotman argues (1990: 138), the entire space of a semiosphere is transected by boundaries between different levels, sub-sphericules and texts. The boundaries, then, are 'the hottest spots' for the process of semiotic innovation.

> The notion of boundary is an ambivalent one: it both separates and unites.... The boundary is bilingual and polylingual. The boundary is a mechanism for translating texts of an alien semiotics into 'our' language, it is the place where what is 'external' is transformed into what is 'internal', it is a filtering membrane which so transforms foreign texts that they become part of the semiosphere's internal semiotics while still retaining their own characteristics. (Lotman, 1990: 136-7)

The proposition that the entire conditional space of a semiosphere is transected by boundaries between its different sub-spaces turns it into an engine of semiosis – of new meaning generation. In this respect Lotman is somewhat close to Bakhtin for whom a man is 'wholly and always on the border, looking himself into an eye of the other or with the eyes of the other' (Bakhtin, 1979). Bakhtin tends to argue that one should not imagine culture as a spatial whole that has borders and also an inner territory, suggesting that culture is wholly located on borders whereas boundaries route everywhere, piercing all its moments. But, as explained by Torop (1999), the notion of boundary is inseparable from the term 'individuality'. Individuality is seen as the outcome of the autopoietic process where a cultural system identifies itself and its boundaries in space and/or time. It is the self-defined continuum inside the self-generated boundaries that thereafter become the mechanisms of translation – as identifying oneself presumes the realisation that between own domain and alien domain exists difference and that the alien domain ('Theydom', as Hartley explicates it – see 1996: 107) then needs to be understood and translated. It is the coexistence of the infinite number of such sub-systems of culture with their asymmetrically different languages, discourses and identities that, despite their difference, forces them into dialogues. The information exchange between the systems eventually results in their at

least partial convergence and in the resulting emergence of new structures, languages and all forms of communications (Hartley & McKee, 2000: 40-2).

One of the main keystones of the semiosphere concept is that everything contained in the memory of culture is directly or indirectly part of that culture's synchrony and hence, all sorts of traditional structures continue to exist in a culture's modern (convergent) textual expressions. As every element is always somehow 'remediated' into the new form it takes along the different semiotic circumstances of its earlier contexts of use, every text embraces a multilevel intertextual discourse. It is therefore important that the 'semiospheric approach' sets out to explore (the motivations for) the connections between these circumstances and allows us to redefine 'text' under the new conditions, where communicative practices with different modes are increasingly integrated. As Kotov (2002a: 30) points out, the semiospheric approach, in addition to interpreting the text as a coherent and determinate whole, also helps describe the position of a text in the wider semiotic space. It gives us the analytical means for interpreting media forms as 'open systems' that acquire their specifics from their relations with other texts and forms in the culture.

3.4 Social dynamics behind textual evolution: synthesising the disciplinary meta-languages

3.4.1 *Justifying disciplinary integration*

What was discussed above could be understood as a textual dynamic that offers the basis for textual innovations to emerge. But it is important to understand that this dynamic is not a stand-alone system. Texts are designed by somebody, they are innovated by people and institutions, and media innovation is therefore dependent on the structures and dynamics of the particular society, its institutional organisation, market demand, etc. (Freeman, 1992: 126-32, 138; Lavoie, 2004). Understanding some aspects of the connection between these two different dynamics is one of the aims of this research. For this reason I propose a dialogue between the disciplinary perspectives of semiotics and techno-economic innovation studies, together with the systems theoretical approaches to social evolution.

To start, I point to a set of central principles that specifically Lotman's and Luhmann's approaches tend to share, that in general should ease the dialogue that I take as crucial for the conceptual framework of this thesis. The first of these is the emphasis on the capability of social systems for self-regulation and self-generation. Lotman, who

engaged in particular with the creation and functioning of artistic texts in culture, developed a concept of auto-communication (Lotman, 1977b, 1990: 20-35) that describes communication from and to oneself where the self-communicating entity can be both an individual or a larger social structure. As several authors have elaborated (Broms & Gahmberg, 1983; Christensen, 1997; Cheney & Christensen, 2001; Morsing, 2006; Steedman, 2006), in the modern day context all kinds of communication (such as strategic plans, corporate reports, marketing communications, press releases) that organised bodies or systemic structures might produce could eventually start working auto-communicatively. Even if the communicative act was originally meant not for internal use but for the outside audience, once the message feeds back to its authoring structure the auto-communicative effect has taken place. As Lotman explains, the difference between 'I–s/he' communication and 'I–I' communication comes down to the fact that while in the 'I–s/he' system information is transferred in space, in the 'I–I' system it is transferred in time. In the conduct of the 'I–I' communication the information transferred is eventually qualitatively changed as the circumstances and contexts of the message have changed by the time of its re-articulation by its author. The message has acquired supplementary codes and has the potential to lead to a restructuring of the actual 'I' itself (Lotman, 1990: 22). The author goes about re-interpreting the new situation he is currently in and hence, as it is argued (Christensen, 1997: 202; Morsing, 2006: 175), the auto-communication is not primarily oriented toward sending and receiving messages but toward the production and celebration of meta-texts on the identity and nature of the communicating system. Broms and Gahmberg (1983) suggest that auto-communication turns into a process of organising through which a communicator evokes and enhances its own values and the repetitive use of the same textual form thus produces the mythologies of the communicating structure. As opposed to dialogic communication, auto-communication generates homogeneity at the expense of heterogeneity (Kotov & Kull, 2006: 196).

For Luhmann such production of meta-texts, communicating about and to oneself, means establishing the distinction between the self and the others, between the communicator and its environment. Such a communicative act works autopoietically as it also means establishing boundaries between the self and what is selected to be its outside (Arnoldi, 2006: 116). What connects Luhmann to Lotman is the need for recursion in time – meaning has to be continuously reproduced to secure the autopoiesis in a contingent environment, but the new operations can only be stored on the previous operations (Arnoldi, 2001: 6) – on the previous texts that are then reinterpreted in a new

context. Still, the difference between these two concepts lies in their differing focus: auto-communication describes the nature of the process; autopoiesis refers to the outcome, to the operational closure of establishing distinction and boundaries. In this study, therefore, these terms will be used appropriately, respecting this difference. However, the suggestion this thesis makes is that it is via the processes of auto-communication/autopoiesis that the sub-systems of society or culture continue to reproduce themselves in contingent environments.

The second primary principle that the approaches central for this study share is that plurality and unity presume and condition each other. As Luhmann puts it: '… (at least) two complexes with divergent perspectives are required to constitute whatever functions in the systems as a unity (unit or element). In reverse, this means that, for analysis of the system, such a unity cannot be dissolved into the divergent complexes constituting it' (1995: 38). He suggests that to achieve confidence about this, one can investigate the repercussions of this mutualistic-dialogical, conversational unity, and its 'language' on the complexes constituting it – studying to what extent and within what boundaries these repercussions allow the individualisation of its elements.

This issue could be studied through the means of cultural semiotics – from the perspective of Lotman, an act of Luhmann's communication could be understood as an act of language in use. That is, it is bounded by the limits of time and space and can therefore be defined as a 'text'. And as demonstrated above, texts, whatever may be their modality or materiality, are always inherently heterogeneous, they are a structure of two at minimum (Y. Lotman, 2001: 10). Proceeding from that we can suggest, on the one hand, that the theories of Lotman and Luhmann depart from similar premises and, on the other, that Lotman's semiotics helps to conceive how the 'communications' of Luhmann's system as Lotman's 'texts' guarantee the system's autopoietic closure as well as its openness at the same time. This comes from the understanding that if a system is inherently heterogeneous, it collocates many of the existing languages, it has to be able to connect also to its environment – where the same or similar language systems also most probably exist. This is the principle that every text is intertextually connected to the rest of the culture. Paradoxically, a text can be perceived, without losing its integrity, not to be identical only with itself but also with a variety of superstructures – with the language systems it is a part of. Every cultural entity, as Lotman puts it (1997), can, on the 'higher levels', belong as a sub-structure to many different super-structures. Correspondingly, Luhmann (1990: 13) proposes the following: '… communication is an evolutionary potential for building up systems that

are able to maintain closure under the condition of openness'. Ultimate isolation is impossible since every social entity (especially one designing communicative forms) has to be in dialogues with others.

3.4.2 *Convergence of old and emergence of new social systems*

It should also be explained what is meant when I refer to the social systems and use the Luhmannian concept. Most of Luhmann's theorising revolves around his few central constitutive distinctions and the related division of grand macro-level functional social systems – a suggestion also followed in the macro-economic approach of Freeman and Louçã (2001) who work within the limits of such macro-systems as technology, economy, culture, science and politics. It is doubtful, however, whether working within such broad heuristic frameworks will help achieve the aims of this research. The main problem with such grand divisions and distinctions is that these make it difficult to deal with the convergence and divergence processes of these systems and, hence, fail to grasp the crucial minor dynamics that may eventually set the agenda for the design processes. For instance, Sevänen (2001) asks discreetly: what does it mean that in the Middle Ages and in the baroque period it was hard to distinguish the visual arts from the communicative functions of the church? There were no clear boundaries between religious symbolism and the visual arts. And if in modern times the functional differentiation is the main constitutive force in society, then it is increasingly difficult to tell the difference between art and entertainment, art and design or art and advertising (Priimägi, 1998).

Relating to this critique, Beck suggests that '[p]erhaps the autonomy premise of modern systems theory, raised to the level of virtual autism, is only the basic multiplication table, while decimal arithmetic starts only where one autonomy is cross-linked with another, where negotiating institutions come into being…' (Beck, 1994: 24-5). He argues that the logic of differentiation, which conceives of system codes as exclusive and assigns each code to one and only one sub-system, blocks out the horizon of future possibilities. Adapting to the everyday social and semiotic maelstrom is only possible when code combinations and syntheses are imagined, invented and tried out. 'The "aesthetic laboratory" that society has long since turned into is only one example of this. The question runs (in classic terms): how can truth be combined with beauty, technology with art, business with politics and so on?' (Beck, 1994: 32).

In other words: Luhmann's thesis on differentiation as the constitutive force has to be explicitly balanced with convergence as a parallel and ineluctable force. A good example of such border crossings between economic and cultural sub-systems in Luhmann's terms would be the institutionalisation of the desktop website design. Rivett explained it this way: 'Design is a practice and practices cannot normally survive for long without being sustained by institutions…' (Rivett, 2000). Rivett claims that the field of 'graphic design for interface media' is dependent for its future on the commodification of the website.

> This is an economic imperative for – if designers are to secure contracts from the commercial sector – they must be seen to provide a recognisable 'worthwhile' product. Part of this process of commodification is manifested in the drive (emanating from commercial Web design) to legitimise and professionalise the design/construction of the website. This is demonstrated in the work emerging from the area of website design where there is evidence of the construction and imposition of frameworks for the design of on-line media, within which certain forms are represented as legitimate and others not, a process integral to the professionalism of this area of design. (Rivett, 2000)

The construction and imposition of such new frameworks has two functions – first, to work as a set of normative meta-languages that lay out the characteristics of the emergent forms; and second, to work autopoietically for the new social institution itself. It is for this reason that this research abandons the heuristics of the grand systems and aims to discover and distinguish the actual social identities and systemic structures that are involved in the design of the mobile media applications. This should be done because hypothetically the meta-discourse that tries to impose norms for a design from a perspective of a certain social system, is also, for the most part, the same discourse that autopoietically articulates the identity of the same social system. As Graham and McKenna (2000: 49) propose: '… the higher the degree of consistency between systematically produced descriptions and individually produced descriptions, the more likely it is that a particular discourse community will maintain an ongoing identity within society'. Krippendorff, a theoretician of modern media design, establishes three ways that design discourse can be expected to be instituting its recurrent practices (Krippendorff, 1995a):

> (i) enabling social organizations to thrive on controlling the technical means of (re)producing and disseminating the discourse – not only its textual matter and its community, but, most importantly, its very own organizational forms (social autopoiesis),

> (ii) legitimizing its procedures, methods, theories, schools of thought, and criteria through the very acts of making them selectively available, especially to members of its discourse community who may turn the benefits of participation into loyalties to particular organizations operating within that discourse, and by
>
> (iii) applying its axioms relative to which a discourse (its textual matter, conversations, and organizations) can achieve a certain autonomy, coherence, and direction.

This relates to Cavalli's (2007) argument that all techno-economic innovation processes presume the parallel changes in the discourse communities of an era. Krippendorff also argues that discourse 'surfaces in textual matter' which is continuously (re)read, (re)written, (re)produced, (re)searched, (re)articulated, elaborated or rejected. 'A community continually (re)generates its textual matter and acquires the character of a dynamically connected diversity' (Krippendorff, 1995a; see also 2008). I hold on to that principle of 'dynamically connected diversity' here and reject Luhmann's rigid premise of one code distinction per sub-system or organisation (Martens, 2006: 17; Seidl & Becker, 2006) as it does not facilitate the understanding of dynamic processes of social emergence at the borderlines of the existing social structures, discourses and languages. Instead, as implied above, this thesis proceeds in accord with the Lotmanian view of the inherent heterogeneity of all social and cultural systems in terms of the codes, languages, discourses, etc. they contain and integrate. Social systems, as I propose, come together as a 'dynamically connected' mesh of texts, discourses or 'communications' that reciprocally communicate about and model each other, define each other's characteristics, meta-communicate about the whole they make up and codify the practices and social forms of their production. But the suggested inherent heterogeneity of systems also means that in their auto-communication they are to some extent polyvocal and 'dynamically diverse'.

However, when it comes to the emergence of new systems at the borders of the old ones, the rest of Luhmann's theory still lends itself well to my investigation. He explains that 'every social contact is understood as a system, up to and including society as the inclusion of all possible contacts' (Luhmann, 1995: 15). Hence, the systems start with the dialogic acts; they are drawn forth by communication. When a contact between two existing systems is established and a dialogue takes place, there is then also a possibility for autopoietic closure and an emergent social system**.** This research aims to look for the meta-discourses on the design of exactly such 'smaller' social systems, communities or organisations that emerge on the boundaries of older structures, that are hypothetically able to constitute themselves through the means of self-referentiality but, at the same time, are always connected to the rest of the culture and society in various

ways. The aim is to mark both of these – the discursive continuities as well as discontinuities – between different older and emergent social systems.

3.4.3 *'Evolution': synthesised conceptualisation*

How can the central term of this thesis, the 'evolution', be conceptualised from the perspectives of the chosen disciplinary perspectives when integrated? To answer this it is, first, important to introduce the dichotomy of continuity and discontinuity, which is a crucial intrinsic characteristic of most of the existing evolutionary theories. If we turn to Schumpeter's theory of economic evolution, then every system aims towards minimising its discontinuities and achieving equilibrium. In his system, the mechanism of equilibration provides the resistance to change in the economic system; it is the self-defence of established business and institutional traditions, the creation of order and continuities subsuming the creation of novelties and discontinuities (Freeman & Louçã, 2001).

But if there is a constant movement towards equilibrium and order, then how does the system generate the innovative mutation and discontinuities which, according to Schumpeter, arise 'from the system itself', from new needs created by economic processes? To explain this, we can return to Lotman's semiotics. As explained above, every text or semiotic space has its self-defined boundaries in space and/or time. But a cultural system, while identifying itself, its boundaries and the outside, also identifies the Other and its characteristics – it has to understand and translate its features for itself (Kotov, 2002b). Or, as Luhmann puts it, boundaries cannot be conceived without something 'beyond' – thus presupposing the reality of a beyond and a possibility for transcendence (Luhmann, 1995: 28). When the translation through the boundary, the 'bilingual membrane' is conducted, then the communicative act has found a place and through this, new information has entered the cultural space. According to Sebeok (1991: 22), it is the act of communication that decreases entropy locally, i.e., produces change within the system. Hence, it is the communication between different societal sub-systems or semiotic spaces (different disciplines, industries, professions, firms, countries, etc.) that facilitates production of new information and innovation.

But it might also have a parallel and opposite effect. In Lotman's terms, if new information is translated from one of culture's sub-systems to another, from one language to another, then this has an effect of an 'explosion' (Y. Lotman, 2001, 2009). The moment of explosion is a central point for extreme information expansion for the

entire system and, as such, it re-establishes a certain unity within the system. This refers to the paradoxical essence of such an 'explosion' – it yields succession and continuity within the whole of the system, while the continuous independent evolution of different sub-systems facilitates discontinuity (see Andrews, 2003). It can be argued, therefore, that communication within the system and translatory acts over its various borders facilitate the preservative functions of a culture as well as its drive for change. Similar to this fundamental insight is also the proposition by Freeman and Louçã (2001: 123-35) that the long-term economic growth of societies and its broad waves of development are brought about by the dynamic that presumes, on the one hand, semi-independent and asynchronic development of sub-systems such as culture, technology or economy but also their occasional 'synchronisation' – ultimate information change between them that disrupts the society, effects innovations, establishes the ground for new technological regimes (Freeman & Perez, 1988) and new stages of growth. It is notable that, as Zylko (2001: 405) has pointed out, on the societal macro-level Lotman's 'explosions' similarly manifest themselves in epoch-making inventions and discoveries that change society's direction of development and prompt transitions from one historic phase to another.

Also relevant here is the understanding, put forward by Freeman (1992: 122), that despite all the problems with applying the biological metaphor of 'evolution' on the societal processes, the principle of 'selection' is a useful stimulus of thinking. As he put it, evolutionary selection is at work at all possible 'levels' – that of R&D project or a programme in the R&D system, the individual innovation within the firm or the firm itself, the industrial branch, the nation or a wider social system on a global level – and in the interplay of these and similar 'levels'. Building on this and Luhmann's theorisation I propose that we can assume all the systems to 'select' – more or less consciously or purposefully – and the aggregate outcome of these selections is the societal order of an era.

However, it should be also emphasised that all the theoreticians discussed here acknowledge that the use of the biological metaphor might be misleading. Lotman (1990: 127) explains that biological evolution involves species dying out and natural selection, but in the history of art, works that come down to us from remote cultural periods continue to play a part in cultural development as living factors. 'A work of art may "die" and come alive again; once thought to be out of date, it may become modern and even prophetic for what it tells of the future' (Lotman, 1990: 127). He explains that what 'works' is not the most recent temporal section, but the whole packed history of

cultural texts: everything contained in the actual memory of culture is directly or indirectly part of that culture's synchrony. For Lotman, hence, behind evolutionary change is not linear development but the 'remediation' from the 'history' or 'periphery' of culture into its current mainstream, where it appears as an innovative disruption. Both Lotman and Schumpeter emphasise the circular dynamics that underlie evolution. For Russian Formalists as well as for Lotman, communicational forms move constantly between the cultural centre and periphery according to the pace with which they 'defamiliarise' themselves and/or acquire new innovative potential. And different languages evolve with their own pace: '... fashion in clothes changes at a speed which cannot be compared with the rate of change of the literary language' (Lotman, 1990: 126).

Schumpeter's discomfort with 'evolution' was similar – he argued against Darwinian linearity, which for him equated to the plain and irreversible movement towards equilibrium. But as Freeman and Louçã suggest (2001:49), his model was nevertheless evolutionary, since it defined the economy as an 'organic' whole, propelled by a process of development with mutations. Evolutionism for him was simply a consideration of organic evolution in real time, or of historical and irreversible processes of change. This is also how this term should be understood in the context of this research – referring to the emergence and further development of a certain organic textual, technical and institutional, inherently heterogeneous but interconnected and self-reinforcing entirety on the actual diachronic axis of time (see also Lundgren, 1991: 43-4).

3.5 Systemic power: meta-descriptions, centre-periphery dynamics and dialogic control

3.5.1 *The power of grammars*

Evolution, potency for change, is unavoidably related to existing power relations in the society or its sub-systems. Luhmann explains that system and environment collaborate constantly, producing every effect, and this relies on the principle that when a system 'produces' itself, then it selects *some* and *not all* causes that are necessary for specific effects that can be employed under the control of the system.

> This difference makes selection possible, and selection makes retention possible. Therefore a complex of 'productive causes' can come together as a result of evolution (or subsequently with

> the help of planning) and, once together, be in a position to assemble appropriate environmental causes. (Luhmann, 1995: 20)

Systems have to select, as for them, their environment is always more complex than themselves (disorder), and this leads to contingency which, from the perspective of a system, can be perceived as risk for their stability. But what is important is that such selection, every attempt to impose order by a social entity, even if it is done for risk reduction, also means an application (or, as Pottage, 1998, suggests, the emergence) of power.

This can be associated with Manovich's (2001) implicit proposition that in media development there are always two universal stages: a short initial gestation period where it evolves at a rapid pace and develops its main characteristics, and a second stage, where having acquired its final form, it will thereafter undergo only minor changes during the rest of its existence. Such a way to divide evolutionary processes of cultural forms analytically into two is reflected in the way Eco (1979: 138) and Lotman (1977a) distinguish between 'grammatically oriented' and 'textually oriented' cultures, and how Kress and van Leeuwen (2001: 113) write similarly about 'lexically' and 'grammatically' organised semiotic resources. According to Lotman's view, textual culture generates texts directly which constitute macro-units from which rules could eventually be inferred. Kress and van Leeuwen add that in such 'cultures', semiotic modes are approached as a paradigm, a loose collection of signs, which functions as a more or less unordered storehouse of resources (Quintilianus's *topoi*). In grammatically oriented cultures in turn, texts are generated by combinations of discrete units and are judged correct or incorrect according to their conformity to the grammatical rules of the particular system.

> Grammars /-/ use very broad, abstract classes of items, but provide fairly definite rules for combining them into an infinite number of possible utterances. They are decontextualised and abstract, but also powerful in what can be done with them. Perhaps it is no wonder that grammatically organised modes have tended to be the most powerful modes. (Kress & van Leeuwen, 2001: 113)

The transition in language systems from one phase to another is understood by Lotman as every system's movement towards self-description. The fact that Kress and van Leeuwen recognise the increasing power of the grammatically organised modes refers to how autopoietic functioning is connected to the issue of power. Self-description and

normative grammar development are Luhmann's selections, a system minimising its risk by organising its environment on its own terms, an action legitimised by the power it masters. 'The highest form and final act of a semiotic system's structural organization is when it describes itself. This is the stage when grammars are written, customs and laws codified' (Lotman, 1990: 128). In Lotman's terms the stage of self-description is a necessary response to the threat of too much diversity within the semiosphere: the system might lose its unity and definition and disintegrate. This suggests that one part of the semiosphere – the one that strives to become a dominant centre – is always in the process of self-description, of creating its own 'grammar'[20], after which it strives to extend these norms (and this way, itself) over the whole semiosphere and, in this way, a partial grammar of one sub-system might become the meta-language of description for culture as such. This makes it the direct application of power that brings power asymmetry.

There have been several theoreticians who have recognised this kind of phenomenon in new media development. For instance, Rivett (2000: 43) has suggested that the increasing circulation of 'handbooks' in Lotman's terms (see Ibrus, 2004), which combine the classification and analysis of websites with the construction of site design principles, is inextricably linked to particular groups' attempt to impose their particular vision, not only of what the website should be, but of the future of the Web itself. This is why many new media theorists have warned that the Web, rather than becoming the radical freeform space predicted by early enthusiasts, is instead being effectively shaped by a variety of dominant cultural forces, in particular, commercial institutions (see Herman & McChesney, 1997; Lovink, 2003; Galloway, 2004, 2006a, 2006b; Rossiter, 2006).

3.5.2 *Centre-periphery dynamics*

Lotman's semiospheric theory opens up a different perspective for understanding such developments and suggests instead grammatical diversity for the future of new media. As Andrews (2003: 68) explains, meta-description always gives rise to higher entropy. Once the core of a system starts self-regulating itself and becomes rigidly organised, it starts losing its dynamism. Having exhausted their reserve of indeterminacy they become inflexible and incapable of further development. But on the periphery this 'idealised' norm or a regulative framework will be in contradiction with the semiotic

[20] Lotman explains that it may be real or ideal depending on whether its inner orientation is towards the present or towards the future.

reality lying 'underneath', and not a derivation from it. The closer to peripheral areas, the more the power of the core gradually diminishes and the 'grammars' of the core become illegitimate. Hence the relationship between semiotic practice and the norms imposed on it becomes ever more strained.

> Texts generated in accordance with these norms hang in the air, without any real semiotic context; while organic creations, born of the actual semiotic milieu, come into conflict with the artificial norms. This is the area of semiotic dynamism. This is the field of tension where new languages come into being. (Lotman, 1990: 134)

In other words, all the different avant-garde movements and sub-cultures that are somewhat independent of the existing power structures such as academic cultures (Castells, 2001), open source movements (Weber, 2004; Mansell & Berdou, 2009) or simply the global community of creatively engaged end users who occasionally organise themselves as informal 'fringe groups' (Sawhney & Lee, 2000, 2005) ought to be the agents which break the rules, innovate and, in this way, secure the pluralism of grammars and languages of hypermedia and their dynamic development. In Lotman's terms, this refers to the potential 'maturing' of the periphery, how peripheral disruptions may become the dominant codes and norms for the whole semiosphere.

This is why Schönle (2001, 2003) imputes to Lotman a status of a potential innovator of the Western mainstream cultural studies (that as a rule ascribe to the somewhat sempiternal qualities of existing hegemonies). He shows how Lotman, although sharing the poststructuralist premise of the primary role of discourse in founding reality, makes a case that the unavoidable and infinite diversity of a semiotic environment starts eventually mitigating the subject's dependence on the discourse. 'Thus subjects act on their impulse to autonomy by playing discourses against each other, recording them in an act of auto-communication that generates novelty in the process' (Schönle & Shine, 2006: 24). So although people are immersed in systems – discursive or social – agency can still rest in themselves[21].

[21] The latter argument needs to be justified in the light of the almost uncontested consensus within the 'critical' sociological mainstream that systems theoretical accounts and especially Luhmann's model are anti-humanist and 'immoral' due to his claims that systems are largely autonomous from human control as well as because of his abandoning of the subject-centred communicative rationality, which could provide a counterweight to the systems (see Blühdorn, 2000: 10-13). In this context it should be pointed out that the fact that individual people cannot control the discourse does not have to mean that they lose their autonomy to the discourse. We have to remember that in Luhmann's terms, his social systems are not groups or networks of actual people. Instead, they are sequences of communicative events, which are held together by certain rules of communication and structures of expectations – i.e., being essentially (self-referential) 'discourses' as the phenomenon has been understood in cultural studies since Foucault.

3.5.3 *De-ontologisation of power: dialogic control*

For refinement, however, the centre-periphery power dynamics could benefit from some filtering through Luhmann's and Foucault's power theories, especially in the form these have been interpreted and linked by Borch (2003, 2005) and Pottage (1998). From Luhmann's perspective, the construction of self-referential systems results in a need to abandon the idea of unilateral control:

> There may be hierarchies, asymmetries, or differences in influence, but no part of the system can control others without itself being subject to control. Under such circumstances it is possible – indeed, in meaning-oriented systems highly probable – that any control must be exercised in anticipation of counter-control. Securing an asymmetrical structure in spite of this (e.g. in power relationships internal to the system) therefore always requires special precautions. (Luhmann, 1995: 36)

What Luhmann here criticises is the so-called classical theory of power, in Foucault's terms also known as the 'juridico-political' power concept. There are three main assumptions in this image of power (see Foucault, 1990: 94-6). First, assertion of possession – power is conceptualised as a substance that can be possessed or exchanged, which implies an idea of power as a zero-sum game. Second, an assumption of location – power is concentrated in a centre from which it flows (causally and top-down) to the rest of society. Finally, the discourse of sovereignty relies on the contention that power serves purposes of repression – to exercise power is to limit freedom. According to Foucault this model evolved in the feudal era and is how sovereigns of that time preferred to present their power. But we should take a point from Luhmann for whom modern society is primarily differentiated into operationally autonomous sub-systems and is, hence, without an apex or centre. As Borch (2005: 158)

According to Luhmann, modern society makes it impossible to assign individuals to one system only. Instead, it lets each individual potentially participate in all the systems that can exist (an essentially unlimited and infinite amount) and hence none of them ever includes the individual as a full person (Luhmann, 1990: 116; Schwanitz, 1996: 491; Blühdorn, 2000: 342) – i.e., their individual agency cannot be controlled by any of them. In Mandelker's (2006) terms this is the phenomenon that offers grounds for personal 'estrangement'. As she points out, for Lotman the ability to deliberately distance oneself to the 'periphery', where self-reflexivity is put into dialogue with the Other, enables achieving an estranged perspective that, in turn, represents the possibility for an unpredictable, innovative and, most importantly, free action that enables and empowers the individual – the 'Creative personality' (Deltcheva & Vlasov, 1996: 8; Bethea, 1997; see also Ronneberger, 2004). Schönle (2006: 198) explains that Lotman's theory proposes a semiotic theory of the self that consists of two parts: one dealing with the ways the self constitutes and changes its identity for itself, and the other with interactions between this self and the social codes of all the possible systems it participates in. The self develops its subjective identity by absorbing a message coming from outside and projecting it onto a supplementary code coming from within (Lotman, 1990: 22).

notes, this characterisation suggests the need for replacing notions of power that reinstate a conception of a hierarchically differentiated society as the contemporary semantics of power should not reflect a pre-modern social structure.

Foucault's solution to this dilemma was his concept of *governmentality* (Rose, 1999; Foucault, 2002a: 201-22). Conceptualised as government, power is defined as 'conduct of conduct', or 'action upon action', and to exercise power is, in the first place, to structure the possible field of action of others, of all the actors in a shared environment. As all the systems present in a particular environment face contingency and therefore make their selections so that to reproduce themselves they affect each other by virtue of their own autonomous principle of replication. As Pottage (1998: 22) puts it: each of the actors is dependent on the autonomy of the other. 'The art of the game is not to dominate the opposing actor, but to anticipate and exploit its interventions, and thus to make one's own interventions dependent upon an opponent's restless invention of (counter-)strategies' (Ibid.). As such power is relational, emerging through situated oppositions between autonomous and radically discontinuous processes, it is non-subjective, emergent and contingent.

In this context it should be noted that in Lotman's writings there are some inclinations towards seemingly ontological takes on power (Ibrus, 2007). This is something that in this research will be avoided, following the de-ontologised power theories of Foucault and Luhmann. At the same time, we should turn our attention to Lotman's (1990: 150) argument that the semiosphere's elements can, at the same time, be both active and receiving, in one sense centre, and in another, periphery. This principle offers a way to apply the semiospheric model in understanding the complexities of power dynamics in the modern functionally differentiated society. Namely, if for Luhmann power could be understood simply as 'communication coded in a certain way', then Mandoki (2004: 100) defines power as an effect of meaning for a specific subject in a specific situation according to a specific code. Or, as Krippendorff (1995b) puts it, power is 'dialogically embodied, emergent in 'burdensome languaging' with the Other. Hence, we can argue, it is the languages and codes within the semiosphere where the existing power relations are addressed and redefined, enabling in this way mutual adaptation and co-evolution, 'actions upon actions'. If we now recall that according to Lotman every cultural system is inherently infinitely heterogeneous and that every system could be seen as incorporated into different autonomous super-systems (Lotman, 1997), we can posit that every system can participate in a variety of language systems and thus also in many different power relations that to some extent

are independent of each other. A system can, in some of these, be active and in others, be passive, in one respect governing and in another being governed by others, in Foucault's terms.

Therefore, what this discussion suggests is that, when we think about new media artifices and the (techno)culture around these as an extremely heterogeneous mesh of texts of different levels, modes and materialities, the evolution of this mesh suggests an immensely complex power dynamic, comprised of multileveled mechanisms of control and counter-control between diverse nets of actors and sub-systems (Krippendorff, 2008). In some of these relationships the degrees of freedom might be greater for specific actors, while in others they might be fewer (Mansell & Silverstone, 1996a: 6). The term 'dialogic control' is here suggested as a way of understanding and describing such relationships for avoiding the overly simplistic use of centre-periphery dynamics. This puts the main focus of this research on Lotman's notion of dialogue – that leads to change and hence to cultural flux, rather than to social fragmentation. As Schönle and Shine (2006: 24-8) point out, Lotman's theory provides an answer to cultural studies' age-old dilemma between the hegemonic unity and decentredness of power. They argue that for Lotman culture is essentially both, 'for it evidences both centrifugal and centripetal forces, which play themselves out on various, coexisting layers'. It is a significant paradox of media evolution, that the convergence of various media conventions in new media applications does not only mean apocalyptic one-way flows into semantic implosions as Baudrillard suggests (1983), but also the evolution of new languages, new borders, new differentiations and functionalities, new discontinuities within new continuities. This research is designed to explore such dual dynamics of media evolution.

3.6 Memory in work: from cognitive uncertainties to path-dependencies

3.6.1 *Interpretative limits leading to remediation*

It is important to recall that this research is about the early gestation period of such processes – where the forms that are tried out in new contexts are all novice, they are still 'textually oriented' in Lotman's terms, and piece by piece remediated to converge into a somewhat rhetorical 'mess' that might be hard for users and producers alike to make sense of or command during their encounters with these nascent forms. This is why various scholars have started to talk about such phenomena using terms such as 'cognitive overload' for users (Ipsen, 2003: 195) or 'ontological uncertainty' for

producers (Lane & Maxfield, 2005). Eco's suggestion has been that, in the case of users in such situations, a necessity of continuous 'under-coding' is imposed.

> The interpreter of a text is at the same time obliged both to challenge the existing codes and to advance interpretative hypotheses that work as a more comprehensive, tentative and prospective form of codification. Faced with uncoded circumstances and complex contexts, the interpreter is obliged to recognise that the message does not rely on previous codes and yet that it must be understandable; if it is so, non-explicit conventions must exist; if not yet in existence, they have to exist (or to be posited). (Eco, 1977: 129)

He argues that in this kind of situation the term 'interpretation' is not being employed in the sense of 'decoding'. Instead, it refers to a process of understanding that is based on some previous decoding and the general sense of a vast portion of discourse. In terms of logic this kind of interpretation is similar to *inference* and the specific type that Peirce called *abduction*.

As explained by Wirth (2002), abduction as a process of finding explanatory hypotheses is, according to Peirce, triggered by a 'surprising phenomenon' that rouses our consciousness. He explains that we always presume that the surprising facts that we have observed, explained and collected are only one part of a larger system of facts, which as a whole is unknown to us – it is just a guess. This larger system creates a cognitive context that frames the process of probational hypothesis adoption. This may be what we do when we first meet a new media application with unfamiliar functions – we probe our hypotheses on the basis of earlier experiences and our conception of bigger structures. If such guessing appears to be productive and the guesses turn out to be right, there is a chance that the abduction, once performed, becomes a customary social reflex. This is also the reason why abduction represents the first step in the process of conventionalisation of communicative forms. A consistently interpreted ambiguous uncoded context gives rise, if accepted by a society, to a convention (Eco, 1977: 135-6).

What this brings to light for analysis of the evolution of media forms is the feasible pace of the process. Media producers have to take into account the limits of users for abductive interpreting or undercoding. The innovation cannot be too radical and it has to rely to a significant extent on existing and widely recognised representational conventions and the 'larger systems of facts' or the 'horizon of expectations' that the audiences are assumed to have. It is for this reason that in domains of software design and HCI a strong conviction has evolved that designs for

new applications have to rely to some extent on existing conventions from other media so as to give users cues and resources for learning by using (see Brown & Duguid, 1996; Rheinfrank & Evenson, 1996: 71). Therefore, continuity in interpretative abilities could be argued to be one of the causes of 'remediation' – the step-by-step innovation and reliance of the rhetorical dislocations of representational conventions from all earlier and current media.

3.6.2 *Memory effect: locking in and locking out*

This phenomenon takes us to the 'memorialist account' of this research. In other words, all these different accounts of 'larger systems of facts', 'past experiences', reliance on existing texts, their conventions and audiences' expectations of them refer to the phenomenon of memory, to the troublesome relation between the individual and collective memory, mind and culture and to the question of memory as a factor conditioning the formation of futures.

In this context it has to be recalled how Clifford Geertz (1973) regarded cultures as webs of meaning spun by humans themselves in which they end up being suspended. And how Lotman defined culture as the 'non-inherited memory' of a group of people, preserved and passed on by means of narratives, models and myths (Lotman & Uspenskij, 1978). As such, memory is to a significant extent 'externalised' and materialised in texts that make up the semiosphere, the 'environment of sense making' (Hartley, 1999: 221). This aspect can be associated again with my conceptualisation of new media as 'text' – inherently heterogeneous, but autopoietically bounded semiotic entities, materialisations of mixed sets of culture's codes. And these sets include all: the codes of the forms of content representation on the screen, codes of the technology 'underneath' and codes around the screen – those of 'industrial design' – as together these are all codes of the particular form of 'writing' (i.e., of the particular media form). In this context it has to be firstly recalled that any 'language' or semiotic code that is used in such texts can never be predominantly the property of the individual. Rather, all its languages are shared between one or more 'speech communities' that are embedded in a more broadly defined cultural *milieu*. Hence, all the more conventionalised semiotic codes or forms of representation shift the burden of 'memory' from the individual to an externally given symbolic system that is collectively maintained. Now, if we recognise the vast amount of codes and modes of different materialities that are used for enframing the new media forms as immensely complex 'texts', the next step would be to realise

that all these codes of design, being now externalised and actualised in the text, become bearers of cultural memory. In Winkler's (2002: 98) terms, all such actualisations become the condensed social and material 'deposits' that to some extent are capable of determining the subsequent practices.

In innovation studies a similar phenomenon is known as 'path-dependency' or historical 'lock-in' of economic processes. For the first notion David (2000), one of the authors working on this concept, offers the following definition: 'Processes that are non ergodic[22], and thus unable to shake free of their history, are said to yield path-dependent outcomes'. After that, the historical 'lock-in' is:

> … the entry of a system into a trapping region – the basin of attraction that surrounds a locally (or globally) stable equilibrium. When a dynamic economic system enters such a region, it cannot escape except through the intervention of some external force, or shock, that alters the configuration or transforms the underlying structural relationships among the agents. (David, 2000: 25-6)

His basic argument is that in cases of technologies where there is an advantage in sharing a common system (like most mass media technologies and communications platforms, that presume larger 'speech communities' to use them) there is a point in the diffusion of a new technology where the spontaneous decisions of individual users lock in one technology and drive out the others, even though at the outset they were taken as equally good competitive solutions. This understanding relates strongly to the concept of 'network externalities' that refers to an incentive for individuals to adopt a certain sort of behaviour only due to the fact that a considerable number of others have already adopted it. If, for instance, a new communicative platform might be in question, its quick take-up may lead to the process of positive 'feedback' that may continue until that solution is selected and the other left behind. However, Lundgren (1991: 70-1) suggests that in addition to positive network externalities on the end user level there are also a few other sources of positive feedback that may lead a system to path-dependency, e.g. technological interrelatedness, where the functioning of the parts is contingent on the functioning of the whole, which could deter revolutionary changes of the parts. Similar could be the role of 'industrial networks' that may halt quick development by sticking to established rules and regulations, routine transactions, relationship-specific investments,

[22] As David (2000) explains it, in physics ergodic systems are said to be connected, in the sense that it is possible to transit directly or indirectly between an arbitrarily chosen pair of states, and hence, eventually, to reach all the states from any one of them.

etc. And lastly, learning as a process which as a mass phenomenon is unavoidably slow and thus hinders revolutionary changes in established systems – as we already realised when discussing how interpretative limits condition remediation.

David points out that the configurations that result from such positive feedback processes could be understood as 'self-sustaining equilibria'. Garrouste and Ioannides (2000: 4) use the term 'self-reinforcement' of systems. That is, in the case of a path-dependent process some particular historical event initiates the sequence of transitions that selects the configuration that is going to be realised as the system's emergent property. In other words, in the language used in this chapter, a system's selections depend on and are limited by its memory, by its autopoietic functioning that relies on its existing textual configuration.

In the light of Lundgren's suggestions for the sources of path-dependence, it is important that, also according to David, such a locked-in equilibrium point can rely on anything from the institutional hierarchy to a technology or behavioural norm (David, 2000: 29). Departing from this and building on the conceptual thinking presented earlier in this chapter, I propose in theoretical terms that to some extent these and many other interrelated enframings that are part of an autopoietic process of self-creation of a social system related to the development of a particular new media form must ideally be included. Starting with the heterogeneous set of sub-texts and sub-codes that constitute the current new media forms and ending with the various levels of meta-languages and meta-texts of different engaged groups and agents that either passively model or actively standardise this particular form, these may all lock each other in, as the first aim of the whole system is to sustain itself. The codes of different levels as potentially independent evolutionary processes cannot shake free from each other since, first, the different levels of meta- and object-languages are simply modelled according to each other and are, hence, interdependent. Second, even if the codes happen to evolve due to information exchange between different systems, it cannot happen too hastily, as the variety of their 'speech communities' from various producers and communities of practice to the manifold groupings of users means that when they are forced to undercode they need a relatively stable 'larger system of facts' in order to reach successful and adequate interpretations. As we observed, learning is a slow process and even more so in interaction with economies of scale in production and industrial networks being in place together with their regulations and codes of conduct. It is for all these reasons that cultural memory could be argued to be behind the continuities in culture and path-dependencies behind the evolutionary dynamics of its forms.

But what, then, about the discontinuities? Garnham (2000: 77) suggests that the implications of the path-dependency theory are that, unless there is regulatory intervention early on in the development of a communications technology, it is likely that monopoly power is able to sustain itself and preserve the status quo by reinvesting in its favoured technological trajectory. As David explains above, it needs the intervention of some external force that alters the existing locked-in configuration,that might be needed if paths lead systems 'to places everyone would wish to have been able to avoid' (David, 2000: 26). The potential for the latter realisation can be associated with the idea that in modern societies, when more and more of their self-reflective knowledge is codified – i.e., has become part of the system's memory – this accumulation of knowledge brings about reassessments of its current equilibria, new differing meta-languages and potentially a need to shake free of the existing path. In Luhmann's terms, new selections motivated by a need for risk management. And the interchange of knowledge between systems and its accumulation may also lead to innovations that, as Dolfsma and Leydesdorff have shown, may create a potential for unlocking the established trajectory when being taken up in the market. 'The lock-in can thus be expected to erode as the diffusion rate for the new technology increases' (Dolfsma & Leydesdorff, 2009: 939).

Therefore, it is the memory-enabled potential for knowledge accumulation that offers a basis for a society or its individual sub-systems to re-assess itself, its risks and selections and in the following period to aim for re-creating itself and changing its equilibria. Altogether we can suggest that it is the memory of the systems, externalised and materialised in its 'semiotic universe', its different texts, technologies and institutions, that both enforces the processes that create continuities in culture as well as initiates the mechanisms that bring forth the change. Or to be more exact, it balances in between, conditioning the feasibility of the evolutionary processes and its dynamics.

3.7 Conventionalisation into genres

Focusing on desktop Web-media, Fagerjord has suggested (2003, 2006; see also Scharl, 2000: 14-15) that all its different uses have created patterns of writing, distribution, consumption, and economy that render them different media or 'Web genres'. 'We may not be able to establish clear-cut borders between Web media, but we might at least distinguish between different gravitational centres around which many Web sites cluster, some close to the centre, some in the fringes, all influenced by more than one

gravitational field' (Fagerjord, 2003: 314). The fact that the genre divide, their borders and characteristics for desktop Web were in 2003 still nondescript recalls the idea that these must be even more vague in yet younger media, such as the 'mobile Web'. The new forms that are created for such nascent platforms through rhetoric dislocations from other contexts and media suggests that these new compositions do not have the fixed rules immanent in the conventionalised and, hence, fully functional genres that would set users firmly onto the desired interpretative paths.

In this context Lotman et al. (1973) stated that audiences are only able to receive and recognise the information that is in a certain genre, and Jauss (1982) suggested that the 'horizon of expectations' of audiences is framed mainly by genre rules. And it is for this reason that Brown and Duguid (1996) have pleaded that software designers should work within the borders of genres, as these provide 'scaffolding for the simple co-production of complex structures'. Hence, for the producers a genre is, as McQuail has put it (1987), a practical device for helping any mass medium to produce consistently and efficiently and to relate its production to the expectations of its customers. We can therefore suggest that behind the functional differentiation of forms into 'genres' is a dialogic process where the existing intertextual knowledge of users makes up their horizon of expectations for the media forms they use and producers try to take that horizon into account when producing new applications.

However, there is still the question as to what makes the genres change, who initiates and defines the genre innovations? Neale (1990) has argued with respect to film genres that, although generic expectations and knowledge do not emanate solely from the film industry, and its ancillary institutions and individual spectators may have their own expectations, classifications, labels and terms, these individualised and idiosyncratic classifications play little part in the public formulation and circulation of genres and generic images. He claims that in the public sphere institutional discourses are of central importance, and evidence of the properties of genres is to be found primarily from these discourses. But the particular dynamics of film as the 20th-century mass media form may be different from the new media forms where the agents of different kinds could be perceived, depending on the perspective, as producers in one respect and as users in another. Hence, the negotiating and marking of the genre borders and other characteristics on a meta-discursive level also has to be a dialogic process that involves a much wider community. Here we should recall that Hodge and Kress (1988) have stressed that genres only exist in so far as a social group declares and enforces the rules that constitute them. In the new media context and with its nascent, almost non-

existent, forms it is important to identify the community that participates in differentiating the emerging forms into the distinctive categories of differing functionalities and characteristics. And to learn what is behind these distinctions, how much these depend on similar distinctions in earlier media, to what extent on the memory of the involved communities and on other path-dependent processes.

For the purpose of this research, then, genres are taken to be reflective concepts that are used for discursive meta-communication about the borders, markers, characteristics and functions of the existing media forms. The existence of such a meta-language is essential for the different publics for consuming, using and redesigning these forms. Exploring a 'discourse community's nomenclature' (Swales, 1990) is expected to help us understand the existing patterns of media forms and how these are recognised by different engaged groups.

3.8 Conclusion

The theoretical discussions in this chapter are summarised here so as to present, in a coherent form, the conceptual framework deployed in this thesis. It should be emphasised that in this thesis I want to be reflexive about the explorative nature of the proposed conceptual framework. I bring together several theoretical domains of the social sciences and humanities that have not been in dialogue before. Hence, the conceptual proposal here is provisional, and its expediency is assessed through the empirical research in this thesis.

The conceptual framework relies on the work of Yuri Lotman as extended or complemented by, among others, Eco, Sebeok, Danesi, Schönle, Kress and van Leeuwen. It is also integrated with the heterodox domain of evolutionary economics and Luhmannian systems theoretical sociology so as to enable a focus on forms of social organisation and institutional dynamics that condition the evolution of specific textual forms in late capitalism. However, the central interest in this thesis is in the evolution of textual forms. Hence, we started our theoretical discussion by defining the 'text' as it is understood in Lotmanian cultural semiotics. If the term is conventionally understood as referring to any system of signs that could be 'read' for meaning, then Lotman emphasised specifically the inherent heterogeneity of all texts – that they are bilingual at minimum, and contain multiple and modally different codes of organising and meaning making. As such, texts, in terms of Lotman's philosophy, should be understood as the engines of new code creation. It is due to the principle that by combining the existing

codes these are forced into rhetorical relationships and, hence, a new integrative code has to be found by 'sense makers' via the mechanism of 'overcoding'. Such overcoding can be understood to work 'locally' in cases of separate rhetoric tropes in texts, but also on the level of whole texts when the local sub-codes or more established cultural codes need to be integrated semantically for a text to communicate its meaning. If a particular rhetorical integration and the new covering code are taken as being effective in meaning communication there is a chance that the code is picked up by a society for similar communicative purposes. In this case there is a possibility for the particular form of representation to evolve into a convention.

Such abstract principles of textual and code innovation are relevant for this research since the principal method of the form innovation is 'remediation' – the new forms are created by creatively repurposing and assembling a variety of representative conventions – *topoi* – from earlier or parallel media. Rhetorical integration in the new textual whole conditions their semantic convergence and this could potentially result in the emergence of a new form and a convention. To interpret Lotman, textual innovation is effected by the convergence of existing genres and it results in the emergence (or divergence) of a new one. However, Lotman also maintained that the converged textual entities preserve a memory of their 'other system of encoding'. This means that in culture and media all new forms stay connected to the old, every text embraces a multilevel intertextual discourse that keeps it connected and in dialogue with other texts and cultural spaces. Hence, what we have is a paradox of cultural evolution that refers to how continuities and discontinuities effect and presume each other in culture – that cultural innovations, in effect textual discontinuities, are in principle inventive remixes of preceding forms. They are based on the past and sustain a dialogue with these cultural spaces in the past from where they have derived their elements. And, in this way, they are semantically open and closed (autonomous) at the same time.

I discussed the dichotomy of open/closed and continuities/discontinuities not only on the level of separate texts, but also of their systems. For a better understanding of these relationships and dynamics I put into use Lotman's concept of semiosphere that helps to analyse the positions of texts, their systems and the relationships of these systems in a wider semiotic space. Within the semiosphere one can find an endless variety of sub-spaces that transect and intertwine with each other. Some are smaller and parts of others, some could embrace numerous smaller ones, but smaller spaces could also be perceived as parts of several bigger ones. One such sub-semiosphere should be understood as a textual domain that has established a certain social identity; it has

started to function as a 'social system', in Luhmann's terms. Luhmann argued that a social system comes together as a series of self-referential 'communications' that describe the nature and purpose of the social domain. In Lotman's terms, we can establish that such communications can only materialise in texts of various kinds. Hence, a social system emerges as result of a mesh of texts that as a specific whole starts working autopoietically. There are texts that work meta-textually towards others or towards the whole of that mesh – that describe its distinct specifics, differentiate it from the rest of the culture and society and eventually codify it and set the norms and expectations for the future of the particular system. In our context, in studying the evolution of media forms and the forms of social organisation 'around them', the suggestion made in this thesis is that the discourses that live in the texts when defining the nature and specifics of the forms in question also define the nature of practices of their production and, eventually, the forms and operations of the social organisations carrying out these practices. In other words, textual forms, 'discourse communities' and institutional forms are interdependent in their evolution and, therefore, for understanding this change in one we also need to investigate the others.

Defining cultural evolution broadly we established that this is effected by dialogic acts between different social systems. New systems emerge from contacts between the existing ones and the existing systems change due to the dialogic acts among them. All systems, when establishing a distinction between themselves and the rest of society, first need to observe the society and then, for reproducing themselves in their changing environment, might need to absorb new information from that environment. If this happens, the new information might disrupt the system and effect its change. The related paradox is that if systems exchange information and this effects path-changing 'explosions' in each of them, this generates a certain cohesion and continuity between them, but if they continue to evolve independently, this effects discontinuities in the culture. The increasing discontinuities between sub-systems, in turn, condition the need for the communication between them.

As we also established, such evolution should not be understood as linear in terms of systems, after making their selections, leaving the previous selections behind to be forgotten. Instead, according to Lotman, communicational forms move constantly between the societal focus and its periphery according to the pace they 'defamiliarise' themselves and/or acquire new innovative semantic potential. Hence, everything saved in the reservoirs of cultural memory is directly or indirectly part of culture's memory. Therefore, behind evolutionary change is not linear but 'circular' development,

constituted by ‘remediations’ from the ‘periphery’ or ‘memory’ of culture into its current mainstream where they could appear as innovative disruptions. It is for this reason that this thesis puts a special emphasis on the phenomenon of cultural memory and its role in conditioning media change. Using concepts including Peirce’s ‘abduction’, Eco’s ‘undercoding’ and Jauss’s ‘horizon of expectations’, we addressed the important role of the memory of various ‘speech communities’, their related expectations and interpretative limitations as setting the limits to the evolution of media forms. We linked this to the concept of ‘path-dependency’ developed in evolutionary economics. More specifically, we learned how, in circumstances where codes of representation need to be shared by larger ‘speech communities’, such a need may ‘lock in’ one chosen code as a dominant convention and disregard others – leading a system into ‘path-dependency’. In this case the core source of ‘positive feedback’ that leads a system into path-dependency is the process of learning which, as a collective phenomenon, is unavoidably slow and thus hindering of revolutionary changes in established systems. Among other sources of positive feedback could be technological or systemic interrelatedness where the functioning of the parts is contingent on the whole, which could deter revolutionary changes of the parts. Relating to this, I proposed that if a social system could be understood as a complex mesh of texts that all reciprocally meta-communicate about each other and about the whole they constitute, in aggregate then this process should be recognised as a cultural ‘lock in’ that makes such systems, to an extent, path-dependent. The different kinds of texts in this mesh – either the media forms as ‘object texts’ or the different kinds of meta-texts that codify or standardise the object texts – cannot shake free from each other since they are simply made to model each other in various ways – they are contingent on the whole. Secondly, even if the textual systems and cultural codes happen to evolve due to the information exchanges between different systems, this cannot happen promptly since it takes time for the variety of ‘speech communities’ to learn the new codes so as to reach successful and adequate interpretations. It is for these reasons that this thesis emphasises the role of the memory of systems, externalised in its texts, technologies and forms of organisation, as an important factor conditioning the evolutionary dynamics of media forms.

Lastly, the conceptual framework for this thesis puts a special emphasis on the phenomenon of power. We established that when systems produce themselves in the contingent environment they make selections from a variety of possible designs available to them. Sometimes these might be rather limited, but still, every design decision, motivated distortion of existing conditions, is an application of power. As a

semiosphere consists of an infinite number of intertwined sub-systems that aim at reproduction by the means of self-description and codification ('grammar development'), but do that at different speeds and with different rhythms, this gives rise to complex power asymmetries within the semiosphere. However, we recognised that such asymmetries also condition the 'centre-periphery dynamics'. The rigorously self-codified systems, the dominant 'cores' of the semiosphere that define many of its 'grammars', eventually lose their ability for dialogism, for absorbing information from outside, and hence become incapable of responding to changes in their environment. At the same time, the less codified sub-systems in the 'periphery' tend to be more dialogic, observant and open for the changes in the 'semiotic milieux' in their environment, in Lotman's terms. In the process of absorbing new information and recording it auto-communicatively, they create novelty in the process, which, if socially relevant as meanings and codes, might emerge to dominate and define the social reality. In this way the peripheral sub-systems might emerge as the new cores of the semiosphere.

However, it is important to recall that all these systems are intertwined, they are parts of each other, they are built of each other, they are each other's environment. When reproducing themselves they use and assemble each other's codes as 'building materials' to create unique combinations. This suggests, first, that when reproducing themselves they affect each other by virtue of their own autonomous principle of replication. Hence, the sub-system that is more strongly codified and powerful to define the culture's codes as shared 'building materials' has a dominating impact over the others; it limits others' degrees of freedom in their self-reproduction. However, as we also recognised, since systems are all inherently heterogeneous and participate in multiple language systems, they are therefore also involved in a variety of power relations. A system can in some of these be passive and governed by others, in Foucault's terms, but in others, have instead a governing role. The evolution of culture (together with its forms of representation and forms of organisation) is conditioned by a very complex dynamic of dialogic contacts through which the power relations between sub-systems emerge and are constantly re-articulated. For understanding and denoting this dynamic I proposed the term 'dialogic control'.

In the following chapter I outline the methodology for studying empirically such complex dialogic relationships between the systems and their interdependencies in evolution. The abstract conceptual principles presented in this chapter are operationalised in the form of a research design and via the development of empirical

research questions that focus on the particularities of mobile Web-media forms and the practices and social forms of their production.

4 Research design and methods

4.1 Introduction

The empirical research for this study was conducted from mid-2006 until mid-2007 and was designed to investigate the evolution of the mobile accessible Web and its media forms during the period that started with the launch of 3G networks in the Western world and ended in Summer 2007. The development of the mobile Web provided a large case study of 'live' development of a nascent media platform to be analysed by means of the conceptual framework proposed in Chapter 3. The conceptual framework for this thesis suggests that all the different levels of textual expressions of a sub-system, different object- and meta-texts, lock each other in to some extent and make their evolution interdependent. This chapter outlines a methodology for investigating these relationships. It aims at connecting the two empirical parts of this study – the textual analysis of 'object-texts' with the discourse analysis of the meta-discourses on these texts. It does so in order to explore their interdependencies, how they condition and enframe each other and, in this way, create a 'sub-semiosphere' of the mobile Web of that early era (that consists of texts of different modalities, materialities and a variety of meta-textual levels and functions).

For mapping this semiosphere two different research methods were applied. First, a set of media texts – websites designed for access via mobile devices – was analysed, and their constitutive rhetoric and intertextual relations were examined. This sub-study is presented in Chapter 7.

The second main empirical undertaking and a method applied was a discourse analysis of industry meta-discourses on these website forms, on their producers' motives and on the related industry dynamic and power struggles. These discourses were identified through interviews with a broad set of industry stakeholders, i.e., people who in various ways contributed to the design of the technical, economic or regulatory preconditions for the 'mobile Web' or for the content devised specifically for access by mobile devices. The aim is to demonstrate the diversity of the meta-discourses on the subject, to highlight their dialogic contacts and co-evolution and how the evolution of these meta-discourses is reflected in the forms of the object-texts and vice versa – revealing, *in spe*, the full dynamic of the 'mobile Web semiosphere' in that early era of its development. This empirical undertaking constituted four sub-studies of this thesis that will be discussed in detail in Chapters 5, 6 and 8.

Regarding the design of the empirical research of this thesis this chapter will:

a) demonstrate how the conceptual framework and the general research questions are operationalised into a workable analytical framework and a set of pragmatically motivated, object-related research questions;
b) present a strategy for the analytical integration of the two empirical components of this research;
c) outline the rationale for the construction of the corpora for the textual and discourse analyses.

4.2 Textual analysis

4.2.1 *Rationale*

4.2.1.1 Integration of social and cultural semiotics for analytic purposes

The first of the two empirical studies of this research is textual analysis of the multimodal websites designed to be accessed by mobile gadgets. In order to analyse the rhetorical functioning of these designs the semiotic theories of Lotman, Eco, Kress and van Leeuwen and others are operationalised.

For this operationalisation, we first need to define what is meant by 'multimodality'. In semiotic theory the phenomenon of multimodality has been discussed and theorised at least from the days of Peirce and his multilevel model of sign triangles in which determination, similarity and conventionality are in a continuous and dynamic relation in all possible sign systems and in the culture as a whole (Ibrus, 2005, 2008). However, the notion of multimodality was proposed and theorised quite recently – first and foremost in the work of social semioticians Kress and van Leeuwen (2001). Still, it should be acknowledged that their analytical framework is built on the Peircean basis (see Hodge & Kress, 1988: 26). Peirce adopted the notion of 'modality' from logic to refer to the truth value of a sign or set of signs. That is, the mode of relationship of sign vehicles to their referent is their modality – their apparent transparency in relation to 'reality' (for instance, symbolic signs like verbal writing having low modality, iconic signs like photographs having higher modality and indexical signs like symptoms for diseases having very high modality). According to Kress and van Leeuwen, in a process of meaning expression, *designs* organise the different modes, combining and selecting from the options they make available according to the interests of a particular communication situation (Kress & van Leeuwen, 2001: 21). In Chapter 3 we established

that in terms of Lotman's cultural semiotics all texts are inherently rhetorically heterogeneous – embracing modally different codes and sub-codes. From this it can be derived that 'unimodal' communication cannot exist and all communication is, in effect, multimodal. Hence, 'multimodality' as a concept provides a basis for analysing heterogeneity, semiotic layers and the relations that make up a media form. Secondly, another aspect that relates Kress and van Leeuwen's theory to that of Lotman is that 'modes' should be understood as 'grammars' of some kind (see Kress & van Leeuwen, 2001: 60). In other words, a 'mode' presumes some degree of conventionality – modes used in designs are a conventional way to express a particular discourse. For instance, a video window within a Web page has boundaries set by the conventions of that mode. However, as such, the modes should be understood as similar to what Huhtamo termed rhetorical *topoi*, the elements of which the modern new media forms are constructed (as established in Chapter 3).

Kress and van Leeuwen explain that 'distribution media', although developed specifically for the distribution of semiotic products and events which have been materially realised by 'production media' and, as such, are not supposed to function semiotically, in the course of their development start functioning as production media in the same way that production media can become design modes. In these terms, television, once just a distribution medium, was transformed over time into a distinct form of video as a production medium with its accompanying limitations, and is now being used in Web layout as a design mode. Therefore: 'signification starts on the side of production, using semiotic principles which have not yet sedimented into conventions, traditions, grammars, or laws of design. Only eventually, as the particular medium gains in social importance, will more abstract modes of regulation ("grammars") develop, and the medium will become a mode' (Kress & van Leeuwen, 2001: 22). Using textual analysis on mobile websites, this research explores to what extent (desktop) websites as a form have been transformed from a simple distribution media into a design mode, a convention to be reused (in a mobile context).

It is for these reasons that this study suggests that the theory of multimodality, initiated by Peirce and recently further developed by Kress and van Leeuwen, serves as an appropriate analytical tool. This choice is further motivated, first, by the fact that, as compared to alternatives, it is a rather well developed framework for analysing the visual compositions of modern media. Second, it also befits the somewhat more abstract Lotmanian theoretical framework outlined in Chapter 3. Third, it enables me to address the differences between modes used in compositions (contrasts in their 'truth value' and

their intertextual contexts). And last, it is deeply engaged with the balance between conventionality and innovativeness of different modes as well as their constellations in designs. For these reasons this analytical framework is expected to work well with the second analytical pillar of the textual analysis in this study, the rhetorical analysis of textual compositions.

4.2.1.2 Analytical framework

Signs rarely exist alone without a relation to some other signs. Their positioning in relation to each other in space or time is ruled by syntax. Syntax, as a rule base that governs the way larger communicative entities are formed through the combination of smaller ones, refers to the idea that such governing relies on the existing conventions of compositional organisation. Kress and van Leeuwen (1996) analysed the inner relations within visual communication and argued that, although the semiotic code of verbal language and the semiotic code of pictures have their own quite particular means of realising, ultimately, the semantic relations modelled by these different means tend to be relatively similar. What in language is realised by verbs can in pictures be realised by elements that are defined as *vectors*. And, unlike sequential syntagmatic relations, which are essentially about *before* and *after*, spatial syntagmatic relations include such oppositions as above/below, in front/behind, close/distant, left/right (which can also have sequential significance), north/south/east/west and inside/outside (or centre/periphery). And in the same way that *before* and *after* bind together verbal sequences, the relations within the visual composition function as its 'integrating code'. 'In our view the integration of different semiotic codes is the work of an overarching code whose rules and meanings provide the multimodal text with the logic of its integration. There are two such integration codes: the code of spatial composition, and rhythm, the code of temporal composition' (Kress & van Leeuwen, 1996: 183).

In line with this statement they distinguish three interrelated systems that rule spatial composition. This study utilises their original framework. The integrative rhetoric mechanisms analysed in this study are detailed in Appendix A, and described briefly here. The first mechanism is the system of cultural conventions of information value, which rely on the placement of elements in different zones of the composition. The second mechanism for integrating elements in the composition takes account of the relative salience of these elements. The third main integrating system is the different kinds of frames that disconnect or connect elements in the composition. To conclude,

the key to understanding when analysing multimodal Web layouts therefore lies in the recognition that all their elements are organised by the bounds set by the two-dimensional screen. Although a layout may be heterogeneous in terms of its modalities, the main principle organising them into a coherent semantic structure is the visual spatial composition, which works as the central 'integrating code'. The purpose of this study is to discover the evolving features of such codes as specific to mobile Web layouts.

4.2.1.3 Multimodal rhetoric: in search of semantic integration of a text

In this context it is important to recognise that the integrative mechanisms referred to by Kress and van Leeuwen are only auxiliaries for the semantic integration of a media text. The potential of readers relating elements to each other semantically and in the end formulating contextually and circumstantially tentative codes that help make sense of the whole of the text relates back to the theoretical framework discussed in Chapter 3. This refers to how two elements, which are somewhat illogical partners, form a rhetorical figure, i.e., a new code that integrates them into one semantic unit. Thus, a multimodal text can be understood as a heterogeneous patchwork of such 'local codes'. Therefore, when conducting textual analysis of the rhetorical integration of multimodal texts we need to identify the ways such integration takes place at the semantic level – both within a two-dimensional composition (a Web page) and also on the level of a hypertext document (a website).

In Chapter 3 we discussed briefly how to identify the rhetorical figures and their workings in a two-dimensional Web page. We realised how modern hypermedia, because of their many syntactic dimensions (spatial, temporal and linked/associative), may constitute a heterogeneous set of rhetoric relations, bringing along a multilevel net of sub-codes that eventually generate the whole of a particular text. We established that because of this, there is a good reason to define multimodal semiotic wholes as 'rhetorical texts' in Lotman's terms. In the case of such texts we generate meanings beyond the expression itself and do that instead on the level of content – i.e., multimodal texts are connected semantically, they work through rhetorical relations within the text. And this is also what this study aims to do – first, to distinguish the different modes used in a text and, second, how they work in concert. It examines how the local tropes within the text are generated, how they connect with each other and how they eventually make up the rhetorically woven patchwork that is the text.

However, in addition to gleaning the rhetorical relations from two-dimensional layouts it is also important to analyse the rhetorical binding of hypertexts – of the websites that come together from several Web pages. For this purpose, as suggested by Brügger (2009), we should, first, be able to define their boundaries. In the context of the Web as an 'infinite hypertext' this study aims to investigate how a single website declares its boundaries while still connecting to its extratextual reality – to other websites ('Web semiosphere' or 'Web sphere' in Schneider and Foot's terms [2004]), to other media ('mediasphere' in terms of Hartley [1996]) and to culture, in general. Thus, in looking at the rhetorical effects that create and determine the form of a website, it is not possible to constrain this to the boundaries of the two-dimensional composition of a single Web page. The mechanisms enabling the rhetorical working of the hypertextual structure of a website, how this structure is communicated to users and how the hypertextual whole is integrated into one also need to be examined.

The focus must be on the 'rhetorics of hyperlinks'. Link nodes are the crucial characteristic elements of the website as a form; they are the mechanisms that bind its composite pages and are of central interest in the textual analysis of Web-media. In Eco's terms the link icons in a page can be argued to function as specific translating or intertextual switchers, which conceptualise the text's relation with other texts (or other pages). In some senses, every link icon on a page with an explicit referent constitutes an intertextual unit, which inserts into a text the discourse of some other text. If we connect this to the semiospheric approach of this study, then the link, because of it being a 'genuine index' (Nöth, 1997: 208; Wirth, 2002: 166; Mazzali-Lurati, 2007: 138-9) and having an actual material bond with both texts – the departure page and its linked page – could be understood as a boundary, a boundary that both separates and unites and transforms the external into the internal. So, paradoxically, on the one hand, it connects the different texts and in this way abstracts their boundaries, and, on the other, it opposes them and puts them in contrast. This paradox refers to what we have in such instances: a rhetorical effect, a connection, a potential code innovation born through opposition. In other words, links generate tropes at the meta-level of the hypertext. And if link nodes in a page gain additional rhetorical effect then the whole composition of the page achieves an additional rhetorical dimension (Bolter, 2001: 37). As Lotman (1990: 47) points out, if the whole text is considered as rhetorical, then every one of its elements will get an additional coding – i.e., start functioning rhetorically. The whole departure page and every element in its multimodal composition function together as a degenerated index in Peirce's sense – it gets its meaning from the assumption that it

constitutes a pointer and refers to something else (Liestøl, 1999: 194-5). This principle, the composition as a meta-pointer, refers as well to what the textual analysis in this study examines – it is the meta-communicative function of the composition, how the structure of the hypertextual whole of a website is modelled and defined, how the functions and nature of the linked pages are communicated. That is, what are the rhetorical ways to bind the website as a specific form together? And how do these means differ in specifically mobile-oriented designs from websites that are designed for desktop-sized screens? Are the conventions of the latter applied to mobile, and if so, how?

4.2.1.4 Distinguishing and analysing intertextual relations

Related to how the elements of a single website are bound together is also the question of how the site and its composite pages and other 'sub-texts' relate to the rest of the media, and the culture in general. How, for example, is the mobile website of a media company related to its other forms of output? Take, for instance, a video story included in a page of a mobile news site. Similar to this is Lotman's (1990) example of a section of non-literary text incorporated into literary text or of newsreel into a film. This kind of rhetorical organisation produces a semantic tension between 'organic' and 'foreign' structures. 'The "foreign" element, even when mechanically introduced into a new structural context, ceases to be equivalent to itself and becomes a sign or an imitation of itself. A real document included in a literary text becomes a literary sign of documentality and an imitation of the real one' (Lotman, 1990: 50). This phenomenon within the context of new media is recognised by Fagerjord (2003) who argues that, as a rule, such video material is used in newscasts as pieces of reality, as proof.

But it is also important to understand that all the elements in the composition start functioning as intertextual switchers through which other texts and other realities of the outside are inserted into the new textual environment. A video clip from a television newscast that is re-purposed in a mobile website as a certain 'text in text' (Y. Lotman, 1994) appears due to its background in other media (realities) as more 'real' and, hence, in contrast with its new environment. This contrast puts the other elements in the composition into context and gives them new meaning – i.e., the whole composition starts to work rhetorically because of the translatory dislocation of a textual entity from one environment to another. For these reasons, one of the aims of the textual analysis is to identify such intertextual switchers from the mobile websites, since these should enable a description of the positions of texts in the larger semiotic space and

their relations with other semiotic structures in the culture. It is intended to help to distinguish the paths that the textual forms take in the culture and to identify the borders they have to cross – the means needed to understand the evolution of current multimodal Web-media.

4.2.2 *Textual analysis: key questions*

The operationalised key research question for the textual analysis is the following: how in the early era of open mobile Web did the Web-media forms that were designed for mobile devices relate to the rest of the culture and its textual forms? 'Forms' in this context refer to websites – the websites designed for small screens and control interfaces of mobile devices. These websites often consist of several sub-composites or 'pages' that in most instances make up a hypertext and are linked by hyperlinks. The hypertextual structure of the sites, the nature of the two-dimensional compositions of individual pages and the nature of certain specific elements (sub-texts) in these compositions, constitute the main analytic elements/dimensions. It is the intertextual relations with their 'outside' – other texts in the culture, both in the past and in the present – that I want to identify and examine through the textual analysis in this study.

The aims of the textual analysis are as follows:

a) to discover to what extent and how the forms that presently exist in the 'mobile Web' remediate previous or parallel forms of other media;

b) to study the extent to which these nascent forms as rhetoric compilations of conventions from different textual contexts are already rhetorically emancipated and conventionalised such that they have acquired distinguished rhetorical identities and functionalities;

c) to identify the boundaries across which the main remediation practices have occurred in the case of this particular medium and its evolution.

4.2.3 *Corpus construction*

The first principle determining the boundaries of the corpus of this textual analysis is the time frame over which it was constructed. As indicated in Chapter 3, this study stresses the need to address the historical singularity of every corpus studied with a historiographical agenda. It is only by registering the historical uniqueness and contingency of the texts in the corpus that it is possible, first, to establish the specificity of the texts produced during a particular time frame and then, second, to study the

(intertextual) relations of these texts with textual expressions from different moments on the diachronic axis. It must be stressed that this study does not intend to cover all the early developments of media forms in the mobile Web environment. Its aim, for instance, is not to compare the forms of different eras or moments in time. Instead it focuses on a short period, the month of August 2006, in order to provide a picture of the forms in the mobile Web at that particular moment in time and then, as explained above, to relate them analytically to the rest of the culture's texts and to the dialogic dynamics of their productive systems.

Despite the diachronic limitations, the textual analysis draws on a corpus of considerable variety and saturation. This variety is due to and defined by the aims of the analytical exercise: to discover the differences and similarities among different groupings of websites. The sub-groupings (whose differences had to be established) within the general corpus were defined after identification of the main boundaries across which the main intersemiotic translations were initially suspected to take place. As the main focus of this research is on the forms evolving in the open mobile Web environment, the main grouping within the general corpus is the websites that had been designed and appropriated for browsing on mobile devices.

When these websites were browsed by desktop computer (using 'mobile emulators') 'snapshots' were taken of them; when they were accessed using a mobile device (Nokia N70) and its browser (Opera Mobile 8), the screen layouts were photographed by a digital camera. In both cases, if the snapshots or photographs of the screen layouts contained only a fragment of the website composition, such as when websites were designed as long columns and when only a section could be seen on the screen at one time, the images of these sections were later pieced together so that the final corpus included the full designs of the particular website.

The websites were identified for inclusion in the corpus using the following process:

1) A few 'mobile Web-portals' with links to other websites specifically appropriated for small mobile screens were identified (the main one was the Web'n'Walk opening page).

2) All the links offered by these portals were browsed and photographed whenever there was identified' (a) a new type of site in terms of design, functionality or content; (b) a site that was a good example of an already

recognised genre; or (c) a more or less generic site, whose design included one or more rhetorically distinct components.

3) The surfing exercise revealed more portals that consisted of links to other mobile-appropriated websites. Attempts were made to browse all the sites these portals had links to and to incorporate them in the corpus, which broadened the scope in terms of the 'genres' represented and the variations of these 'genres'.

4) After surfing 200 sites, the variations began to diminish; this was an indication that the better part of the mainstream mobile Web that existed in summer 2006 had been covered and, hence, the corpus had reached the point of saturation.

In the end the corpus consisted of hundreds of photographs of 60 different mobile websites. After construction the corpus was divided according to the specific sub-exercises in the textual analysis. For the first part of the analysis, which comprised comparative analytic exercises, the websites that underwent analysis were chosen based on their semiotic and rhetorical richness (that is, innovativeness in the context of generally modally rather low-keyed designs of mobile websites). The choice was also based on the inclusion of examples of mainstream media outlets (Yahoo!, the BBC), which would be expected to indicate the significant, prevalent trends in mobile media.

For the second part of the textual analyses the corpus was divided into generic categories (the explicit justification for such divisions is provided by the analysis of these categories). The examples analysed in detail were chosen for their distinctive representation of a particular category or 'genre'.

4.3 The interviews

4.3.1 *Rationale of discourse analysis*

The second part of this empirical study examines the discourses that define the characteristics of the media forms under consideration, that set their boundaries, mark their differences and connections and normatively organise the variety of productive cultures as social sub-systems that relate to these textual objects according to their autopoietically set functionality and role. And that do all this not once, but persistently, along the diachronic axis of time. In positioning the methodology for this study and deciding on the type of discourse analysis, it seemed reasonable that the choice should

be made from among approaches to discourse analysis that focus on the historical changes in larger discursive constellations of a society. It is for this reason that this study opted for the Foucauldian archaeological approach to discourse analysis, with its explicit focus on how discourses come to constitute objects and subjects in different historical contexts. This choice, I acknowledge, needs to be justified in the light of my discussion of the media archaeology approach in Chapter 3, where I distance myself from this approach in formulating the conceptual framework. However, here my choice of archaeology as a discourse analytical strategy is, first, based on the similar epistemological agenda that, especially, Lotman, Luhmann and Foucault's approaches share. As Andersen (2003: xii, 94) points out, traditionally these approaches[23] are taken to be incompatible; one is either a systems theorist or a discourse analyst. But as Andersen observes, all these theories are programmes for second-order observational analysis; they are, in principle, anti-essentialist. They are all determined to examine in which forms and under what conditions certain systems of meaning (such as discourse, a sub-semiosphere or a system of communication) come into being. Second, as suggested in Chapter 3, they all share the focus on the change in systems. Although Foucault explicitly discarded evolutionalism in *The Archaeology of Knowledge*, what he was rejecting was the unproblematised causality in the established evolutionary narratives, in favour of studying the many discontinuities in their historical development. However, as Atterton (1994: 4) observes, discontinuous history as presented by Foucault could be taken as itself being evolutionary. Discrete discursive formations, along with the effects of power and institutionalisation associated with them, do evolve in time and these changes were, in effect, of central interest to Foucault. It is for this reason that Andersen (2003: 3) calls him a 'transformation structuralist' since his analytics was, in the first place, diachronic, and his core interest was the historically changing relationship between discourse and institutions, and, as Gerrie (2003) points out, between these and prevailing technologies. Relatedly, the discourse analysis in this study is conducted with a historiographic agenda – it aims at focusing on interdependent changes in discourses, technologies, media forms and societal settings in specific contexts and at a particular moment in time.

Third, as stated above, the aim of this study is to examine the processes of convergence and divergence among the various systems that, together, make up the mobile Web domain. In effect, this agenda could be understood from a systems

[23] Andersen does not discuss Lotman's theories. However, I suggest that his general remarks would apply to the nature of cultural semiotics as well.

theoretical perspective as a 'differentiation analysis'. And, as observed by Andersen (2003: 102), in this regard Foucault's archaeological discourse analysis with its foci on the dispersion of discursive formations and on mutual exclusion by these formations is analogous to the study of systems differentiation and of the conditions that facilitate the formation of new systems.

Relatedly, the relations between different discursive constellations as the hypothetical outcomes of dialogues between different discourse communities or social sub-systems, but also of their self-regulation, are the focus of this study. As Foucault (2002b: 11) put it, his 'new history' is not attempting to obtain a plurality of histories juxtaposed and independent of one another: for instance, that of the economy alongside that of institutions, and alongside these two, of science, religion or literature. Instead, the question is what form of relation may be legitimately described among these different 'sub-semiospheres', in Lotman's terms. What interplay of correlation and dominance exists among them? These were also the questions that were emphasised in Chapter 3 in my discussion of the ways to understand and analyse power relations between societal sub-systems.

Lastly, what connects archaeological discourse analytical strategy to the theoretical approach of the semiotics of culture is its focus on the plurality of continuities in culture. As Palmeri (1999: 269) explains, in *The Archaeology of Knowledge* Foucault did not regard one discursive practice or positivity as defining the conditions of knowledge for all areas throughout a culture at any one time, nor did he insist on a sudden, simultaneous and discontinuous transformation of all such practices from an earlier to a later state. Rather, different discursive formations undergo transformations at different times. Observing 'fragmented shifts' that take place in one area or field but not another, his archaeology disarticulates the 'synchrony of breaks', which means that continuous elements persist through the breaks and transformations that occur and, therefore, elements of multiple and diverse epistemological formations coexist at any time; the field of knowledge is not total or single – an understanding closely related to Lotmanian framework. I suggest, therefore, that in the absence of a discourse analytical strategy derived directly from a semiospheric approach, the archaeological discourse analytical strategy, when streamlined to match the conceptual framework of this thesis, is a justifiable choice to serve the purposes of this research.

However, with the agenda and the conceptual framework of this thesis in mind, what should a discourse analyst look at? Foucault, in his *The Archaeology of Knowledge* (2002), proposes a set of questions that this study adapts. The first two sub-

sets of these questions focus on how differences and discontinuities between discursive constellations are born and established, that is, how new identities and systems are born with their new boundaries that are then about to conventionalise over time. And how the contemporary discourses reflect, control and organise this process.

The first set of questions in this context is derived from what Foucault calls 'formation of objects'. This describes direct enquiry about the meta-textual function of the normative organisation and control of discourses – how the 'objects' (media forms, genres, etc., and the associated social sub-systems) are created by the meta-discourses. Foucault (2002b: 45-7) suggests enquiring about what has ruled the existence of the objects of the discourse and suggests a focus on the following:

a) mapping the first *surfaces* of the *emergence* of new objects or systems in order to show where and in what circumstances they are accorded the status of different objects and new systems. In reference to the conceptual framework in Chapter 3, this relates to the processes of new systems emerging at the boundaries of older ones, as outcomes of the dialogic practices between existing formations;
b) describing the 'authorities of delimitation'. Foucault refers to the need to identify the existing systems, agents or institutions that are defining the main characteristics and boundaries of the object. In terms of the conceptual framework of this thesis, this implies defining the cores of the semiosphere, the well established sub-systems, that have the power to set the norms for the new emerged object;
c) analysing the 'grids of specification'. These are the systems according to which the different kinds of related and similar objects of the discourse are divided, contrasted, related, regrouped, classified and derived from one another. The focus is on the conventionalisation of divisions – such as genre borders, functionalities and characteristics of different media forms, or again, the boundaries between their productive sub-systems, institutions, etc.

The second set of questions focuses on the 'formation of enunciative modalities'. This refers principally to the question of the social realities that 'operate behind' the new discursive formations, and what 'place' these formations come from. Again he suggests three approaches:

a) First, 'who is speaking?'. What is the position of the speaker? Long lists of factors could be involved here, ranging from 'criteria of competence and knowledge' to relational systems such as established professional hierarchies, etc. In other words, what is the power of the speaker to make his or her claims, and how is it constituted and reflected?
b) Second, from what *site* is he or she speaking? Of what institution or social system is he or she speaking? What are the changing functions of these sites at that particular moment in time? Again, the question is about power and the specifics of the particular system used to legitimise the statement and the new evolving discursive formation.
c) Third, what is the actual position, the practical relation of the speaker, with regard to the domains or groups of objects that are the subject of the discourse? As my interviews are with various enablers and producers of the media content, then of relevance is their actual closeness to the object, i.e., their actual practical experience of designing and producing the forms under study.

Foucault (2002b: 60) stresses that such an analysis, instead of referring back to '*the* synthesis or *the* unifying function of *a* subject' (original emphasis), the various enunciative modalities manifest his or her dispersion. The analysis should reveal the varying statuses, the various sites and the various positions that a subject can occupy or be given when engaging in a discourse. In line with Luhmann's and Lotman's theories, which refer to the multidimensionality of the subject's relationships with its others, the discourse analysis in this study looks for discontinuities in the planes from which the speaker speaks and explores regularities in the various positions of subjectivity.

The other two sets of questions that Foucault proposes are related to the construction and definition of the new continuities and the ways they come together. The first set of questions in this context focuses on the spread of concepts. Foucault argues that when new systems are emerging, their concept sets do not appear to obey any rigorous conditions. Comprehensive 'grammars' have not yet evolved, in Lotman's terms. Foucault suggests that this dispersion should not be left in its apparent disorder, but the aim should be to discover the 'laws' serving to bring the new continuities together, how the new identities and social systems are discursively organised and how they are related to other identities and systems, especially to those of the past (the search for systemic path-dependence). In order to identify these means of organisation the issues relevant for this study are:

a) First, this organisation depends on forms of 'succession'. One enunciation of a concept follows another, according to the various *orderings of enunciative series* (Foucault proposes the examples of orders of inferences, successive implications, demonstrative reasoning, order of descriptions, schemata of generalisation or progressive specification to which they are subject; the spatial distributions they cover, order of descriptive accounts and the way in which the events of the time are distributed in the linear succession of the statements).
b) Second, we need to look at the forms of 'coexistence' that mark out a given set of concepts. These forms include: the 'field of presence' (statements that are accepted by a given discourse at a given time as central or foundational concepts and defined as much by exclusions as inclusions); the 'field of concomitance' (comprised of statements outside the discourse that serve as points of analogy or higher authority); and the 'field of memory' (statements no longer accepted, but seen as precursors and, hence, used for establishing either historical continuity or discontinuity).

The last set of questions Foucault proposes relates to how certain organisations of concepts or arguments could be understood to form what he calls 'strategies'. He uses examples of different evolutionary themes from European history – theories of evolution and kinship of Indo-European languages, for instance, which point to the relevance of such a focus for this study where the interest is in the similar 'strategies' of media evolution. Foucault posits that the problem for the analyst is to find out how such strategies are distributed in history: can one find a regularity between them and define the causes of their formation? The aspects that need to be examined, Foucault (2002b: 74-6) suggests, are:

a) the 'points of diffraction' of a discourse must be determined. These points occur when two incompatible discursive systems have the same conditions of emergence and try to occupy the same cultural space (an 'either … or' situation);
b) the factors that determine which of these conflicting possibilities actually becomes part of the discourse which often exist outside the discourse in question. It is necessary to determine these factors in the functioning of the

social system to which the discourse belongs, and examine modifications in the principles of exclusion and selection of the particular system.

To explain further how we should understand the uses of the archaeological discourse analytical strategy from the perspective of the conceptual framework outlined in Chapter 3, I follow Andersen. As established by Andersen (2003), the archaeological discourse analysis looks for dispersions of discursive systems, their mutual exclusion at any moment in time and for the associated issues of power – i.e., enquiring into what systems and institutions are in the position to define the discourses, establish their differences and shape the processes of their formation into larger systems. These aims correspond with many of the foci of the conceptual framework of this thesis. The focus of the archaeological analysis on the 'surfaces of emergence' – on the contacts between established systems where, via their dialogic contacts new systems, genres or forms emerge – is closely related to the core research interests of this thesis. Similarly, we are interested in what the 'authorities of delimitation', the existing systems, are that are set to converge or to establish via their power struggles the nature of the emerging formations, their relations, their differences, their functionalities, etc. Also, how the new system comes together from the initially vaguely established discourses, object- and meta-texts, concepts and statements; what is thereby included and what is excluded and how the continuities with the past, the path-dependencies, are motivated and set. And, regarding the path-dependencies, when there is an emergence of more than one competing system, what social realities condition the eventual selection and subsequent dominance of one over the other. These are the kinds of questions that are typically of central relevance for the archaeological discourse analytical strategy and are also central in the light of the conceptual framework in Chapter 3. Despite teething problems, this strategy for the discourse analysis serves the aims of this research.

4.3.2 *Discourse analysis: key questions*

Building on the discourse analytical strategy introduced in the previous section (4.3.1), the operationalised key question is the following: how did the discourses spoken by the representatives of the different sub-systems of the converging industries of the mobile Web content define and differentiate the characteristics of the emerging platform, its media forms and the nature of its productive systems? In focus will be:

a) references to the circumstances and nature of dialogical contacts between the existing industry sub-systems that could be recognised to have effected the processes of convergence between them or the emergence of new systems out of such contacts;
b) 'grids of specification' in Foucault's terms – how the discourses are differentiating, connecting and grouping the different forms, platforms and industry sub-systems;
c) the nature of the inherent organisation of discourses, the logics of their reasoning and the ways such reasonings can be understood to function auto-communicatively – effecting or recursively reconfirming the formation of an industry sub-system, its codes of conduct and favoured designs for the mobile Web media;
d) whether it is possible to identify 'the competitions' betweens the discursive constellations and the associated industry sub-systems that exist in parallel, but tend to be mutually exclusive, thereby establishing the alternative evolutionary trajectories for the industry and for the mobile Web as a media platform.

4.3.3 *Passing ethnography: mapping complicity and ongoing dialogues*

Having established the key questions for the discourse analysis the next questions to ask are how to gain access to such discourses, how to incorporate most of the existing variety of discourses related to mobile Web-media forms into the corpus for this research and how could full complicity of this particular discursive constellation be achieved? It is also important to decide how in practice to study the dialogical connections between these discourses and different identities, sub-systems, etc. In answering these questions it is necessary to remember that different discourses, even within synchronic time frames, are often being spoken at different 'sites'. Hence, as Marcus (1998) and Couldry (2003) point out, a discourse analysis that is interested in the complicity of social reality, interaction and dialogues between different discursive systems must, in practical terms, become a multisited research process. 'Discontinuity in cultural formations – their multiple and heterogeneous sites of production – has begun to force changes in the assumptions and notions that have constructed the traditional mise-en-scène of fieldwork' (Marcus, 1998: 117). And, as he also posits, what ethnographers in this changed mise-en-scène want from subjects is not so much local knowledge as an awareness of being affected by what is elsewhere without knowing what the particular

connections to that elsewhere might be (1998: 119). This is in accordance with the aims of this study, which are to examine how different actors connect to each other, how different 'local discourses', on the one hand, contribute to a global discourse and, on the other, remain distinct and/or connect to certain other existing discursive formations according to some yet undiscovered logic. In methodological terms we can treat this as a 'complicity', a challenge that Couldry suggests can be countered by 'challenges and promises of a multisited space and trajectory – a trajectory that encourages the ethnographer literally to move to other sites that are powerfully registered in the local knowledge of an originating locus of fieldwork' (Couldry, 2003: 47).

Such 'passing ethnography', to use Couldry's term, is what was chosen as the strategic foundation for this study. In practical terms this means that, after choosing the mobile Web as the case study for this thesis and the strategies of T-Mobile as its first sub-study, and subsequently mapping the initial network of related agents and interviewing them, I was able to identify who the significant Others were for my initial interviewees and how they reflected on the roles of these Others as well on their own roles in their interaction and dialogue. I then tried to reach some of these Others and interviewed them in order to let them reflect on the same process and narrative. In addition, other reflective sources of the mobile media domain (industry magazines, newswires, Web fora, mailing lists, etc.) were consulted in order to complete my map of the variety of possibly related perspectives and potentially differing sub-discourses of this particular domain. Where possible I conducted interviews with those individuals who hypothetically represented these different viewpoints and 'spoke the discourse'. In practical terms, as the mobile media domain is a global industry, my 'multisited' strategy became a global one. The interviewees came from seven countries (UK, Germany, Austria, France, Norway, Ireland, US). In this way, I put together a network of actors relevant to the development of the mobile Web and its various content forms at the time of my interest. The semi-structured interviews with these people became the basis for the corpus of texts, designed to reveal unities and discontinuities between their self-reflexive and meta-textual establishments, and their different, but still object-related, discursive positionings.

4.3.4 *Reaching and addressing the case study*

While the main case study of this thesis is the evolution of the various media forms in the open mobile Web environment, the initial site where I began my 'passing

ethnography' was T-Mobile, a global mobile operator. As described in Chapter 2, T-Mobile entered the core European markets with its 3G service in Summer 2005 and took a different approach from its competitors. It decided not to limit its customers to its own portal but to offer access to the full Internet via a service called Web'n'Walk. Its price plan initially meant limited data usage (40MB [megabyte]/month) for a set price (£9 in UK), but after six months T-Mobile UK introduced unlimited browsing for a flat fee of £7.50 per month. Although T-Mobile UK remained an exceptional case, even among T-Mobile's other subsidiaries there was a clear tendency for other operators in a variety of countries to follow suit. Hence, it could be argued that T-Mobile and its Web'n'Walk paved the way for the open mobile Web in the leading markets in Europe.

This is the reason for the choice of T-Mobile as the 'departure' site for this study. It can be suggested that it was due to T-Mobile's position as a transnational player in the mobile services market that the discourse of open and unlimited mobile access to the Web was inserted into the wider discursive constellation of the global mobile media domain. I took T-Mobile and its introduction of the Web'n'Walk offering as a starting point for a mapping of the state of affairs in the particular meta-discourse. Eleven interviews were conducted with employees in three different countries (UK, Germany, Austria), all of whom had been involved in developing the Web'n'Walk service. They fell mainly into three groups defined by the company itself – engineers, marketers and standards experts. The majority of the interviews were with people in senior positions in the company.

The first aim of my interviews with T-Mobile employees was to obtain their narratives, some of the history of the Web'n'Walk service and details of its innovative characteristics. The objective was to track the dialogic acts both within the company as well as between the company and outside, and to establish the patchwork of communications that had prompted the company to establish its open Internet approach, thereby boosting the development of the open mobile Web environment globally. The second purpose of these interviews was to obtain their meta-discourse on the merging domains of mobile media and the Internet in order to explore the unities and discontinuities at different levels that the meta-discourses in use at the time were constructing for this emerging new domain as an environment in which new media forms were about to evolve. Together, the interviews at T-Mobile and their analysis constituted the first sub-study of this research that, as it was focused on a single company and its pioneering actions, was designed to introduce the topics of platform design as seen at the 'grassroots level' of the industry at the time.

The second sub-study based on the interviews was similarly designed to focus on the 'platform design' – how the evolution of the mobile Web as a new platform for media content was resulting from the industry dynamic at the time. However, with this sub-study the focus moved from the particular to the general, from the industry grassroots to its meta-governance, and to the broad issues of standardisation and codification of the new platform. In order to complete a full tapestry of the related discourses a multisited research process was started wherein interviews were conducted with representatives of institutions that were identified in the interviews with employees of T-Mobile or selected in the course of the review of the industry's self-reflective materials. These institutions were playing an important role in enabling the mobile Web infrastructure on a global scale. The resulting corpus included interviews with senior representatives from dominant mobile browser vendors, including Opera and Nokia, and W3C. I interviewed the head of W3C's Mobile Web Initiative (MWI) and others who belonged to its two working groups – representing institutions such as dotMobi, Volantis, Microsoft, WURFL, the BBC and Segala. The corpus that was constructed is arguably reasonably representative of the discursive constellation related meta-discursively to 'infrastructure design'. The analysis of the interviews with a focus on platform design is presented in Chapter 6.

The third interview-based sub-study is focused on the meta-discourses on the actual new media forms. With this set of questions the focus turned to interviews with representatives from institutions directly engaged in producing content and developing new media forms for the open mobile Web. These included British and German broadcasters and publishers such as the BBC, Deutsche Welle, ProSiebenSat. 1 Group, Axel Springer; some new companies with global reach that were focused specifically on mobile content development or aggregation: Volantis, AvantGo (Sybase), Buongiorno; and some very small companies: Phonething, a small British start-up focusing specifically on mobile Web, and Little Springs Design, a recognised mobile content design consultancy. Again, the differences in the markets and sizes of these companies provided richness for a discursive constellation related to Web content production specifically for mobile access. The analysis of the meta-discourses on designs and forms of mobile Web content is presented in Chapter 8. The central focus of this analysis is how the mobile Web and its specific forms were defined, how its boundaries and characteristics were marked. For instance, was it differentiated from the rest of the Web or not? And in either case, how was the continuity or discontinuity between these different (or not) media justified?

The first interview was conducted in July 2006 and the last one in May 2007, but despite the time span of almost one year, the corpus does not involve any distinctions along the diachronic axis of when the interviews were conducted. The explicit aim of this study is not to compare the interviews conducted at different moments in time (although the passing of time is an aspect that has to be taken into account when addressing the different statements in the corpus). Instead, it is to analyse the discursive constellation of a certain period in the early era of mobile Web, to analyse the references to the synchronic dialogic dynamics during that period and in this way, to focus on the evolution of the form of the new media platform, its forms and its productive cultures. This study was referred to above as a historiographic discourse analysis. This means that its focus is on a period that, at the time of the analysis, had already turned into a past, into a set of texts that could be related both to its past and its future. And when the interviewees as subjects were constructing in their talk certain historical positions or narratives, these were then in the analysis regarded not as veridical evidence of historical developments but, instead, as indicated above, as historically distinct 'orderings of enunciative series', 'fields of memory' or 'points of diffraction', as planes that were used by speakers for (re)constructing discourse in its present.

4.3.5 *Interview conduct, ethical aspects*

To take T-Mobile as one of the core sites of this study I first had to be granted access, so as to interview eventually 11 of its employees. As the company was cautious about disclosing its strategies and plans to the public I had to negotiate a confidentiality agreement. After six months of negotiations an agreement was signed, the terms of which established that information released through the interviews would remain protected for a further three years after the termination of the agreement. In other words, the receiving party, i.e., the writer, was under an obligation to maintain the information received in accordance with the terms of the agreement – i.e., confidential and undisclosed to the public unless permission was given by T-Mobile. This agreement officially expires on 30.11.2010.

I did not sign any similar non-disclosure agreements with my other interviewees. I explained the nature of the research to the interviewees well before the interviews took place. They received a cover letter beforehand, usually by e-mail, and example questions if required. Interviewees signed a consent form that established mutual agreement about how the interview data would be used. The terms granted interviewees anonymity in all

publications. It was established that the position of the interviewees in their institutions together with the names of their companies/institutions could be revealed. In operational terms the interviewees were given numbers for differentiating and referring to them in this study. They were also granted the right to approve the interview transcripts.

As indicated above, the interviewees came from seven different European and Northern American countries – UK, US, Germany, Norway, Austria, France, Ireland (see the overview of other key characteristics in Appendix B). For all interviews in Europe I travelled to meet my interviewees in their locations so as to conduct the interviews face-to-face (except one – interviewee #32 preferred e-mail and a telephone interview). Due to lack of funds all the interviews with respondents in North America (altogether four) had to be conducted via telephone. One of the interviews was 'constructed', i.e., the interview with respondent #33 was not conducted by me but instead several of his interviews with various industry media (online) outlets and his blog posts (from the same time period that all the other interviews were conducted) were compiled to make up a document that was included in the discourse analysis. The interviews were all semi-structured and questions were customised according to the nature of the interviewee's work, his or her position in the institution and the profile of the institution. All the interviews were recorded. Recordings were, on average, 65 minutes long. All interviews were subsequently transcribed, and transcripts were analysed using the TAMS (text analysis mark-up system) Analyser qualitative research software. Coding sheet and code definitions can be found in Appendix C.

4.4 Analytical integration of corpora and empirical findings

Given the use of two different methods and corpora, one of the main challenges for this research is the analytical integration of the two empirical sub-studies – the textual analysis applied to site designs and the discourse analysis applied to interviews with industry insiders. As argued above, the justification for the integration lies in the conceptual framework developed in Chapter 3 and in the concept of semiosphere that, in effect, constitutes an infinitely heterogeneous cultural space where different texts lock each other in, but also model, condition and effect each other. The theoretical assumption of this study, therefore, is that as the texts in the two corpora are related, they are also interdependent in their evolution. Hence, although there were more levels and textual sub-domains of the mobile Web semiosphere of the time, by studying the texts in the two corpora, we can arrive at a picture rich enough to make inferences about

the dynamics in the global mobile Web domain of the time – how the texts (the particularities of forms, technologies, etc.) conditioned the discourses and how the discursive struggles between industry stakeholders conditioned the forms and technologies of the early mobile (or ubiquitous) Web. In the following some of the more concrete questions are suggested that will guide the analytical integration of the two empirical studies.

The questions that the textual analysis (presented in Chapter 7) and Chapters 5 and 6 that focus on the dynamics of 'platform development' raise in concert include:

a) How did the materiality of the different Webs (desktop and mobile) – their technological build up, the physical nature of the different terminals and the supporting infrastructures – motivate the structure and design of the Web-media forms created for mobile access?

b) How were the prevalent business models that were deployed by the 'infrastructure enablers' of the time mirrored in the characteristics of the mobile Web-media forms?

c) Were the power relations between the different 'authorities of delimitation' (in Foucault's terms) in the industry, its organisation, convergence and divergence processes in the industry mirrored in the nature and taxonomies of the mobile Web-media forms?

The questions the textual analysis raises in concert with Chapter 8 (which focuses on the meta-discourses of the mobile media content producers) include:

a) If the textual analysis identifies the practices of remediation that have been in use in the development of the new form, this introduces a question of how such practices are justified – what are the meta-discursive unities (both on diachronic and synchronic axis) constituted by the productive cultures that are backing these practices?

b) If the textual analysis identifies the emergence of new conventions related specifically to mobile media, this raises questions about the differentiation and conventionalisation processes – what drives them; how do the mobile media and

their forms differ from previous media, and why; how does the meta-discourse reflect this ongoing differentiation process; are the differentiation or convergence processes in forms parallelled in the convergence or divergence processes in the industry structures, in their auto-communications?

c) Can some designs or forms be identified in terms of their innovativeness and defined as lead cases? How do content creators take account of such cases and what do they see as leading developments and as being at the frontier in terms of opening up new functionalities or generic possibilities for and in the mobile media and pushing the diffusion of the mobile Web?

4.5 Conclusion: contribution and challenges

This chapter has presented the methodology for this study. The central challenge has been how to connect the two parts of this study – the textual analysis and the discourse analysis. The need for these two parts and their integration is justified by the conceptual framework employed in this study which considers them as part of the sub-semiosphere that constituted the mobile Web domain as it existed in 2006 and 2007. As all the elements of this network model each other to some extent (i.e., are meta-communicating reflectively both on other elements and on the structure of the domain in general), their development is understood to be interdependent. The reason for integrating the two parts is to explore that interdependence between different texts, discourses or framings of the 'semiosphere of the mobile Web-media domain'.

One of the first challenges related to the research design is that there are more than two groups or levels in such 'semiospheres'. As outlined in the Chapter 3, there are endless numbers of levels in terms of how texts relate to each other meta-textually. Limiting the complexity of such networks to two corpora (websites as 'object-texts' and interviews as 'meta-texts') might appear to be problematic. However, I suggest that the corpus constructions are sufficiently rich to reflect the essentials of the 'mobile Web-media sub-semiosphere' at a particular time.

Another possible limitation of the research design is the relatedness of the two corpora: if one is supposed to have a meta-textual function in relation to the other, then how direct is their relationship? Were the object-texts introduced sufficiently well in the interviews? In the event, they were not. Some interviewees were from companies that had produced the websites in my first corpus and these sites were sometimes discussed

by other interviewees as well. However, the two corpora were constructed independently. In the event, a loose connection between the two corpuses translated into a benefit, enabling some generalisation of the discussions and the arguments identified in the analysis. It helped to substantiate the claims made about the evolutionary dynamics of the mobile Web domain, rendering them less dependent on the stories of the limited set of texts in the corpus.

What is the novelty of this research design? First, it enables the textual analysis to be connected to the analysis of reflective meta-discourses in the production of these texts. Second, the empirical, real time research on the evolution of textual forms is innovative since the subject is a very new medium. This is a study that examines the dialogical societal processes underlying the early establishment of a medium, its technical platform, its taxonomies of content forms and its 'governing social system'.

5 T-Mobile's Web'n'Walk: creating an open mobile Web approach

5.1 Introduction

The initial site where I studied the dialogical processes that were to constitute the new round in the development of the mobile Web was T-Mobile, one of the major global mobile operators at the time. As discussed in Chapter 4, T-Mobile, as a company, provided a valuable site to study the interdependencies in the evolution of the open mobile Web at a 'grassroots level' – how one particular industry institution, as a result of a variety of dialogical processes both within the company as well as between the company and its environment, arrived at a significant market innovation that, in many ways, established a basis for the rest of the industry to react and take their steps with regard to the open mobile Web. The aim of this chapter is to study the patchwork of communications that prompted T-Mobile to innovate, with a focus on the underlying power relations and institutional legacies within the innovation process. I identify how the discourses at this site and at that time established relationships between different media domains, the mobile and the Internet, and how the convergence of these was discursively grounded.

5.2 History of choice: genealogy swap for the mobile Web?

Chapter 2 focused on the histories of various technological and cultural artefacts or institutional formations that met eventually in the convergence process that has brought us the mobile Web. Although this chapter focuses on the initial outcomes of this process – on the early meta-discourses of the mobile Web domain – it has to deal first with its predecessors. There are two reasons for this: first, as discussed in Chapter 3, both Luhmann and Lotman refer to the recursive nature of autopoietic system development, that new operations can only be stored on previous operations. Therefore, if we are interested in the dynamics in a particular present, we should first inspect what the systems refer to as their past, what were their 'memory fields' in terms of Foucault's archaeology. And subsequently, are there telling differences between the historical narratives of the agents engaged in the emerging sub-system? Do the choices of historical narratives offer us insights into their legacies and refer to their allegiances and strategies for the future? How are the autopoietic choices of the systemic past used to justify the new selections in the present?

It was not at all uncommon for the interviewees to refer spontaneously to various historical narratives when justifying either their views or further actions. Two narratives were very uniformly referred to – first, the story of WAP and the lessons learned from this experience, and second, the early evolution of the desktop Web. The story of WAP was predominantly referred to as a negative one, a lesson learned and not to be repeated. In the words of interviewee #10, a leading mobile Web design consultant with a background with a US mobile operator:

> "One of the biggest points of failure at least over here in the mobile Internet has been marketing. The marketers ran off and offered the Internet in the palm of your hand. And users are not stupid, they looked at what at the time was a little small, black and white, no graphics fixed screen that they didn't care, accessed Internet content that was irrelevant for them and they said: 'That's not the Internet in the palm of my hand. That's garbage'. But at the time there was… so right there… the users' experience with the Internet obviously had a huge effect. And the effect was it made them know that the marketing was fundamentally a lie and they didn't even bother trying it."

This story of poor user experience of the early WAP that did not meet users' expectations and hence disappointed them appeared as widely shared folklore in the industry (to the extent that I detected a story-specific catchphrase 'overpromised and underdelivered'). Another component added to this was the unduly high price of the WAP services. Interviewee #29, T-Mobile's UK head of Internet and E-mail Products (marketing) admitted: "I think for a lot of customers it would be, Oh, I hit that button once and it cost me a fortune, I don't want to go there again". His boss, group vice president, interviewee #25, acknowledged that "the pricing was out of this world", acknowledging that there was a need to put it in the context – to relate it to the prices of the fixed Internet.

What is distinctive with these quotes is the recognition that the industry had problems with the discrepancy between the object and its meta-language. As discussed in Chapter 2, the meta-language that the industry had created for the audiences, the 'Internet in your pocket', did not relate to their reality. The Internet they knew at that time was already colourful, audio-visual, quick and cheap. Hence, WAP was admitted to have been 'overpromised'. Therefore, the lesson that appeared to be quite uniformly recognised: "So if you are going to say mobile Internet you really need to be able to deliver on that. So I think that's certainly important that you set… you set clear expectations upfront and you deliver those expectations upfront" (#22, T-Mobile's head

of Content). This quote and the recognition that the price of the wireless Web had to relate to the pricing of the 'wired Web' raise the questions, to what extent did the characteristics of the 'desktop Web' determine, first, the expectations for the mobile Web, and second, how did such assumed expectations eventually condition the design of the service? The statements above suggest a relatively straightforward inter-dependence at the time of the study.

Furthermore, the interviews revealed that there was a notable referential relation to historic narratives from the 'desktop Web' domain. The quote below exemplifies the second main narrative that came to the fore in the analysis of the interviews.

> "When I go back to the mid-90s when Internet came into offices and most of us had CompuServe. It was a walled garden as well so nobody had to type in http, www or URLs [uniform resource locator] – so most of people I knew at that time were in this closed CompuServe system. They had their mail in there, news and so on and there was a little button that meant 'go outside to the real Internet'. And after a while people recognised that CompuServe isn't the hottest brand in town. So they started to go out and find new brands, or establish brands, which make the way to the Internet. And I think that is pretty much the same for mobile Internet." (#18, head of Mobile Services, ProSiebenSat. 1)

Such stories about the fates of CompuServe, AOL or Prodigy with variations in different countries came up when people discussed the burning issue for the industry at the time – whether operators should open up their 'walled gardens'. In this context especially 'AOL' seemed to be a catchword as it was 'overpromised and underdelivered' with WAP. However, the suggested parallels with the history of the desktop Web did not end with discussions around the demolition of walled gardens. These parallels appeared to subsume much more; the whole industry dynamic was seen to be mirroring the situation in the mid-1990s – as interviewee #18 posed, again there are "content people, network people and manufacturers" coming together and again the prerequisites for success are better networks "so the user has fun", flat rates "so the user says OK, I can do whatever I want", multimedia handsets "which is OK right now", and content for these handsets "which is sort of like in the beginning".

But these recognitions only become remarkable when we realise that they become the basis for new actions. And quite often that seems to have been the case. For instance, interviewee #3, a BBC executive producer of mobiles, claimed that when they created their mobile portal in the environment of strict walled garden policies by

operators they were still hoping that "just like the Internet went from CompuServe and AOL to an open model that eventually the mobile Web would".

When we compare those two main narratives – WAP and early Web – we realise that both of them are taken as a basis for further actions. In the new situation of 'ontological uncertainty' (Lane & Maxfield, 2005) the agents approach it abductively – by trying to re-enact their previous successes. However, at this historic moment it is noteworthy which stories come to the fore as successes and which as failures, which are presented as positive genealogies and which are switched off. Clearly the genealogy of WAP was presented univocally as discontinuous and as a negative lesson. It was the early desktop Web that was seen as the dominant paradigm for most of the industry at that time. The emulation of Web evolution is presented both as something that will happen anyway and also as a strategy to pursue actively. The question to ask here, however, is whether, if we had at that particular moment a convergence of industries into a new domain of mobile Web, then are we also witnessing a replacement of one 'memory field' with another for this domain?

5.3 Environmental push for change?

In the previous section we studied how the interviewees perceived and presented the mobile Web domain and its history as a general environment – whereas their particular relation to this environment or their role in its evolution remained unarticulated. In the following we focus on these self-perceived roles and ways of engagement. We ask, what originally instigated their commitment to the mobile Web and what, if anything, has been restricting the further tightening of their engagement? The specific focus here is on observations of content providers in relation to the network operators and their activities.

First, what became apparent as one of the main motivators for content providers to become involved in the mobile Web was the widely shared vision of the future growth of the domain. However, despite the declared aims and optimistic outlooks, there were several circumstances that were seen to have a restricting effect. Let us take as an example the statements made by interviewee #2, the mobile Web product manager at the major German publisher Axel Springer, who had been developing the mobile website of their major broadsheet *Die Welt*. For most of the interview he expressed a concern with the 'island problem'. One might have a great mobile website, but it is not much use if nobody knows about it. Thus, the need to be listed and linked to by all the

possible mobile portals. And the major portals at the time were the ones of mobile operators. These 'walled gardens' could be argued to have been the dominant core of the mobile Web. But this was not favourable to the content providers. Its incompatibility with the needs and aims of the BBC was plausible:

> "We kind of have a regulatory direction to ensure that we don't distort the market too much. Which means that especially in the early days we were reluctant to do specific deals with specific operators who were all trying to offer great walled gardens. And we saw that the way around that was to create our own portal following the Internet model.... And at the same time we would try to make our content available to all the operators on an equal footing and say, we are putting up this site; feel free to link to it. Once our access feeds were common we, you know, put our content available on our access feeds, and said here it is; feel free to incorporate it in your own stuff." (#3)

Here we can see how the BBC as well as many other content providers tried to bypass the walled gardens and counter the position of operators to *divide et impera* the mobile content domain. At the same time the high prices of 'off-deck data' set by operators were still perceived as the major impediment for the mobile Web to evolve. Take, for instance, the statement from interviewee #16 from a little mobile content start-up:

> "… when I am creating these download products, image products, is that actually you know that some of the end users are going to be charged for that download, even though it's already been paid for by the sender or it's been paid for you know by the person receiving that download. And it also heavily restricts, because of that fact, it heavily restricts what we can offer them in terms of, you know, complexity of the image or the amount of animation that goes in with it."

This indicates how the economic build-up of the domain was effecting the forms of mobile content at the time. But the following quotes from interviewee #18 (ProSiebenSat. 1) characterise how this conditioning was expected to change from the perspective of the content providers, so that the evolution of the mobile Web would take the route suitable to their needs.

> "… there are four main points for mobile Internet to take off. Two of them are not in our hands. There is first of all the speed of the networks – they don't have to wait 10 minutes till the mobile Internet page opens. And there is the data cost. So this is the part the operators are responsible for. If this problem was solved we'd take care of our business, that being content. And … they have to provide good handsets.

> "The problem is the chicken and egg problem. So I think we easily could offer a very interesting mobile Internet service providing video. But actually if we do it right now and the user has a… the user will only do it once because if the user watches four or five videos and he doesn't have a data service, they charge him up to 20 euros. So he will never come back and do anything like that. So first we have to solve the data and the flat rate problem and then we can offer interesting content."

At the same time, interviewees from Axel Springer and *Die Welt* which had a relatively optimistic mobile Web strategy also admitted the existing incongruity of their offerings for the dominant economic structuring of the mobile Web at the time: "… if you offer them a video, I dunno, you get 100 downloads per month or something – it's too low, it makes no sense. The costs are too high, and it makes too much work, takes too much resources". However, in anticipation of more favourable operators' business models they still looked forward to output more of their content for mobile access. The BBC's strategy was also similar:

> "... we're quite concerned about bill shock to the user. But we understand or we believe that the content has to be out there before the operators will change their models. So there's kind of a bit of a chicken and egg situation where there has to be enough content out there that the economies of scale to the user, that the operator can drop their prices so that more people use the content, but they need more content up there for people to use before they drop their prices. So, we saw it as very important we had as much content out there, kind of, as possible." (#3)

All in all, there were considerable commonalities in the perceptions and proposed strategies of different content providers – they see and present the mobile Web as an organically evolving domain. They have established themselves as part of a whole where within this organic whole the actions of all engaged agents are seen to be interdependent. On the one hand, we see that at least among the members of the existing 'content production sub-system' there is a consistent perception of the conditions that would enable the further development of the domain. On the other hand, they are all clear about the existing power relations that would condition potential subsequent development. Hence, having the chicken and egg dilemma, they observe their environment, advance step by step and re-make their selections, in Luhmann's terms, in the process. In their strategic choices of taking the first step and putting out content in the hope of a reactive countermove from the operators, we can potentially recognise a 'dialogic control' in action.

5.4 Opening to the Web: environmental rationale

But were these attempts for dialogue and power sharing by content providers noticed by the other party, the operators? As described in Chapter 2, since the late 1990s most operators around the world designed their data services in a way that turned them partly into content providers – they had to govern their portals, where the content was produced either by themselves or by contracted third parties. This means that when establishing themselves in the early mobile domain the telecommunications industry tried to take over the roles of content providers or at least to govern all the related activities. Thus, what we had was not a convergence as an outcome of a dialogue between equal partners, but an attempt by the telecommunications operators to control the whole value chain of the domain, to avoid the role division that had evolved for governing the earlier media and to re-enact the roles familiar from these media by themselves. However, such strategic aims were about to change and T-Mobile was the first to kick-start the process, at least in major Western markets. But what motivated it to go that way?

In the words of an outside observer, interviewee #5 from Buongiorno UK (a company which worked closely with all British mobile operators): "What they fundamentally are realising is that the vast majority of their money is not coming from content. It's coming from browsing charges. So they understand that rather than having this proportion of the market browsing a little bit, if they open it up, if they make it transparent, if they make it, you know, one-off limited charge per month, they are going to have this big part of the market and therefore they are going to make a lot more money". The outside observer seems to have been close to the mark, as this is how this process was perceived from inside:

> "From my perception it was pretty much management decision. From the rational how I understood it was pretty much that all this walled garden approach simply just did not carry enough traffic. It is simply not… erm, not attractive enough to the customer to actually use it. But the real Internet is. And this… so my personal perception is that this really triggered the idea of Web'n'Walk to see OK, how can we make our data service offerings much more user friendly. This is the one thing. The other thing also is getting some competitive advantage in terms of USP [unique selling proposition]." (#26)

Here is another rather personal justification for that step from one of the final decision makers: "Look, I'm coming from the media industry, I'm working on mobile topics now for about seven years and I always believed that the Internet has huge impact also

on the mobile. And Web'n'Walk was just a logical consequence at the end of the day" (#25, vice president of Mobile Data). That personal take on this by somebody who in effect comes from outside the telecommunications industry perhaps also suggests the motives for the change in the narratives and examples used to justify the new direction. That is, similarly to phenomenon discussed at the beginning of this chapter, the examples to be re-enacted are now coming from the Internet and not the telecommunications history. Take the following quotes as examples:

> "You know, I mean if you give them [in a closed portal], for example, access to three different banks. But we have in Germany 100 different banks, you know. 98 percent, 90 percent, 70 percent of my customers were not happy with the offer. But I cannot bring all the banks in there. The same also with newspapers. I don't know how many regional newspapers we have in Germany, but in the hundreds as well. So if I just bring in the *Bildt* you know, they are not happy with it. They want, they want their thing there. So intrinsically each walled garden lacks relevance for the mass market. Simple as that.

> "As the number of Internet sites increases the relevance for the people in the fixed line increased dramatically for usage. So, if Internet would be just 200 or 200,000 pages, it would not be a success as it is today. The wealth of content and services out there is a big driver. And the same also for the mobile." (#25)

> "Some companies will have the resource capability to be able to offer lots and lots of content, package it up in a walled garden approach and give it to the customer. You need lots of money, you need lots and lots of resources, you need lots and lots of big teams to manage this content, to keep it fresh and keep it going. We've felt... yes, we need a complementary service that we already provide, which is t-zones. But we can't possibly aggregate all the traffic on the Internet, all the content on the Internet and package it ourselves. We need to be able to let our users to go out there and use the services that they normally use... if you want to create the adoption of these services then ultimately you have to give them open access." (#20)

Together, the statements above refer to the crucial dilemmas that the operators were facing at the time. Did they have enough power to create media domains that were dynamic enough to withstand positive comparison with the media 'outside' their domain? How could a centrally governed environment compete with environments that were less controlled and hence more flexible and dynamic? And especially, if a new medium was 'materially' built on the same technology and structural principles that were used in that more dynamic environment outside, and was therefore unavoidably intertextually connected to these other environments, could it then effectively avoid

such comparisons? As we saw, T-Mobile recognised that it could not. Hence, it gave up its role as a governor and chose cooperation and a new role of one of the facilitators of the new media platform. On the one hand, it significantly changed the power relations that conditioned the evolution of the medium; on the other hand, it turned that evolution into a dialogic process between partners with differing roles. And thirdly, it connected the relatively sovereign domain of mobile media and content firmly to the Internet, making it essentially part of the latter.

The study of justifications by T-Mobile employees for their new strategy reveals four main groups of arguments. First, as we saw above, is the trust in the effect of the Internet model. Second, strongly related to the first is the belief that the Internet is what end users want: "And the model is that, you know, if you look at the Internet, most people use the Internet. And certainly most people who are going to buy a mobile phone use the Internet" (#22). Third, there is a quite telling, technologically deterministic perception of 'technology being there' all of a sudden. Many of the interviewees in and outside T-Mobile referred to the fact that technology had finally become available, enabling the 'right sort of experience'. And 'technology' here refers to various developments starting with colourful screens, the processing power of handsets ("So that we've got much more capability to deliver it", #29) and new browsers (that enabled customers to "go wherever they wanted to go on the Internet without the website publisher having to make significant changes", #22). Or it was the 3G or 3.5G network capabilities that, as suggested by interviewee #13 from the Nokia Web browser team, put pressure on the operators to leverage that infrastructure effectively and profitably. The fourth and the last group of justifications for the Web'n'Walk was the need for differentiation. As admitted by interviewee #29, "it was deliberately provocative" to open the scope for differentiation and for gaining first mover advantage that, most surprisingly to the company, it still largely maintained by the time of the interviews.

These four sets of motivators give us a picture of why the company renounced its supplementary role as a content provider. But these four sets also demonstrate that the so-called significant Others, who as agents, made the operator change its strategy, were not content providers who were engaged with developing Web content for mobile access. Instead, these were either technology companies and the products of their actions in the form of new handsets or browsers, or end users and their perceived behaviour and imagined needs. There were also other operators for whom the new strategy enabled them to create some differentiation. And finally, the wide Internet as a whole – its model of functioning and the dynamics between all the possible agents

active in that domain. However, in the context of further development of the mobile Web and the dilemmas of this process, the providers of mobile-specific content were not presented as subjects in the discourses of the particular operator. For T-Mobile the mobile content providers were reduced to systemic players, they were taken as parts of the long tail and the 'wealth of the Internet'. Instead, the whole Internet, organic and undivided, became the subject of significance for the process and not the small set of mobile-specific players in it.

5.4.1 *Dynamics of reaching and defining the innovation*

If we move the focus from the dynamic between T-Mobile and its environment to the dynamic within the company and ask where did the change come from, who articulated the need for it and by whom was it eventually decided, then, on first glance, we can see a power dynamic where the decision was made by the very top management of the international group. As admitted, to some extent it came as a surprise to local level marketing executives (#23) and even met some resistance at this level (#29).

> "I think at a personal level there was a lot of people that felt it was a bit of an attack on the portal – the t-zones portal. And I think to some extent it was.

> "I mean, I'll be honest, in the early days it was kind of I was a bit sceptical about it, I was very sceptical about it. And a couple of my colleagues said, you know, this'll never work. We in a sense knew too much about the technology that underlies it and we were saying, but the browsing experience isn't very good when you go to the open Internet. And it's not optimised – and a whole lot of other concerns. And I think that was proven to be wrong." (#29)

The first quote refers to the conflict being based on some institutional continuities, but the second refers to more intricate dynamics between technology development, 'browsing experience', when it is appropriate to define that experience as the 'Internet' and who has the power to do that. Here are a few accounts about the history of Web'n'Walk from the engineers who had been directly involved with its development:

> "As far as I am concerned **T-Mobile has always been an ISP** [Internet service provider]. As soon as we built our very first GPRS [General Packet Radio Service] network we were an ISP. As soon as the very first browser turned up in the phone, we were doing Web'n'Walk from my personal perspective, it just wasn't really marketed that way. So I have constantly got a series of

developments where I improve things, irrespective of whether we had a Web'n'Walk proposition or not.

"The technology department has been constantly putting in technology to make it work. The main difference in the term Web'n'Walk is that marketing have finally started to believe in it themselves and they have **started putting clever tariffs around it**. And propositions and, you know, lots of money towards advertising campaigns etc.… So they finally put it all together and made it happen. But in terms of the core technology and the network, we have been in constantly plodding away, building that stuff.

"So we started developing these sorts of functions and that was probably three or four years ago I think, but then I think as more and more of them devices came on the market from vendors, the marketing team said, hang on a minute, we can make something of this and **we can say this is the real Internet**. (#19)

"I believe the Web'n'Walk was technical to some extent, the acceleration part of it was very technical, but it still was **more a marketing concept**. It was an ecosystem if you want. It is not just about the Web'n'Walk page or the browser, but it was also about the tariff. Without a flat rate tariff like the £7 per month and today the prepaid one with the £1 per day, we would not have created this ecosystem for which the user feels free to browse the Web. So it's **more about a concept, than the technology** I would say." (#21)

As the later 'programme head' for Web'n'Walk, responsible for all related technological development (#24), concluded, there were several activity streams, both bottom-up and top-down, that came together and were formulated into a new strategy sometime around Autumn 2004. But as these quotes reveal, relating to Web'n'Walk's story, there is a strong sense of continuity within the technology sub-system of the company. All interviewed engineers referred to their own related and uninterrupted development work that started long before it got a name and official recognition by the rest of the company. And we should notice that it was specifically the engineers who envisaged the telecommunications company as an ISP and started, somewhat independently, working towards that vision. However, we also saw that they recognised the power of their marketing colleagues, the 'business sub-system' to design, define and claim the innovation as a market product.

The company's marketing professionals presented a similar divide in roles. Their own team was divided into two: 'propositions' and 'products'. Propositions "are the people that build that link into the customer so their goal is to have a really deep insight and understanding of exactly what the customer wants" (#29). And they are

expected to communicate their insights to 'products' whose task is to deliver and maintain the services and products that the company runs: "So, it's about the actual project, specifying what something should be, making sure that it gets built; getting that launched; dealing with all the other bits of the organisation that need to know about it" (#29). And in their job they recognised interfacing regularly with technology teams.

This somewhat formalised system and the different historical accounts of the evolution of Web'n'Walk show how it was born through the different sub-systems observing their environment – one the technology, the other the market – and in their dialogic relationship they achieved the innovation. Also, their rather compliant discourses reveal how that dialogue makes them in effect to act as a system with a third, converged identity – that of T-Mobile as a company or telecommunications industry, generally. But we also realise how the early genealogy of that innovation was presented as evolutionary and continuous from the perspective of the technology sub-system, and how it became disruptive once the business system became involved. As many of the interviewees admitted, one of the main motives was to differentiate the company in the market. Hence, the innovation initially works as a disruption in the economic system. But at the same time, we should recognise that the power to create the meta-language, to name the new product and in effect also the new media platform, was in the hands of the marketing professionals and not the engineers. In fact, my interviewees revealed that this naming and designing was a rather evolutionary process:

> "Initially we were talking about giving people a bundle of about 40MB, which was quite a lot of data, more than anyone was typically using. We've now used to much more of an unlimited, we have just launched day passes and things, which is about really eliminating the worry completely, which you could never do with 40MB. Because once you have said it's 40MB you've instantly got the question, well, what does that mean? And none could explain that. We can't explain it; sales can't explain it; customers don't understand it.
>
> "... we knew that 40MB which was the sort of limit that we'd come up with, we knew that that would be enough for most people's browsing but the question then came, you know, how do we communicate that, so a lot more of the **focus was on the communications side than on the service design side**." (#29)
>
> "What I'm really proud of is that we've moved away from this horrible world of megabytes and gigabytes and kilobytes, which **customers don't understand**. They don't understand why they have to pay for their mobile browsing like that when your home Internet you've never paid for like that. You might have paid per minute at some stage but most people are now paying a flat fee. So **that message** changed things quite a lot because it was about bringing down the barriers

about **uncertainty**. Because customers were very concerned about the price because they had been, the mobile Internet, WAP in the past had been very expensive." (#23)

What these quotes suggest is a development where at first when Web'n'Walk was launched in the UK in October 2005 it was on three price plans with a capped data allowance of 40MB per month. For the reasons suggested here, the price plans were changed to being virtually unlimited in April 2006. But what these quotes make us realise is, first, that in the self-perception of the designers of the service, creating it was more an effort in terms of how to communicate it, i.e., what should be the meta-language for it, rather than in the actual designing of it. And we realise that the difficulties were, first, distancing the new service from the negative WAP legacy that had to be overcome by the new pricing system, that was designed to resemble the positive Internet experience. The pricing structure as the value equivalent is another meta-code that dissociated the new platform from the telecommunications legacy and connected it to the Internet domain. Avoiding the 'horrible world of megabytes' and ending the sale of the Internet in small junks for special purposes is another turning point that communicates that the Internet is undivisible; the benefit for the user is its wealth and 'long tail'. We might conclude that despite many important developments in technology, what made Web'n'Walk innovative in its then market context was the disruption of its meta-languages – that dared to communicate in different ways that it is the 'real Internet' in one's mobile.

5.5 Evolving definition of the 'Internet' on the phone

But if the new service was named and conditioned as the real Internet, then how was the look of that 'real' defined at the time? Similarly to the pricing, the development of related definitions was presented as evolutionary. In this context it is important to point out that in terms of technical development there were two main phases in the Web'n'Walk story that preceded the period when I conducted the interviews. The first was disclosed to the public with the launch of Web'n'Walk in the major markets of T-Mobile in the course of Summer-Autumn 2005 and the second, in the late Spring of 2006 – at the same time as the new pricing structure. How were they different? The first phase meant that the Web'n'Walk was launched only on five different, expensive high-end handsets that were owned by only 10-15% of the company's customer base. The amount of Web'n'Walk customers from T-Mobile's European markets quickly increased to six-digit numbers. As admitted by one of the leading engineers of the group

(#24), that was "experience available for few customers, for the 'early adopters', for the techies, and for the guys who had enough money in their pockets". Because of the elite phones and users, it was characteristic of that phase that the aim was "to provide an Internet experience as good as possible at that time" (#24). However, although the number of clients did not disappoint the company, it was also not satisfying. Conquering the niche market alone was not enough. So the decision was taken in Autumn 2005 to go for the mass market.

> "And that is a little bit a contradiction to the first approach to provide a good Internet experience on the handset, because mass market, that means to use cheap devices or mid-tier devices, and that's clear from the technology point of view, open Internet or Internet on these devices is hardly or not possible. But at that time it was more important to get a better momentum: to go into a direction of pushing devices, pushing the proposition, pushing the product Web'n'Walk into the market, to get a momentum, to get better feedback from the market and to reach a… let's say, a broader audience of that service." (#24)

So, we have a dichotomy between the two phases, where the first aimed to provide as good an experience as possible and the second, where that aim was made consistent with the new aim to reach the mass market. To understand the effect of that change let us first take a closer look at how that 'good experience' was defined at the time of the first phase. In this context it is important to recall that, especially from the point of view of the company's engineers, there was no clear starting point to the first phase. As described above, they had started with the related development work long before it became the company's official strategy as there was a whole set of technological impediments that they had to overcome. The first of these was the issue of significant latency in user experience caused by the round trip between a phone and a Web server that exists for the TCP (Transmission Control Protocol) in wireless networks. The way to overcome that for T-Mobile's engineers was creating the ACS (acceleration and compression system). The ACS was effectively a proxy that was managing the connection between the phone and the Web server. Its task was to accelerate the connection by specifying the workings of TCP and by compressing the content to make it smaller, so that it was quicker to download to the device. Such compression, however, could be seen as the first step towards transcoding content, in general, for mobile specifics.

As referred to above, once the company's marketers realised the potential of the technology, the new strategy was started, but first just for testing. The first phase of the

actual Web'n'Walk development started with the related feasibility study. That included sorting out what the best technologies were – handsets, browsers – to enable the 'best user experience'. But it also included defining the key performance indicators (KPIs) for the service. These, in turn, included, in addition to some technical measures like download speeds, the measures for "how much of the Internet you can get to" (#20). For measuring, various 'use cases' were developed – for instance, buying a book from Amazon. The purpose of these was said to be to study:

> "… what the user experience is, can you get to the Internet, can the screen actually display the right context of the information, does it still keep the contextual part of the original website onto the mobile screen. Because as you know, you're not gonna get exact same experience as you are sitting on the PC with the full screen and the mouse, it's gonna be a different experience. So, we set some benchmarks of these KPIs to make sure these hit those kind of levels. So: can you do this, can you go into hotmail and log in and check your e-mail and send an e-mail. So, there's lots of different use cases that our customers would potentially go out to Internet and try. And we try out all these use cases to make sure that the service works in that respect. So, how much of the Internet can you get to and is it still relevant, is that content still relevant in user's context." (#20)

This quote suggests recognition that what was needed was a balancing between the two aims of optimised and consistent designs. It is recognised that the latter is not possible over all the possible platforms that the Web was starting to become accessible from, but it still establishes a certain continuity in experience as a practical aim. However, the engineer who conducted that study admitted that, in the end, these measures of feasibility were only technical:

> "Like, say, we are asking, can we access the Web from our mobile phone and can we use the Web in our valuable way from our mobile phone? And these are two very different questions. So, in the first case, what is feasible is really just technical question. In the second case, actually, something completely different. It's not just about being able to browse, but also to deliver an experience that is valuable to the user." (#21)

Despite her suggestion that because of the improved usability users might be more interested in content adaptation, she acknowledged that their feasibility study only aimed at investigating the first question: "What can we do, is it feasible to browse the Web, question mark". So, in spite of the dreams of the particular engineer about the norms that would define the mobile Internet via the optimised good quality service for

the user, we realise that the meta-language for the mobile Web created by T-Mobile in that early phase via its definitions, indicators and measures was establishing it as a minimal technical ability to connect to the Internet and to carry through some of the essential 'use cases' while connected. At the same time the nature of the experience, its continuity in design, remained largely undefined and rather unimportant. The actual, technically defined contact with the Internet and its certain minimal functionality started to become the good enough pragmatic definition of the mobile Internet.

The second phase was motivated by the need to reach the mass market with the Web'n'Walk. If with the first phase and its feasibility study the aim was to find the best phones and browsers for the service, now it was the pursuit of solutions that would enable it on mid-tier phones. The technical limitation that had to be overcome by the operator was that most of these mid-tier phones had limited processing power and memory capacity and browsers that could only handle the WAP (XHTML or WML). The latter aspect in particular meant that the search was for transcoding solutions that could translate the HTML content for these browsers in a way that the limited phones could process. The result of the study was a deal with Opera for its browser solution called Opera Mini. That solution brought the further development of the ACS – the proxy in the middle obtained the second, now unambiguous, purpose to adapt or "optimally tune the user experience to suit a particular device", as it was put by interviewee #20, the senior designer of that system. It was made to work in such a way that there was a small Java 'client' programme, an Opera Mini browser, in all the Web'n'Walk mid-tier phones and, for that client, the operator's proxy server did "all the hard work of rendering" (#19) and then sent the absolute minimum of information to the browser. As its designer (#20) explained, the system was designed to take the many capabilities of a device –screen size, colour resolution, memory capacity – and then to compress and re-render the layout in a way that best suited the receiving device. "By taking all those things into consideration, we switch on certain functions and we switch off certain functions in the ACS component, to make that experience a lot faster and a lot better for the user" (#20). The central motivation for such an adaptation was explained like this:

> "We look at market trends, we look at new technology what is happening in the Internet, how the Internet is evolving in terms of content, and how our networks are evolving in terms of different phones, different capabilities of these phones, different bearers, so we have GPRS networks, we have UMTS networks, we have HSDPA [high-speed downlink packet access]

network on the roll now, we have wireless land networks. So how do we manage and provide a consistent user experience across all these complexities?" (#20)

In the context of the later developments – the evolution of different transcoding and adaptation technologies – this early justification for one of the first of such applications becomes significant. We see how the fragmentation of the mobile domain in terms of different technologies and standards used, started to condition the representative variety of the Web content and to separate the content (or the designer's intent) from its eventual form of representation. At the same time, the interviewee here talks about consistency on different technological platforms. In other words, we can notice some discrepancy in the declared aims – "tuning" of the design for different handsets as well as aiming for consistency in design. This could be understood as characteristic of the early era of the medium's development and also, again, of the need for a feasible balance between these aims. That need was set to increase due to the fact that the numbers of Web'n'Walk customers started to increase promptly after the transition to a mass market approach – as seen by T-Mobile's employees both because of the new pricing structures and content transcoding solutions for mass market devices of all kinds. What we can take away, however, from Web'n'Walk's technological evolution from its first phase to its second phase is the parallel development of how the Internet was defined – as a mere connection to the 'long tail', unproblematic about its forms and appearances. We note how within the period of not more than half a year the norms of mobile Internet access change from the aim to provide the best experience (that seems to equate to continuity with the original desktop layouts) to the aim to provide connection with the afforded entitlement to compromise that continuity. Automatic re-design of original designs was legitimised and was set to become a norm. What is especially noteworthy is the disarticulation, the lack of justification for that change – the need for it being given as natural, imposed by the environment, by the complexity of its protocols, technologies and standards that had to be accommodated.

5.6 Users and the 'real Internet' offer

An important justification that pervaded most of the interviews when the new approach of opening the Internet needed either justification or explanation was that 'users want it'. Take, for instance, interviewee #8 as the outsider's voice from Deutsche Welle commenting on the opening of T-Mobile's new strategy, Web'n'Walk:

> "And I think it was very brave to do that when they did it because they did it quite early when others like Vodafone were still having, or are still using their walled garden approaches. But they said from an early stage on 'no, we go for the mobile open Internet'. And I think personally that this is the way it will develop eventually. And all others will follow suit."
>
> Interviewer: "Why?"
>
> "Because I think that people are just so used now to the Internet and the way the Internet works, where things are basically free in terms of you can go wherever you want to. And I think the mobile Internet is just going to be moving into the same direction because people are not going to adapt or adopt a different approach to it just because it's on a smaller screen device. So I think longer term it will go that way too."

Although different from some other accounts where the users were given a more active say as to what they wanted, the case here illustrates the perceived legacies in their behaviour and interests. Their horizon of expectations, the need for 'freedom', comes from the conventions of the desktop Internet. But these legacies were only half the story – as, here again, the self-critically negative narrative of experiences with WAP cast gloom on the perception of what might be the customers' expectations and interests.

> "The point about Web'n'Walk is it delivers the open Internet on your phone. It's an Internet, you know, it's an Internet-centric message. If it doesn't deliver on that then you're either going to have customers that do not have their expectations fulfilled, they are just going to say well this is the same thing again. This is yet another unfulfilled promise from a mobile phone company, er, around WAP. Because when it was originally launched, when Genie was launched, when BT launched Genie, well, you know, four or five years ago. That was touted as the Internet on your phone and it was nothing like it. It was a black and white text service. So that's the fundamental things, that you do deliver on that promise. It's the most important thing that you know, that's the lesson you learn." (#22)

What we seem to have here is a clear aim, a strategy to offer something that keeps to the 'promise' – that is presented as similarly as possible to the 'Internet' – as it was known from other platforms. One of the ways to communicate that became the design of the opening page of the service and the brands included, most notably Google, and their respective services – all to work as inductive meta-symbols for the open and unrestricted 'Internet as we know it'.

> "I think the benefit we got was it's Google, it's about signalling that this is real open Internet. And we did, I remember doing a demonstration on the launch, you know you do Google on a

> PC, you do Google on a phone, you get the same results. You click on it you go into the same place. This isn't some kind of WAP proxy cut-down version, re-purposed on the fly…. And I think Google has featured in all our advertising. Whenever we show the device with somebody looking at it, it's got Google on there. As a way I think of labelling it as open Internet. And it's also the openness in the sense that you can type whatever you want into Google and you can go to wherever the results come. This is not some kind of you know search for t-zones, portal type thing where you are gonna get shown what we want to show you. This is about real openness." (#29)

> "The other area where we spent a lot of time was trying to get links on that home page which would be attractive to customers, where they would look at it and go: Oh I've heard of Amazon, that sounds like the Internet to me. Rather than what we have in t-zones which is a whole lot of, you know there is a lot of good information in there but its hidden in drop down menus, you know, and it isn't very internetty, it's very portal and WAP, operator portal and WAP-type of environment. It was coming up with things that would flag to the customer: You know we've got eBay, we've got Amazon; this is real Internet." (#29)

There were more related efforts. One was in fact in contrast to what was implied in the latter quote – not to overdo it with brands and links on the opening page. Instead one of the aims became to clear up the page. This was both to differentiate it from the crowded WAP design, but also again to learn from Google[24] and the new design convention it had established – when the page is empty it connotes user freedom. But, in addition, in later stages an URL input window was also included on the page – to further emphasise users' options to go their own way, not needing to engage with a search engine. What we realise in this case, however, is that the design of the page that first opens when one starts the Internet connection in a phone is the main arena where the meta-language for the service was being established by T-Mobile. That first page is not the service itself but a way and a medium to communicate about the nature of the service with the multimodal means of layout design. We see also how the communication on that page was concerted with meta-language development in other arenas – such as using Google and its search function in related advertising on television, in the press and on outdoor billboards.

However, at the same time, the company had its difficulties with related meta-language development. That was due to the limited knowledge about the dialogue partner for and with whom to create this meta-language – i.e., their users and their needs – despite their previously proclaimed certainty on this topic.

[24] The Google search engine had risen to global prominence by 2002 (OneStat.com, 2002). In February 2006 Google's share in the UK Web search market was 74.67% (Google Operating System, 2006).

> "If you said to people at the start what do you think you'd use this for, I'm not sure that we've got great research on that. Not as in people didn't necessarily know how they'd use it. It doesn't mean that they didn't like the idea." (#23)

> "But it's one of those things that until people really see it they probably don't get it. And if you say to them would you like the Internet on the move, they say, mmm, yes probably. But what would you use it for? And they tend to scratch their heads. And where they come back down to is things like you know, is e-mail. So the things that there currently is on the Internet are the things that they would want to use it for. But that doesn't really… I don't think it's driven by… it's not as pure as a group of customers sitting down and saying, well, what we'd like more than anything else is XHTML browser on the mobile phone." (#22)

What these quotes reveal is how T-Mobile as an operator and innovator perhaps did observe its customers as significant Others but did not take them as dialogue partners in their norm development for the design of the new service in that early phase.

The one-sidedness of the meta-discourse creation, or the lack of the perceived partner for the dialogue from the perspective of the industry, also becomes apparent in their general scepticism about the awareness of the audiences. For instance interviewee #7 from Deutsche Welle, who expressed his disappointment over the modest uptake of their mobile Web services, concluded that the mobile "hasn't really grabbed people's imagination". Interviewee #18 from ProSieben expressed his disillusion by proposing that users were not even aware that they had browsers in their phones. Hence his company has seen itself as educating the user: as the users had learned by then to order ringtones by SMS, hence, sending them Web links in the same way became a method to inform them about ProSieben's new mobile-optimised portal. However, the relationship whereby the industry was one-sidedly to 'educate' the user on what to do with the new applications was not to last long. As demonstrated by the following quotes, the operator realised it needed to properly observe others – customers had to be understood in order to create a dialogue, i.e., to include them in the development of the meta-discourse, in the 'discourse community'.

> "What we're doing now that the service is more established, we're spending more time researching with our existing customers to understand what difference does this service actually make to your life. It sounds like a very glib statement but it's trying to understand what are the moments when this actually becomes important to you. Are those very practical situations? So is that: I'm driving somewhere and I don't have the details of the hotel that I'm driving to and I want to Google the name of the hotel and get the hotel's website that I know all the details. It

might be that I'm going to meet someone at short notice and I don't know anything about that person. I might want to Google them in the taxi on the way there to find out about them. All sorts of situations and we know a lot anecdotal, a lot of anecdotal examples of how people use the service. What we're now trying to do is really hone those down into the, how do you group those, to understand what the real life benefits are of the service. And then test out communications for customers so that we can understand which of those situations when you put it into a communication message is the strongest for customers and therefore drives new customers and increased usage. But it's taken time, because until people have got the service in their hands it's difficult to understand, to predict, how they will use it and what they will use it for." (#23)

"So it's really leveraging the learned behaviour from the fixed Internet to use on your mobile. That is the first step. Of course, that is a journey, right? And you take the customer on. The same beauty you have with mobile TV, you don't have to explain what TV is about, yeah. And then you need to get the message across that it's the real thing. That is very important, it's the real thing. It's not, you know, a sub-set of something. It's the real thing. Very very important. All the time when the customer realises, OK, **maybe on the go I have different needs and different use cases**, rather than sitting in front of a PC or mobile TV – you have to embrace, you know, certain specific things. But **that is step two**." (#25)

What becomes apparent from these quotes is the dynamic where the industry is establishing a media platform based on a set of beliefs and narratives derived from earlier media and experiences. We see that sticking to old media norms and forms is even established as a principle as the users, the 'model readers', are also seen as having the same horizon of expectations that has to be met. Hence, at the first stage the service has to be designed and structured as similarly as possible to the Internet as known from earlier platforms. As a next stage, that medium is then afforded to be 'domesticated', in Silverstone's (2005a, 2005b; Silverstone & Haddon, 1996) terms – users are allowed to define the uses of the new medium and feed this back to the meta-discourses about the medium. The industry then picks these up again and uses this in its own meta-communications about it – in advertising and all the other forms of product marketing. What might be suggested to take place in such a discursive interchange is another form of dialogic control, where the meta-language springs out of the discursive observations and interchanges between different more or less actively engaged groups, both users and producers, as we suggested when discussing the development of genre norms in Chapter 3.

5.7 Open mobile Web - enabling innovations

The outcome of T-Mobile's strategy was stimulating for the company – at the time of my study all T-Mobile's interviewees expressed great satisfaction with the results. After the introduction of the new tariffs the data traffic was said to have followed an exponential upward curve and Web'n'Walk in general was said to have become a usage and profit driver. Some 90% of customers were said to be happy with the product, with hardly any new customer care issues arising. The usage activity rate was also said to be high for the service. All this made the company employees perceive themselves as the enablers of the new market: "With this open approach we definitely have created a good starting base for even more actions for the other players, because they can now do whatever they want more or less" (#25). Interviews with the representatives of the other side – the content developers – indicated that this change was being noted and taken as an enabling opportunity. For instance, interviewee #3 from the BBC recognised that the Web'n'Walk was good timing for them because they had just decided strategically that "the BBC definitely has a place in terms of video content" and hence they were about to start trials involving streaming of television over 3G. "And we are very keen on working with all the operators to be able to identify that so that if somebody's on Web'n'Walk or something else where there is a cap or a flat rate, they will get access to richer content" (#3). As recognised by interviewee #31 from Volantis, a company that builds mobile websites and provides related maintenance services for others, the launch of Web'n'Walk and similar services had started to imply a change for the whole domain. She explained that although their core customers would still be operators for the next couple of years, they were already increasingly being commissioned to build mobile sites for several global media brands. Her examples were entertainment and news services such as the *Financial Times*, Reuters, CBS, Discovery and Channel 4. As she explained, these companies were increasingly realising the need for mobile exposure. What this suggests is a development where the changes in the mobile domain as an environment were seen as opportunities by the media companies that, as a result, started increasingly to open their 'developer-to-customer' sites outside of operators' portals.

5.8 Conclusion

This chapter has started to examine the evolution of the 'open mobile Web' on a 'grassroots level', where the 'site' chosen is T-Mobile International, a global telecommunications company that was busy developing one of the first open mobile

Web services. At the outset the chapter focused on the dialogical dynamic between the company and its environment – how the company's perceptions of that environment evolved into design decisions regarding the medium's relation to earlier media, especially the desktop Web. We saw how in that environment the narrative on the failure of WAP had become industry folklore – a negative lesson to be avoided. In parallel, a new positive narrative had emerged – the early success of the Web. Hence the need to copy it in the phones and emulate its evolution. We saw how T-Mobile realised that an environment fully controlled by themselves could not compete with the dynamics of the open Internet, and decided in favour of unrestricted Web access supported by flat fee pricing. But the analysis also demonstrates a lack of references to providers of mobile-specific content in the discourses of T-Mobile's employees. In their place, the whole Internet, organic and undivided, became the subject of significance for the process and not the small mobile-specific players within it. The focus was on enabling access to the 'regular Web', not on supporting the emancipation of the mobile-optimised Web. This analysis raises the question as to whether this referred to replacement of the mobile industry's constitutive genealogies and meta-languages – in its self-establishment process the closed mobile-specific legacy was swapped for continuity with broader domains of Internet.

The second focus of the chapter was on the parallel evolution of, first, the technological aspects of the innovative enabling of the Internet on the phone and, second, the meta-languages that were modelling these changes. We saw how the disruptive aspect of Web'n'Walk was associated with its meta-languages, that its marketers dared to name and communicate it as the 'Internet' on the phone. But later we also saw how that definition of the 'Internet' changed from the best possible continuity with the desktop original to the mere technical definition of a connection to the Web, unproblematic about the discontinuities in representational forms between the two platforms. However, while this might have referred to the early representational emancipation of the mobile accessible Web, we saw how T-Mobile tried to deliver for the assumed 'horizons of expectations' of its users and hence to communicate the continuities of its new service with the desktop Web. Overall, we saw in the example of this particular operator, how soon after the launch of 3G mobile data networks the dynamic change in the self-reflections by the mobile telecommunications industry resulted at first in an innovation that enabled virtually unlimited access to the 'regular Web' and, in parallel, tied the domain of mobile content tightly to the domain of the

‘big Web’. In the next chapter we look at how such tying or untying processes took place at the industry meta-level, at the negotiation tables of the W3C.

6 Mobile Web standardisation in W3C: setting the stage for 'One Web'

6.1 Introduction

While T-Mobile's development work on Web'n'Walk could be seen to an extent as an instance of *de facto* standardisation of Web access via mobile devices as acknowledged by a company executive (#25), these actions were only loosely related to any other ongoing standardisation work. However, on the industry meta-level, in parallel, several new standardisation activities were launched and many of my interviewees were more or less directly involved in several of these initiatives. The names of the initiatives that surfaced in the interviews most often were: World Wide Web Consortium (W3C), Open Mobile Alliance (OMA), Mobile Entertainment Forum (MEF), Mobile Marketing Association (MMA) and Mobile Marketing Forum (MMF), together with a few others. What appeared to be their motivations for involvement in the industry dialogues or for accepting their authority? The most common justification is exemplified in the following:

> "There are a number of different browsers even today whereas in the PC world you have three or four browsers, fairly limited number of screen sizes [laughs]. In the mobile world everything is far more complicated than that. So there is as many browsers probably as there is phone manufacturers. Probably few more besides. They implement things in different ways. Even more recently with AJAX [asynchronous JavaScript and XML] enabled browsers – 3-4 different manufactures with the AJAX-enabled browsers, they all have slightly different versions of JavaScript. So you have to build all your widgets 3-4 different times [laughs] in order to make them work. So, you know, there's no standardisation in the browser, there's no standardisation in screen size, there's no standardisation in phone keys particularly. So, all of that is up to a complete mess, real complicated mess to untangle. And as a developer to develop to a standard, which can then be interpreted and adapted to a particular phone, is a way to go forward." (#31, director of Product Marketing, Volantis)

In other words, the ultimate fragmentation of the mobile domain, the lack of technological continuities that would have enabled producers to 'create once and publish everywhere', was noticeably one of the motivators in the drive for standardisation. In this regard, rather telling was the stance of dotMobi, as expressed by interviewee #12, a company senior employee. As a governing company for the .mobi

TLD that was backed by several major mobile operators and vendors it had a vested interest in advancing mobile data services and hence, in also accelerating the development of the mobile Web. Taking an example, again, from the history of the desktop Web, this goal was seen to be best achieved by the advancement of the mobile Web's presentational standards. In context of the regular Web, the best track record in this regard belonged to W3C and, thus, dotMobi decided, first, to became its sponsor and, later, established as its main mission to promote W3C's mobile-related standards. That was one of the first examples of the subsequent institutional convergence of mobile and Web domains. However, it also placed W3C at the centre of related further developments. It is for this reason that this chapter focuses on its mobile-related normative pursuits.

6.2 Converging the 'code underneath'

As indicated in Chapter 2, the standardisation of mobile Web access started with the WAP Forum in 1997. Based on XML and the formerly proprietary mark-up languages of Ericsson, Nokia and Openwave, the WAP Forum first developed WML, the first mark-up language for WAP. In parallel, however, W3C also noticed the emergence of mobiles and handheld devices and this was one of the reasons it recast the development of HTML 4 (hypertext mark-up language) into XHTML 1. A defining principle of XHTML was its modularisation, enabling the creation of more specific sub-languages by plugging together appropriate modules for the chosen use context. Subsequently, W3C selected a set of modules appropriate for devices with limited capabilities (such as mobile phones) and called this set of modules XHTML Basic (Basic). Resulting from one important advantage Basic had over WML and cHTML (i-mode's mark-up language, compact HTML) was that Basic's pages could be rendered differently in desktop Web browsers and on small-screen devices, without the need for two different versions of the same page.

However, due to industrial path-dependencies, the era of Web fragmentation was far from being over. While Basic was intended generically for devices with smaller screens and with less processing power, OMA, the legal heir of the WAP Forum, saw a need for a new mobile-specific mark-up language that would, on the one hand, support the many legacies of WML and, on the other, accelerate the convergence of wireless and desktop Internet development. This meant that they added the features from cHTML and WML that were not in XHTML Basic or in XHTML proper, but also

modules that the full XHTML had but were not included in Basic. The resulting language was a super-set of Basic, and a sub-set of XHTML – though not backwards-compatible in the same way as Basic. That is, it became a mobile-only environment. OMA called this language XHTML Mobile Profile (MP). However, because of certain disagreements between OMA stakeholders, different mobile browsers ended up supporting either Basic or different versions of MP. This generated insurmountable complexity for mobile content developers who aimed to develop content across most of the mobile devices and browsers in the market.

It was in this historical context that ICANN authorised dotMobi to govern .mobi TLD in 2005. As described in Chapter 2, Tim Berners-Lee, inventor of the Web and head of W3C, openly countered this move, accusing the mobile-specific TLD of breaking the principle of device independence of the Web. As implied by two of my interviewees, #32, W3C deputy director for Europe, and #30, chair of the W3C's Device Independence Working Group (DIWG), creation of .mobi was a direct motivator for Berners-Lee and W3C to start negotiations that same year with its major members on starting the MWI within W3C. As recalled by the representatives of the organisation, the initiative came at the right time. In the words of interviewee #11, a representative of Microsoft and its mobile versions of MSN portal and MSN Live search[25]:

> "So we had spent a lot of cycles at that point of time, you know, working directly with browser manufacturers and working out bugs, browser code and gateway code, and basically a lot of the problems that any of the major content developers and integrators had at the time, you know, they couldn't write one solid application that would work on every, or many devices. So knowing this, you know I think that this was sort of the catalyst for the major interest groups getting together and saying there are major inconsistencies in the space, we need to work together to find a standard, you know to try to alleviate all these problems."

As he indicated, a set of device manufacturers, software vendors and content providers got together and agreed that they needed to take "a group approach to defining the major problems and coming up with a roadmap to try and solve them". That was the birth of W3C's MWI in late 2005. As many of the interviewees insisted, due to its nature W3C made a good arena for negotiations between interested parties. Interviewees valued highly its track record in developing Web standards and the fact that it was not tied to any specific commercial organisation: "It's not overly commercial but it doesn't actually have an agenda to bring down any commercial partners, or anti

[25] Microsoft's MSN Live search was the predecessor of the company's current Bing search engine.

commercial or seeking to benefit a small set of companies and industries" (#3, BBC). Several interviewees who had experience of the work in MWI emphasised the open nature of the body and the fact that any interested party could participate in its work and that 50 odd companies did so.

Most of the interviewees appeared rather optimistic about the industry's willingness to avoid repeating its mistakes through fragmentation. As the interviewee from dotMobi (#12) repeatedly implied, the industry had learned its lessons with the desktop browsers and their proprietary solutions, which eventually had all given way to universal standards and continuities within the Web domain, to an extent which made him claim that, in the mobile context, the power now lies in the hands of the standards bodies and not in the hands of the handset or browser vendors. But did that newly established consensus-seeking spirit really suggest that the era of dialogic control had finally arrived for the governance of mobile Web access, that the earlier power hierarchies were levelled and that W3C was about to become the ultimate arena to formulate the meta-codes and discourses defining the domain of the mobile Web? In fact the reality and its power dynamics were more complex.

It was quickly established by MWI members that W3C had to start liaising with OMA, the mobile industry standards body. In the words of W3C deputy director and the MWI 'activity lead':

> "Well I think it's because our… well number one answer is always because our members want us to do it. So, but if you dig a bit deeper then there are… I mean there's work on Web standards in OMA, there's work on Web standards in W3C, so if you are working, you know, in the Mobile Initiative in W3C you should be probably looking at what the OMA has done, and you know try to, well, work with them. And as I said I think the goal here is to converge the work into one single specification and make sure that we, you know, that things don't run apart again as it has been in the past." (#32)

What we seem to have here is an enforced dialogue between the domains of the desktop and mobile. As described in Chapter 5, companies like T-Mobile or Nokia became increasingly interested in extending the domain of the Web onto wireless gadgets. This meant turning to the normative core of the Web domain, W3C. At the same time, the mobile industry's own normative legacy, its existing identity and established needs, had to be taken into account in this process and, hence, the push for dialogues between OMA and W3C. In parallel, W3C had itself learned who was the significant Other with whom it had to liaise in order to achieve its own goal – the non-fragmented Web. As an

outcome of these motives a cooperation agreement, a 'Memorandum of Understanding', was signed between the two bodies in 2004. This started to regulate how the two organisations could exchange information and how the representatives of each of the organisations could attend meetings of their counterpart. And as the agreement was rather generous in this regard, all this integrated OMA into W3C work to the level that it became, effectively, almost an unofficial W3C department. The first outcome of that institutional convergence was also a convergence at the object-language level – at the time of the interviews for this study, there was work on merging the specifications of XHTML Basic and XHTML MP into a new standard, XHTML Basic 1.1. And the planned next step was to be the merging of their associated versions of cascading style sheets (CSS). The news that all devices were in the near future to support one universal standard was welcomed by the industry, as testified to by interviewees. However, although the new harmonised standards did improve the compatibility of mobile-specific websites with desktop platforms, the mobile mark-up languages remained separate from the desktop versions. This meant the continued modelling of the 'mobile Web' as a separate medium.

6.3 MWI: standardising website authoring for 'One Web'

All the work in MWI had been underpinned by the aim of overcoming differences between the still separated domains. In this regard W3C was not without its own agenda – i.e., it was not only about neutral and consensus-seeking standardisation of grassroots innovation (even though the latter was what some of my interviewees, even a W3C working group's chair claimed). As the deputy director of the organisation and the lead of the MWI repeatedly stated in the interview, the creation of MWI was driven by Tim Berners-Lee, and he continued to be actively engaged with its work. The reason for the high profile attention was the perceived importance of mobile Web standardisation to securing W3C's 'One Web' imperative. As the Microsoft representative to the MWI (#11) put it, the ultimate aim of MWI was "at a high level to solidify the future of a mobile Web experience, a unified mobile Web experience [Thinks] ... that is, I guess, guaranteed to work across any mobile, Web accessible device on any network at any time". It is important to recognise that all the companies and other institutions (including Vodafone, Deutsche Telekom, NTT DoCoMo, Openwave Opera, dotMobi and others) that were either sponsoring or participating in MWI work effectively signed on to that goal of 'One Web'.

One of the first outcomes of MWI work, produced by its Best Practices Working Group within a year of its launch, was the working draft of W3C Mobile Web Best Practices (MWBP) guidelines – a document that had reached a 'proposed recommendation' status by Autumn 2006 when the interviews for this study were conducted. The guidelines (see W3C, 2006) posit that although the document was intended to improve the experience of the Web on mobile devices and while its recommendations were not specifically addressed to the desktop browsing experience, it must still be understood that they were made in the context of wishing to work towards 'One Web'. It is also important to realise, however, that with this document a different attempt to achieve this aim was made as compared with the previous activity of making the mark-up languages more compatible. MWBP was, in effect, a document of design guidelines and was, in a rather accentuated way, mark-up independent. Consider the following quotes, taken from the document (W3C, 2006):

> The Best Practice recommendations refer to delivered content. While they are clearly relevant to the processes of content creation and rendering on devices, they are not intended to be Best Practices for those activities.
>
> The Best Practices have been written at a level of generality that allows them to be applicable across a range of markup languages. They have been written with enduring properties of mobile access to the Web in mind.
>
> The document is not targeted solely at developers; others, such as interaction and graphic designers are encouraged to read it.

What these refer to is ultimately a design ideology that would help overcome the division into two that was unavoidably marked and 'discursively' modelled by the mark-up languages 'underneath'. That is, the MWBP document offered guidelines on how to design a website in a way that did not effectively presume significant adaptation for being displayed and used on different access devices. In the words of interviewee #17 from Segala, another contributing member to MWI:

> "The MWI's goal is to help developers by providing them with best practice design principles so they can build websites that will work on a desktop PC and work better on mobile devices. It is not assuming that there is a lowest common denominator, in that you have to create every single website to work across every single device.… What the MWI is about and what Segala is about, it's encouraging that you can create your website, create your content, so that it's foolproof, future proof I should say. So you are not just thinking about the technology that's there today.

> Although you have, to a certain degree, to make sure you can make some money from your content today. But at the same time if you could do what I call measure twice, cut once, render everywhere. OK a bit of an ideal situation, but if you strive for that then second best is good enough."

What W3C seems to have been trying to achieve with this apparently idealistic policy is to disregard the complexities on the level of creating content for the Web with mobile access in mind. It tries to overcome the many boundaries and differences between the coding languages by working on a different level – that of generic interface design for interactive devices. With suggestions such as how to avoid pop-ups, frames and cookies, or not to use tables for layout or graphics for spacing, or not to have a substantial navigation bar at the top of the site, MWI hoped it was possible to have a generic design – one that would be 'good enough' on devices with very different capabilities. "Not ideal, but second best", as put by interviewee #17 above.

However, the fact that it was not ideal unavoidably started to cause problems for the standardisation process. These are exemplified in the following quote from the MWBP document where MWI tries to explain how it understands the 'One Web' principle and its execution:

> As discussed in the Scope document [W3C, 2005], One Web means making, **as far as is reasonable**, the same information and services available to users irrespective of the device they are using. **However**, it does not mean that exactly the same information is available in exactly the same representation across all devices. The context of mobile use, device capability variations, bandwidth issues and mobile network capabilities all affect the representation. **Furthermore**, some services and information are more suitable for and targeted at particular user contexts.

The 'however' and 'furthermore' in this quote and the related 'buts' and 'ifs' in the rest of the document that extend and appropriate the concept to various existing circumstances and quite apparently also to differing perspectives on the subject matter that the different members had, are indicative of the problematics in defining and understanding the concept of 'One Web' at the time.

> "It's a tough question as it means many things to many people." (#11, Microsoft's representative to MWI)

> "First of all, defining what 'One Web' means on the mobile device. Very very difficult. In fact actually when we first started the smaller group, you know it's very easy to misconstrue or

> misinterpret the meaning of a sentence by just including or excluding one word.… If you look at my blog post 'Mobile Web versus Mobile Internet', there is a thread on there where most of the comments are through misunderstanding of what was previously said. And there's something like 60 comments, but there's over 17,000-word count on the comments alone. Which goes to show that it inspires people to speak in great detail. It means that they are quite passionate." (#17, Segala representative to MWI)

> "I could disclose a few e-mails that went by on BPWG [the Best Practices Working Group] which show how different people mean different things by 'One Web'. Of course, after many months spent massaging the wording, all the MWI BP-related documents mean everything any BPWG member wants it to mean (as an aside, that's why they are not intelligible by your average developer)." (#33, temporary MWI participant representing WURFL [Wireless Universal Resource File])

What this may suggest is that in the early era of the normative work many of the meta-concepts were still unarticulated or not yet conventionalised, or, in fact, not agreed on. The vagueness of the MWBP document demonstrates effectively its dialogical nature; it is polyvocal in terms of perspectives represented, whereas the differences between them remained ultimately unresolved. As put by one of the contributors to the document who later distanced himself because of his disagreements: "It appears to me as a manual example of too many cooks spoiling the broth" (#33).

It is important to point out, however, that the criticism of the latter interviewee is rather characteristic of the specific viewpoint and community he claims to represent. He cannot possibly favour the dialogic and polyvocal nature of the MWBP document as essentially he is not in favour of dialogues and the convergence of mobile and Web domains. As he put in the latter quote above, the document is not intelligible for the average developer and is as such useless for him or her. That refers to the sub-system, to the discourse community and the community of practice he stands for – the mobile developers.

What could cause this conflict? We should pay attention to the statements made above by interviewee #17. He says that the MWBP document should help make PC websites work on mobile devices and that, on the one hand, there is assumed not to be any lowest common denominator for design but, on the other, content is expected to be 'future-proof'. He was quite aware of the problematic associated with these expectations:

> "… every time I say what I am saying to a mobile developer they say, Oh, it's not going to be possible. You need a separate mobile Web and you need one for the desktop. That is true a lot of the time, but I am looking to change that over time as new technology is implemented." (#17)

An expectation of a better future and, at the same time, disregard for the lowest common denominator, makes the normative work rather idealistic, as he recognised himself. As such the MWBP guidelines could be argued to be rather insubstantial or impractical for the actual developers of mobile content. But, as a matter of fact, these guidelines were not directed to them as these quotes from the MWBP document evidence:

> It is primarily directed at creators, maintainers and operators of Web sites. Readers of this document are expected to be familiar with the creation of Web sites, and to have a general familiarity with the technologies involved, such as Web servers and HTTP [Hypertext Transfer Protocol]. Readers are not expected to have a background in mobile-specific technologies.
>
> Our intention is to make it clear to all involved what the Best Practices are, and hence establish a common basis of understanding. As a result of wishing to be clear to those not already involved in the development of mobile-friendly content, some of our statements may appear to be obvious or trivial to those with experience in this area.

The critical interviewee (#33) had missed the targeted nature of the document, but pointed out the clear difference between the two communities for him:

> "BPWG would not specify whether the practices are meant for **Web authors or mobile authors**. My point is that you can't provide guidelines that apply to both, just like you can't provide practices that apply to the manufacturing of bicycles and cars alike. The attempt to sweep this distinction under the rug just makes the whole **Best Practice document incredibly confused**."
>
> "Which is a pity, because developers and content authors are the target audience for this kind of documents and BP was the opportunity to create something valuable for them. In reality, BP may well end up being more of a hindrance than a support for mobile developers and people aspiring to become such."
>
> "There are many actors in the mobile arena. Everyone is trying to do the best for themselves, but little is done for the **community of developers** in the widest sense. W3C had a great opportunity, but, in my opinion, they blew it by letting too many **external requirements** and **political decisions** play a role in the definition of the **actual practices**."

> "The problem was that there was too much **political s**t** to mud the water, with **One Web being the most cumbersome object** of all. Also, it was not (and still is not) clear which devices BP is aimed at: **existing devices? future devices?** this lack of clarity is another deadly sin."

> "To make a long story short, the W3C MWI Best Practices are the result of **political decisions** taken by companies that to a great extent **ignore real developer needs**."

What this could suggest is the phenomenon discussed in Chapter 3, where the normative work from the core of the domain starts to generate repercussions for being too idealistic, i.e., too distanced from the 'real' settings. In this context the mobile developer community appears as the periphery where the 'grammars' of the core become illegitimate and the relationship between the practice, the 'actual semiotic milieu' in Lotman's terms, and the norms imposed on it, become strained. And as Lotman also pointed out, this is the field of tension where new languages come into being. That effect could be suggested as a motivation for interviewee #33 (and several others; see Chapter 8) to create their own 'codes of practice', in this particular case titled 'global authoring practices for the mobile Web' (GAP). His comments on these guidelines in relation to MWBP were:

> "So, I decided to create GAP and open it for contributions from the people to whom the guidelines really matter: developers."

> "GAP totally discard One Web, which is the foundation of BP."

> "GAP is based on the capabilities of real existing devices. BP is based on the wishful thinking of the companies that happened to sit in BPWG." (#33)

What we see here is a creation of a new meta-code trying to establish the mobile Web and the 'big Web' as "separate entities with similar mark-ups" (#33). This is significant as the interviewee here is one of the leaders of an online community (a mailing list of thousands) of mobile developers. He and others from that community refused the dialogue with the Web domain and with the 'companies' and their 'politically biased' urge to converge the un-convergeable – the domains of Web and mobile. This analysis shows how these two sub-systems, when observing the environment in the new circumstances in regard to potential enlargement of their 'own domains' or to re-establishing themselves in dialogues with the environment, arrived at different results. One pushed for convergence; the other refused this.

6.4 Mobile industry motives to support 'One Web'

It is important to realise that there were not only two opposing parties that were trying to settle the emerging domain on their own terms. The interviews revealed that the 'politically biased companies' that actively took part in the standardisation activities in W3C and elsewhere had varying motivations for their engagement and also, hence, different positions when it came to either supporting the 'One Web' agenda or Web/mobile distinction. In Chapter 5 we saw how a major operator, whose sister company's (T-Online) representative was also actively engaged at MWI, decided to give up on a content domain that was limited to mobile only. We learned how T-Mobile, after having observed their 'significant Others', their customers, was realising that in the landscape of media it is difficult to separate one interactive network-based media from another as one establishes expectations for the other. Hence, the answer was to merge the platforms that were already perceived as being related and interdependent by the public. A further justification for T-Mobile's 'One Web' support is indicated below:

> "Everything is converging. Specifically **Internet and IP is a big driver of convergence**. Probably the only one. At least in this telecom IT business area. Why would you see different service domains, and different content domains for mobile and for the fixed? I don't see that at all. You will see maybe different presentations at the front end for different type of content. Adapting to different devices. But there is so much innovation going on around the device, you know, they have integrated little beamers already. Sooner or later you just set them and it projects it somewhere in front of you, or God knows. We have VGA [video graphics array] screens in mobile phones, so the resolution increases. So, the demand for really optimised sites over the time will probably decrease rather than increase as the device capabilities improve." (#25, vice president of Mobile Data)

> "Well from my point of view in terms of the platforms and the network, it has [converged]. I have already achieved that. I've now kind of converged a lot of these platforms, these traditional gateways, such that they do both laptops and phones… the convergence is occurring and if you look at a very high end, a very high end phone now and compare it to a very low end laptop, you know **they can do the same things**." (#19, chief architect of ISP services)

What these quotes suggest is a form of technological determinism that underpins the company's visions and related choices. The IP as a structuring technology and a 'code underneath' is seen to affect the convergence of the content domains (a perception in

line with W3C's efforts to harmonise the mark-up languages). The explicit optimism when it comes to further development of the access devices adds to that. We see how the operator is in dialogue with technology vendors in its environment, with both parties working towards merging the domains in technical terms. Technological convergence is expected to bring about the unification of the content domains, the 'One Web'. This is also in terms of the forms of the Web – i.e., as strongly emphasised by T-Mobile's employees, these were no longer expected to be 'mobile-specific'. And thus, when it came to standardising: "So, what we are pushing for is not standardising something for mobile, it's rather, you know, standardising the support of the browsers, the handsets to cope with real Internet pages" (#25).

Such observations clearly linked this particular operator to W3C's camp and its 'One Web' goal. But an aspect in the discourse of T-Mobile's employees refers to another conditioning factor on the way towards 'One Web'. The comment above from interviewee #25 points to the aspiration to establish continuity between the two domains by advancements in browser technology and their standardisation. The importance of this potential is exemplified when the then very new Nokia S60 browser was discussed. The S60 browser was innovative at the time for being based on the open source WebKit project that contained the same WebCore and JavaScriptCore components that Apple also used in its desktop Safari browser (later also used by iPhone). As testified to by interviewee #13 from the Nokia Web S60 browser team, the company had established a clear 'One Web' agenda, and recycling a desktop browser's engine was a way to enable that agenda on their handsets. The fact that they were building on the desktop legacy was advertised by Nokia itself at the time as a factor that helped in improving the Web usability on mobiles. But T-Mobile, moreover, emphasised the potential that held for converging the domains:

> "… the S60 browser, or other browsers, which are inheriting a desktop-based rendering engine, I see as key for any successful Web browsing also in the future. It's to me the Web rather which needs to think about mobile, yes. But not in terms of adapting then the content in its total to all these tiny little devices, which may be floating around. But really relying on… let's say, at the end of the day, hopefully on some industry standards, be it for example the S60 browser. And also for the content industry it would be rather easy to adapt their content, if at all needed, but if needed, adapt it to one rendering engine, instead of these almost seven or ten different browser vendors which we actually see today in the WAP area." (#26)

A scenario in which browsers with desktop legacy would become the 'translating engines' that establish continuity between the two domains refers to their role as the third important technical enabler of the 'One Web' potential. As put by interviewee #30, chief scientist at Volantis who also sat on different W3C mobile-related working groups, the fierce competition at the time between different mobile browser vendors in trying to enable 'regular Web' on mobiles was the main factor that pushed towards creating continuities between the two platforms. Another example of this trend was Opera, a browser vendor that held only a distant third position in the global market for desktop browsers, but was rather dominant in the mobile browser market[26]. As evidenced in the following quote by interviewee #14, Opera's marketing officer, the company was somewhat calculatedly leveraging its technical ability to create continuity between the different access devices to the Web.

> "Yes, internally we have one Opera core engine that… let's say we have one central core, the same engine, and the same engine runs on desktop and on Brew and Linux and Windows Mobile and Symbian and Java and proprietary stuff that we might be working on. And it's very helpful because that also lets us transfer features from phone to desktop or desktop to phone. One platform to another platform and the TV, yes the TV screen, etc. stuff was also using the same core. So as a company we are in a very good state right now because the whole world is moving towards this converged Internet strategy. And by having the same core that works across different devices, mobile desktop environments, we are able to accommodate to the market's demand much much quicker than maybe others in the market who have concentrated on just 'we make a mobile browser or we make a PC browser'."

This helps us recognise the ways in which the select browser vendors were developing their own agendas of becoming the indispensable 'translating cores' of the ubiquitous Web. Expanding the realm of the continuous Web to other content domains served their interests in obtaining the function as technical cores of the potentially cross-platform Web, with the role of translators between the various access platforms to the Web content. At the time of this study, it was they who had become, in many regards, the main drivers of the convergence process of the two Webs – first Opera, later Nokia S60 and iPhone's Safari – all of which were more or less widely celebrated for making Web browsing on mobiles an attractive proposition and the realisation of the 'One Web' vision a realistic goal.

[26] According to Web traffic analyst StatCounter's global statistics, the market share of Opera's desktop browser was only 2.83% in December 2008. Its mobile browsers were at the same time leading its respective market, accounting for 26.51% of the mobile browser market (see http://gs.statcounter.com).

A related phenomenon was the emergence of a new breed of service and technology providers (such as Novarra, infoGin, OpenWeb) that began offering the *post factum* re-rendering of desktop designs for mobiles. This new sort of processing that became known as 'transcoding' emerged as an era-specific phenomenon. Not only did operators such as T-Mobile and Vodafone start to use them in their networks at different levels, but also browser vendors like Opera developed transcoding solutions that were implemented both at the network level and independently by browser clients, in handsets. Even more important was the trend whereby search engines such as Google, Yahoo!, Taptu and MSN started to employ transcoding engines in their mobile-based search sites – where the desktop sites in search results were transcoded if the user happened to click them. In fact, as pointed out by interviewee #11, a developer of one such engine at Microsoft's MSN, the development of the transcoding engines and opening to the Web were seen as interdependent at the time: "Re-rendering technology is driving a lot of that and really opening the Web much more and if that becomes more predominant in the search offering I think that'll speed the transition even more".

Such statements are suggestive of the role that different transcoding engines were about to acquire in creating continuities between different forms of content and 'access platforms', since several interviewees expressed a similar vision of the transcoders bearing the brunt in further developing the mobile accessible Web. Interviewee #1 from Sybase 365 (a US browser developer and content aggregator) pointed out that the further development of these engines would offer huge cost savings for content providers as they looked for ways to 'build once, run anywhere'. Interviewee #2 envisaged that transcoders would have the function of 'correcting problems with the layout' – i.e., effectively freeing authors from worrying about presentation on different platforms. Interviewee #20, who developed the respective solutions at T-Mobile, concluded:

> "Will you develop new pages for every single device or... I'm not convinced if that's the way to go.… But I think ultimately the transcoding engines are an interesting technology to be able to fill that gap. Because essentially they are providing the same thing.… Why you then have maybe 10 copies of the same content in the server – you might get a hit from a Nokia 6131 or I don't know.… Because these things also outdate very quickly. You know, things change, colours change, people make decisions about changing their phone every six months to one year. Whether you want to keep that content around for every device is a difficult question. I'm not convinced you can."

Such visions from people who were actually designing these services point to an era-specific and a sector-specific readiness to define the arrival of the 'ubiquitous Web' by sacrificing the designer's intent in terms of being able to determine all media outlets and layouts. This is because, at all possible levels and interfaces, the design decisions would, to a significant extent, be pre-programmed, i.e., set by algorithms outside the direct control of the authors or producers of the Web content.

All this – the parallel emergence of browsers and transcoding engines aimed at adjusting content for the different access platforms of the Web – indicates how the algorithmic *post factum* re-design had started to emerge as an industry norm. And the apparent reason behind the development of this norm seems to be the fact that the 'seamless Internet that gives you exact same information through whichever screen you are looking at' (#14, Opera) was very much on the agenda of many of the big players in the converging Web and mobile telecommunications industries, several of whom were sitting at the W3C MWI and were participating in its different standardisation activities. This section was intended to demonstrate the different motives of various big technology enablers or network operators that were participating in this work and how these motives were, in turn, justified by their positions in the industry and strategies in the market. We saw how T-Mobile as an operator, Nokia as a handset and browser vendor, Opera, OpenWeb and many new browser and transcoder vendors were motivated by the aim to 'grow with the market'. On the one hand, they had established for themselves the eventuality of the respective developments and then, on the other, started working towards them in order to gain a first mover's advantage (von Hippel, 1984; Kerin et al., 1992) and keep their foothold in the industry. In their case we should recognise a formation of a new sub-system that I term 'infrastructure enablers'. These were the industry institutions aimed at capitalising on the new continuities between the two domains and working towards advancing those continuities.

6.5 Content providers call for 'adaptation'

Returning to the formerly established 'industry' versus 'developer' opposition, it is important to realise the indeterminate unity of this 'industry', especially as the study of the content providers' discourses revealed tellingly their different take on the One Web/Two Webs dilemma. However, it should be recognised that in many regards the discourses of several of the bigger content providers supported the 'One Web' goal. For instance:

> "In terms of our assignments it kind of is broadly encapsulated in our sort of strategic view of mobile which is essentially that online and mobile are the same thing.… So our primary focus is about enabling our websites for access by the audience on the devices that the audience have. So that could be mobile phone, it could be a PDA [personal digital assistant], it could be a games console, it could be a laptop it could be a PC, it could be something sitting under your TV. And broadly speaking, you know, obviously we take a view on the devices in the market and what the audience are using. But broadly speaking our aspiration is that all the content should be accessible irrespective of the device. And so, most of the work that I do is about ensuring that our systems are able **to output the relevant versions**. So it's about **re-versioning** pages, or formats for video, or formats for audio that work on mobile devices." (#4, Mobiles product manager, BBC News Interactive)

Despite the apparent similarity of this statement to those of the 'infrastructure enablers', the last part of this quote points to the important disparity in how the content providers understood the realisation of 'One Web'. As the same interviewee #4 stated, although the BBC agrees that there should be only one Web, they would need to take into account the variations in screen sizes, bandwidth, memory capabilities, etc. of different access devices and then do some re-versioning of their sites to adjust them to these devices – all in order to make the user experience as satisfying as possible. Although that satisfaction was perceived to partly depend on the technical appropriation of the content delivery, another BBC interviewee talked about re-designing their websites, for instance, weather sites, according to the nature of the use instance: "Because you don't want to have just a tiny little box when you go the weather page on a PC, but you do want to have a tiny little box with one place to stick in your info if you have a handheld device" (#3). Both BBC interviewees implied that there is a fine balance between the two aims of making their content available irrespective of the access device and re-versioning it to make it effectively 'accessible' on these devices: "[O]bviously our effort goes into making sure those experiences are as similar as possible, but that they are also as functional or as effective as possible" (#4).

However, some other content providers were more radical in establishing that balance for themselves:

> "I still believe that you have to offer something special for this new medium. Again comparing to the Internet, I used to work for print magazine at that time, and they said: 'Oh, well let's start a Web page'. And there were these art directors, usually working with print, and they were sitting at the computer and measuring it like you do in print business, saying: 'OK, we can do it like this here'. And then they tried to transform the print magazine onto the online site, the

> website. And that didn't work because it was a new medium. And basically that's the same for mobile. If you have a brand, you want to mobilise, you of course have to offer the end consumer what he demands of the brands. What he expects. But you have to offer services that are more suitable for the media usage of this brand. So you can't offer for instance…. ProSieben is very much related to cinema and so on and we have a big cinema… a lot of information about all movies. You don't want to have that on your mobile phone. But you might want to have the information where the next cinema is. And you might want to buy a card [ticket] but you don't want to read a critic's 1,000 words about a movie. You do that on another level. So I don't think one Web for all is the real future; you have to adapt the content for the media categories. The way to access it can be exactly the same. Just say to the customer, OK, www.prosieben.de – doesn't matter what device you use. You access and you get the content. I believe in that, but you have to make special content for… I don't believe in the browsing theory, and the iPhone thing that says that OK we can show the whole website on this small phone. I don't think that will work." (#18, head of Mobile Services, ProSiebenSat.1)

The interviewee continued to elaborate that the reason why showing 'full websites' on mobile screens will never work well enough is, in the first place, the different usage situations and hence the content provider has to bring a USP to the user to use the mobile Internet. "You have to tell them why it's more sexy to use it here than there. Or why he should use it when he's travelling or whatever. So you have to bring special content for a special situation" (#18).

What this suggests is that, in general, the content providers of the time tended to agree that the continuity in software code is important as this helped them transfer their content easily from one form and platform to another. However, they did not agree with unchallenged continuity in presentation – displaying, for instance, exactly the same website layout on all possible access devices. Furthermore, their first experiences with transcoding engines had shocked them into taking care of their mobile sites themselves. As interviewee #30 from Volantis observed, "People being very anxious to get the best possible quality of user experience on a particular mobile device". Hence, they were developing new sites aimed specifically at mobile access, in order to guarantee the best kind of experience. It is for this reason that they talked increasingly about content 'adaptation' and as implied in the quotes above, the reason for this, and for presentational divergence was a need to tailor the user experience for the different circumstances of reception and use and to exercise some control over these circumstances.

With such preferences, the majority of the content providers of the time could be deemed to affiliate, to an extent, with the positions attributed above to the developer

community. This shared conflict with the 'One Web' vision is explicitly articulated in the following:

> "There can be services that overlap over Web and mobile, sure, but what I don't get is why developers need to be told that the two must be made overlap (as MWI BP does), rather than just mentioning that while some services may require a 'dual' interface (Web and WAP), mobile is a different world with different rules. This seems to me like 'One-Web' dictatorship." (#33, leader of WURFL and 'WML-programming' communities)

In other words, the conflict is about whether the communicator can have control over what is communicated, i.e., whether the content provider can decide how its content is presented on different kinds of screens or on devices with different kinds of input interfaces. Or what content is offered in presumably different kinds of circumstances of use, as for instance while on the go, on the street or on a bus with a mobile as compared to a desktop computer at home. We realise that in this regard the preferences of content providers tended to differ from several big mobile infrastructure companies. The 'One Web' vision by W3C and by the infrastructure companies presumed, first, leaving content effectively 'un-designed' and 'generic' and, second, attributed a central role in handling that generic Web content and optimising it for different platforms to various browsers and re-rendering engines. But that meant optimising and re-rendering outside the content providers' control or will. This is why the content providers emphasised the importance of doing the re-versioning on their own, i.e., by their own designers or servers.

6.6 Work towards 'device-independent' authoring

As many of the large content providers were increasingly stressing the option of server-level adaptation, it is interesting to realise that this technological solution was not developed by the industry core. Instead, as put by interviewee #33 who himself was actively engaged with its development from the start, it sprang out from the grassroots level of developers' need to overcome the fragmentation in devices and browsers.

> "It was already in '99 that I started wondering how, as a programmer, I could work around such 'deficiencies' and deliver a good user experience on both phones. Believe it or not, that was the beginning of a long journey that brought me to a basic intuition, the solution to mobile market fragmentation had to come from the developer community, since the industry was 'genetically'

> **unable** to provide device information and open-source programming APIs that the industry itself badly needed to take off." (#33)

The industry was perceived to be 'unable' as the handset vendors were not keen to disclose all the features of their products, which could be used by the adaptation applications for site optimisation. Hence, it was the WML programming community at Yahoo! Groups that in 2002 created the WURFL schema and started filing device information in its repository. By the time of this study, the open-source WURFL schema had become one of the dominant solutions that enabled content adaptation worldwide.

In parallel, similar commercial applications emerged at the periphery of the industry. One of these was Volantis. In the words of interviewee #30, its chief scientist at the time of the interview, Volantis saw its value in managing the complexity of the fragmented domain by developing its own content adaptation solutions – one of them, a privately maintained device description database being rather similar to WURFL. But the original inputs that came from Volantis were its different efforts to create 'device-independent' mark-up languages. "At the beginning it was very difficult because the older versions of HTML and XHTML were not good for device independence. They just weren't. There were things in there, which simply were bad, because they were for desktop devices" (#30). What he mainly refers to is that these early mark-up languages for Web authoring were not 'self-reflective' enough – the presentational conditions were not variable, it was not possible to declare the functions and nature of different content units and to declare the varying conditions for their presentation in different 'delivery contexts'. To overcome this, Volantis took the existing XHTML and CSS as they had been standardised by W3C and added meta-communicative capability together with the ability to use that meta-data for making decisions on what content should be delivered in various circumstances and how it should be presented. That work became known as Volantis' own standard XDIME (which originally stood for XHTML with device-independent mark-up extensions). But it is even more important that Volantis subsequently took it to be standardised in W3C where it then had an influence on, firstly, the design of XHTML 2 and, later, on DIAL (device-independent authoring language) – a direct derivative of the original XDIME.

At the time of this study, the standardisation of DIAL at W3C DIWG was still in process – it was worked on and negotiated, but was far from being finalised. Because of this, as acknowledged by interviewee #30 who sat both in MWI's different working

groups and was chairing the DIWG, MWI presumed that most content authors and developers did not have the capability for such 'device-independent authoring' and, hence, as we saw above, encouraged people in the form of its MWBP document to write websites in a way that, while being not optimised for any specific device, could still be accessed and used with most devices with certain minimum capabilities. But as such a generic design could never be perfect, that approach attracted criticism. Interviewee #33 criticised BPWG for not sufficiently addressing adaptation, claiming that when he first brought to the MWI BPWG table the principle that 'best practices' must go through adaptation, this was refused as it was by then defined that "BP is not really about best practices for mobile development, but rather a useful introduction for Web developers who want to go mobile but are not aware of the challenges involved". He concludes in the introduction to his GAP document:

> "Adaptation is yet another aspect that the Best Practice W3C working group (BPWG) failed to address properly (also a victim of 'One Web'?).… W3C's BPs are delivering an inconsistent message to the reader. The general message is that one should stick to a well-defined set of rules for authoring (which, in turn, leads to LCD [lowest common denominator design]). At the same time, though, some practices do mention that an application could do something different if more info is available about actual device capabilities (don't use tables unless..., exploit device capabilities..., etc...). The result is a document that simply ends up confusing ideas." (#33)

But as already indicated above, the polyvocal nature of the document, the many different claims it makes or hints of, refers to its dialogic nature, to the unfinished nature of all negotiations around the mobile Web development. Quite paradoxically this also suggests that dialogues were possible, that they were inclusive and had an effect. In this context we should specifically recognise the way Volantis and other similar initiatives had brought the different methods of content adaptation and device independent authoring to W3C and had been participating in gradually integrating these into the agenda of that body. We should recognise that the principles of content adaptation and device-independent Web had been evolving in W3C in different forms for years and had been formalised, first, in XHTML 2 and, later, in DIAL and in chartering the Device Description Working Group (DDWG) at the start of MWI in parallel to the BPWG. The DDWG was assigned to develop and standardise a database of device descriptions that could be used by content authors to adapt their content to a particular device, i.e., following, in effect, in the footsteps of WURFL. The fact that all the related activities were re-chartered in Spring 2007 to be integrated into a new

ubiquitous Web applications activity points to two issues. First, by that time the content re-versioning for different 'delivery contexts' had been 'legitimised' to become acknowledged W3C priority. Second, we recognise that W3C at the same time started to give up on the continuity in design when it came to Web content. The 'One Web' was to be defined via continuity in technologies that were to enable the 'thematically same' (W3C, 2005) content to be delivered to all access platforms, but not in the way that content was to be presented.

However, all these above described methods of content mobilisation – transcoding, adaptation, device-independent authoring, creating a separate website for different access devices – highlight the fact that there were many of them around at the time, all equally important and all in use in parallel. Take the words of interviewee #11 from Microsoft:

> "[A]s we are trying to reach as many customers as we can with the experience most meaningful to them, we think it's important to make sure that, I guess, we don't exclude any sort of any delivery mechanisms to the user. Whether that is something like re-rendering technology for PC websites or mobile-specific scenarios like location enhancement, like location-based search and other technologies that, you know, apply specifically to a device, but not to our PC, to make sure that we leverage these technologies and enhance the user experience."

The likelihood that many of these trends were to continue was also echoed by interviewee #30, who was observing the developments as he served the market in Volantis and participated in different mobile and 'ubiquitous Web'-related standardisation initiatives in W3C and OMA. As he put it, the millions of existing desktop websites such as people's personal homepages were to stay as they were as their owners had no interest in moving these to a mobile space. There were also mobile-only sites being developed as some companies saw their commercial advantage in that area. And he predicted that there may be areas "where people have some interest in supporting some level of device independence".

> "So I think it'll be patchy and there'll be areas where it works quite well and other areas where it doesn't. I don't think it will flick into being completely device-independent Web. All it will do is it will encourage people to go in that direction if it makes sense for them."

This insight, the 'patchy development', is suggestive of the interdependencies in the evolution of the media, its forms of content, technologies and industries that we

discussed in Chapter 3; how the 'memory of the systems', in this particular case, the texts, websites written in former standards, desktop-specific HTML, enforces the continuities in culture and slows down the evolution of the domain. However, the emergence of technologies of device-independent authoring also evidences the potential critical re-assessment of the established lock-in and the breaking apart from the old standards if they are being taken up by the market (Dolfsma & Leydesdorff, 2009).

6.7 Struggles for outreach beginning

It was perhaps because of the looming patchiness of the domain that many of the efforts by different standardisation bodies were about 'spreading the message' – 'outreach' emerged as an important term especially in the discourses of W3C people. In the words of interviewee #17: "We're trying to educate industry that it doesn't have to be a separate medium". Some of the other interviewees expressed the view that it was going to be a "slow educational evolution for Web designers everywhere across the world that there are mobile devices accessing their sites" (#16), but, in time, "the Internet development community will nevertheless change and it will naturally accommodate that" (#24). We can recognise how this accords with the suggestion in Chapter 3 that one of the key factors conditioning path-dependencies is the protracted process of learning among the key 'discourse communities'.

However, W3C wanted to accelerate the process so as to make these changes happen more rapidly. There were a variety of ways in which W3C tried to propagate its vision and achieve its goals. There were the more traditional means of spreading the message – seminars organised worldwide, webinars and printed materials that popularised the relevant standards. But also new forms of standards dissemination emerged. These were 'test suites' that evaluated how closely either site designs or browsers conformed to various W3C standards. The most significant of these, the MobileOK checkers, tested whether a site conformed to the MWBP guidelines. What made it significant was an option advertised in a W3C press release that the MobileOK trustmark would help people to 'find mobile-friendly content' – i.e., using established search engines such as Google, whose representatives participated actively in the standardisation of MWBP and the MobileOK trustmark and checkers. The press release acknowledged that the checker was developed with search engines in mind: "With Web sites which conform to the W3C MobileOK content guidelines, search engines can better tailor results for a mobile environment, benefiting authors and their audience

alike". As a result, conforming to W3C standards might be related to being listed in search results. In other words, we see how the cores of the Web industry started to flex their muscle in defining 'right' and 'wrong' in designing for the 'ubiquitous Web'. This was not a minor occurrence as dotMobi, increasingly seeing its role as being a popular propagator of W3C mobile-related standards, created a similar testing tool ('ready.mobi'), together with active support for improvements when a site tested badly.

However, as we will see in Chapter 8, at the time this study was conducted, W3C standards still struggled to make an impact. There were other 'local' design norms that played a role and other global initiatives continued to be influential, such as, for instance, WURFL. This suggests that the mobile Web was, at that moment, about to enter an era where different normative initiatives were trying to use their leverage to promote a version of the mobile Web, which was to their liking, i.e., responsive to their specific strategic aims.

6.8 Conclusion

This chapter focused on W3C's work towards its 'One Web' vision, an understanding that the Web should be accessible from all digital devices and that there should be uncompromising continuity between the representations of Web content on different access platforms. We saw how several mobile industry 'infrastructure companies' effectively subscribed to this vision and how that cooperation resulted in the convergence of existing mobile-specific mark-up languages, together with their enhanced compatibility with the mark-up languages of the 'big Web'. The next step in overcoming the risk of divergence into 'Two Webs' was to introduce guidelines for 'platform-agnostic' Web authoring – W3C's MWBP document. However, there were a few problems with this tellingly polyvocal document with regard to how the 'One Web' was understood. Content providers and service developers did not agree with the W3C's uncompromising 'One Web' vision. They demanded the right to adapt their content to the 'delivery context', i.e., to maintain control over communication between themselves and their audiences with regard to the form of the message, over what is communicated to whom, when and where. But the chapter also highlighted the further dialogic dynamic between those two camps that resulted with W3C starting to recognise the need for content adaptation.

Taken together we can see how, at this early stage of mobile Web standardisation, there were several ways to mobilise content – there were tendencies toward the two Webs merging into one and towards them diverging back into two or

more content domains. The main era-specific phenomenon that has been brought to light was the dynamically changing definition of the 'One Web'. We saw how, after the dialogical interchange among content providers and developer groups, the main promoter of the concept, W3C, began to compromise. It gradually legitimised discontinuities in the forms of representation and even in the content to be presented. This uneasy balancing between visions and priorities at that time suggests an unsettled relationship between the two domains, during which processes of convergence and divergence both took place. Settling this depended on the dialogues and the power relations between the various parties – the 'infrastructure enablers' on the one hand, and the content providers on the other.

In the next chapter we turn away from investigating how the different industry sub-systems were envisaging the evolution of the Web to look instead at what in reality were the relations between these two platforms in terms of their content forms at the time.

7 Mobile Web 2006: forms of the nascent medium

7.1 Introduction

The analysis in this chapter relies on the semiotic textual analysis of Web-media layouts and aims to examine how the new mobile-specific forms related at the time (2006) intertextually to the rest of the culture and its textual forms, with a specific focus on their relations with the 'regular Web'. In this regard, the chapter aims to ask two main questions. First, whether and how did the media forms of the mobile Web of the time remediate the previous and parallel forms from other media? Second, can we identify rhetorically emancipated forms that had acquired new medium-specific functionalities and, therefore, would refer to the gradual emancipation of the platform as a whole? The chapter builds analytically on the previous two chapters and suggests some connections between the findings and the analysis presented here – for instance, how were the technical characteristics of the platforms, their dominant business models or forms of governance conditioning the specific characteristics of the media forms of the time?

7.2 The form factor: mobile interfaces as of 2006

Before analysing the specifics of the early forms of the mobile Web, we should first establish what the textual and technical characteristics of the mobile platform were as of 2006. We do this to understand it as a new environment to which the Web-media were dislocated. This means establishing what the handsets were like at the time in terms of their industrial design – their basic capabilities as well as limitations – and the specific characteristics of the operating systems dominating the domain at the time.

In 2006 the dominant convention for mobile screens was that they were made up of vertical columns, sized as 'portraits'. This was a factor that in many ways conditioned the forms of media content designed to fit these screens. Another factor was that their interfaces were differentiated from the desktop layouts in not being 'windowed'. Windows constitute the first set of frames on the desktop screens that divide them into different semantic continuities. But there was a widely shared understanding in the mobile industry that because the mobile screens are small, several windows would simply not fit in them, or the layout would appear too mottled and unusable. Therefore, in the case of all mobile operation systems and Web browsers, the textual space of a Web page (though sometimes framed by the browser's informative

bars that guided interaction) was the only semantic continuity that the interface created. In the context of Bolter and Grusin's hypermediacy concept (see 1999: 31-44), the continuity of one Web page could not relate rhetorically to other continuities on a screen. In the majority of devices it was also not possible to toggle between different 'windows' to create rhetorical relations over the self-created narrative of interactive action. The only way to create such relations on the temporal axis and between the different texts/Web pages was to follow the hyperlinks offered on the page.

At the same time, the continuity that a mobile screen created was not similar to the continuities created by television or film screens. These spaces are finite and bounded, whilst mobile websites and the browsers that interpret, adjust and re-present these sites, remediate the old HCI convention that gives a possibility to sneak a look at what is left outside the frames of the 'window' – to scroll the document either vertically or horizontally. As Manovich (2001: 75) has noted, this dominant HCI convention contrasts with other presentational conventions of bounded spaces such as the 'page', and remediates the ancient form of the papyrus roll. During the existence of the desktop Web, the metaphor of the papyrus roll has seen extensive use and has become familiar to many of its users. But this was even more so in the mobile Web in its early era. According to the industry press of the time the reason for that was a shared understanding among the mobile Web regulators, browser and content developers, that as the websites and content that were originally designed for the desktop platform could not be fitted into the tiny mobile screens, and as horizontal scrolling was rather cumbersome, hence, the solution was to reorganise the content of a website into one vertically scrollable column.

As discussed in previous chapters, when it came to re-rendering the page layouts that were originally designed for desktop computers, there were several ways to do that in 2006 – either by 'server-level adaptation' or by the browser engines. In the case of Opera browsers that were originally (in 2005-06) set as the default browsers of Web'n'Walk handsets by T-Mobile, the algorithm and the technique of interpreting the design of a website and then redesigning it into a column was called small-screen rendering (SSR; see Opera Software, 2006). Opera's SSR was primitive but still one of the most notable predecessors of modern more sophisticated transcoding engines. At the same time, however, it was marketed by Opera as a major innovation. It followed the principle that the vertically scrollable column was constructed in the order in which the HTML source code was written. Content early in the source code was displayed above content that came later, and elements close to each other in the source code remained

close when displayed. One exception was tables, and as a significant portion of Web pages were structured by 'hidden' tables, this was an important aspect. Tables were displayed cell by cell, left to right, for each row downwards. As in most cases, cells that were placed side by side did not fit the width of the screen; they trailed each other vertically. In the following we examine what such re-rendering implied for some of the conventional desktop layouts of a moderate level of sophistication.

7.3 The SSR effect: comparison of Yahoo! Movies layouts on desktop and mobile devices

7.3.1 *Justifying Yahoo!*

As of 2006 Yahoo.com was the most popular website in the global Web, according to the Internet traffic statistics. Yahoo! was also one of the most famous brands on the Web; according to global rankings (Interbrand, 2006) Yahoo!'s brand value in 2006 was US$6.05 billion – ranking as the third highest Internet brand among the 100 companies that Interbrand tracks. As such, in Lotman's terms, Yahoo! constituted the core of the global Web, both in terms of the economic power it held as an industry institution as well as in terms of the attention it received from users around the world. As such the appearances of its website and applications mirrored some of the main developments in the Web content industry and its very core. Yahoo!'s approach to the mobile Web was variegated – its activities under the Yahoo! Mobile headline consisted mostly of its downloadable Yahoo! Go application. When launched it worked as a generic 'walled garden browser', that offered a limited amount of services and content – chatting with Yahoo! Messenger, reading Yahoo! e-mail, 'moblogging' with and without photographs, getting movie showtimes and reading sports scores, news and stock quotes all provided by Yahoo! itself. In addition it also had a WAP site, which was rather limited in terms of content offered. At the same time, Yahoo!'s desktop website was also accessible by Web-enabled mobile devices. But as of 2006 the Yahoo! websites did not make use of CSS, WURFL or any other adaptation technique. The reorganisation of the composition of these sites for mobile access was placed on the shoulders of various transcoding technologies such as Opera's SSR. It is due to the dominant position of Yahoo! that I have chosen to analyse the rendering of its Movies sub-site by the Opera mobile browser. The objective is to understand what the automated re-rendering of sites by Opera SSR and other similar technologies (that were seen as dominant and path breaking in 2006) implied for the mainstream Web-media.

7.3.2 *Comparison*

In Deleuze's (1997: 13; see also Kotov, 2002a: 50) terms the layout of the Yahoo! Movies site (see Figure 7.1) could be defined as being geometrically organised. In Kress

Figure 7.1. Yahoo! Movies, October 2006

and van Leeuwen's terms it should be understood as a classificatory design (see 1996: 79-89). These terms mean that the composition has a predefined structure, whereas this structure is primary in relation to its elements and its first purpose is to indicate how its composites fit structurally and semantically together to make up a larger whole.

The main composites are various blocks organised into columns that are then semantically aggregated into one integral unit by the bars that cover or underlie the layout. The uppermost grey bar connects the Movies sub-site to the frontpage of the Yahoo! portal and to some of its central features and functions. As the bar covers the rest of the composition and is related to the mother site via its embedded hyperlinks, then in relation to everything that is below it, the bar works as a meta-text that explains the role of the sub-text, the Yahoo! Movies sub-site, in relation to the rest of the hypertextual whole of the Yahoo! site. That is, it is there to communicate the structure of the portal. In addition, the fact that Yahoo! has placed its search field onto the grey bar relates the page firmly to the rest of the Internet. The search field represents metonymically the whole of the Internet and the potential to reach its contents with only a few keystrokes.

Below the grey bar follows the headline of the site and the two banner ads that 'hang in the air' – these are not connected to the composites below by any vectors or frames. Here we can recognise an age-old journalistic convention that newspapers' headers are usually placed on top of the opening page, being slightly detached from the rest of the 'geometrically' organised content, and that the header works metonymically and meta-textually for the content of the publication and that it relates as an abstracted 'Ideal' to the more 'Real' elements below it (in Kress & van Leeuwen's terms).

Most of the remaining composition is strictly geometrically organised, whereas the dominant integrative frames are constituted by the set of different blue bars. The bars create the compositional rhythm that relates the different composites to each other and generates hierarchy in the composition. It is the more salient darker blue bars on the top and at the bottom of the content block that embrace and bind it all together. The lighter bars that work as headers for the smaller blocks generate order within the content section.

The fact that the upper dark blue bar also works as a top menu and that it uses the 'folder tabs' convention (a metaphor that was developed as an element of the office desk theme of the very first GUIs [graphical user interfaces] in the 1980s) means that the site recycles one of the oldest HCI conventions as a means of content organisation (both within the two-dimensional page and within the hypertextual whole of the

website). The use of the folder tab metaphor conveys the message that everything beneath it on the page makes up one unit, all the elements below are semantically and functionally related as they are organised into one 'folder' or into the two-dimensional continuity of one 'sheet'. The bar works meta-textually towards the contents that are below it, it explains their structure and how the different elements relate to each other, i.e., what unites them. In the same way, the presence of the other tabs on the page refers to what the composites of the currently presented page are not – what unites them and makes them differ from 'others', from their outside, from other kinds of organisations and texts.

In the general structure of the 'Movies folder' we recognise some generic features that have been prevalent in the journalistic websites from the very earliest of times. This means that the composition remediates the original form – a classic newspaper layout (of text, headlines, photographs, etc. organised into blocks and columns) as a model, a syntactic structure that can be used for organising and communicating the conceptual structure of a text, as intertextual frames that guide the reader/user in their interpretative practices.

Part of such an organisational convention is another convention to organise the content thematically. In Yahoo! Movies desktop layout we notice that one of the sequences in the Flash-animated highlights window always refers to the 'Red Carpet Photos' sub-section and the first block beneath this window represents and links to the same 'Red Carpet Photos' sub-site. Below it again is a 'Movie News & Gossip' block. All these headlines record each other's 'sememes', in Eco's (1977: 84) terms, and become in this way semantic nodal points, 'contextual selections' that distinguish different readings of the sememe and, in the end, start working as rhetorical 'amalgamation switchers' (Eco, 1977: 106) that help the user make the connection that these two composites that are placed next to each other are also semantically integrated. Related to each other in this way, they also differentiate now rhetorically from the other elements in the composition – a semantic discontinuity is created. This leftmost column constitutes a semantic sequence that focuses on the industry gossip, its rituals, star fame, etc. – the various meta-texts on the industry affairs.

In the same way all the main content sections start relating to or differentiating semantically from their neighbours in the composition. For instance, another compositional continuity is created on the horizontal axis on the top part of the content block – through the placement of the larger landscape-proportioned photographs in the similarly sized blocks side by side in the different columns, but also by use of different

colours and animations. The placement of similarly sized and more salient elements next to each other creates the integrative rhythm that differentiates it from the rest of the composition.

What should also be taken into account in the case of computer interfaces is that only part of the composition can be seen on the screen or within the browser window at one time. Hence, when a user loads a site it is firstly the animated Flash window that appears as the most salient element on the screen and then also two other blocks next to it that use the large colourful photographs that are intended to grab the attention of the users and guide their interpretation – first, as in the beginning, these are the most dominant elements on the screen and later, when a user scrolls down, in the context of the Western cultural conventions, they start functioning as 'Ideal' in relation to more 'Real' content in the lower part of the page, in Kress and van Leeuwen's terms. In the same Western conventional framework the 'Industry Affairs' column could be argued to relate as 'Given' (something that has already happened) to the exclusive content offered in the second column and to the films opening in the near future as the 'New'.

Altogether we can glean from the Yahoo! Movies desktop layout a very complex network of rhetoric relations that, as a whole, create the integrative semantic code that organises the content and communicates the meaning and functions of its different elements to the interpreters, to the users of this website. How this website was laid out by the Opera mobile browser and its SSR engine is exemplified in detail in Figure 7.2.

Among other principles for redesign that can be discovered from the new layout of the Yahoo! Movies are the diminution of the font sizes that can be used for creating a hierarchy in the text. Opera Mobile reorganised all headlines and textual elements of different sizes into three groups – headlines, sub-headings and body text; however, the differences among them were not as substantial as they usually are in desktop layouts. Also, for better readability it changed all text in colour into black and turned all hyperlinks blue – placing all confidence in this one of the oldest conventions of the Web and distrusting all the other ways of communicating (and recognising) the presence of hyperlinks. For the content developers this reduced the number of convenient means to organise and differentiate the content. But for the users such automatic rendering might mean losing some important connotations of the original text that was organised by colour. Another important technical feature is that, because of the relatively small memory and limited processing capabilities of most mobile browsers in 2006, they did not enable Flash animations. Therefore, if websites relied heavily on Flash technology –

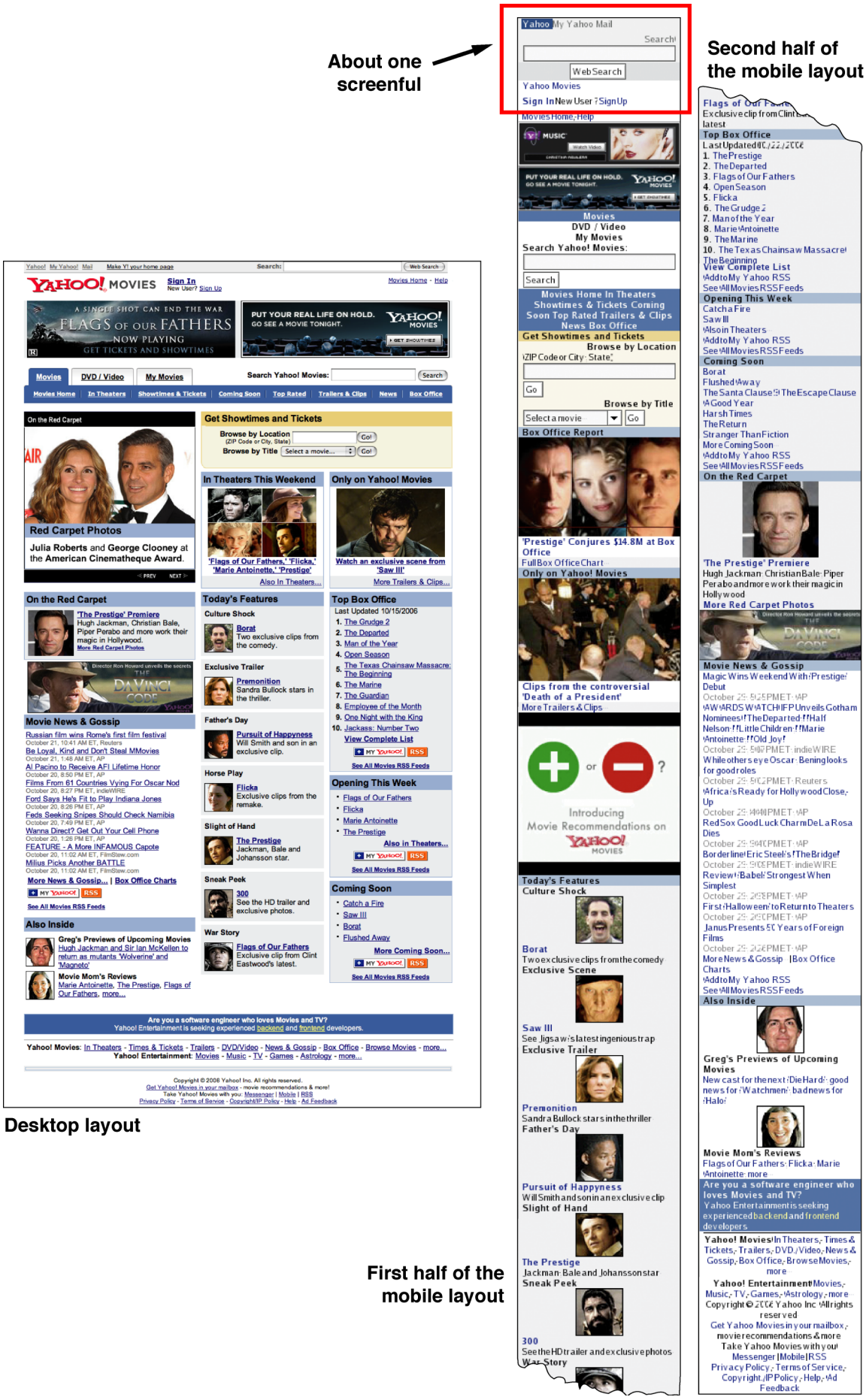


Figure 7.2. How Opera SSR transcoded Yahoo! Movies for mobile devices

animated menus, etc. – then their designs were needed to change significantly when accessed by mobiles (as we recognise in Figure 7.2, where the Flash window 'On the Red Carpet' has disappeared from the re-rendered layout) and the users' ability to comprehend their functionalities was put to test.

We now focus on what happened after disentangling the original layout of the Yahoo! Movies and placing its different composite blocks and other elements simply on top of each other. We discover that the rhetorical mechanisms that were at work in the original layout have disappeared. First, the horizontal bars (the most crucial here being the grey one on the top and the blue 'tabbed' one that covers the content section) that were supposedly designed to structure the different composites, to indicate how these belong together or how they differentiate, and how the contents of this particular page relate to rest of the Yahoo! portal, have now lost their original function. The upper grey bar, originally an almost undetectable element in the composition, has now become a large block that occupies most of the opening screen when the page is loaded (the scope of the screenful is indicated with a red square on Figure 7.2). The few links and the Internet search window that appeared on the grey bar and were designed to be unnoticeable in terms of their size compared to other text on the page and to dissolve into the background due to their grey colour, are now, after being homogenised (Opera on my phone lost most of the background colours and, hence, this difference in composition was also gone – all was grey, and blocks were no longer distinguishable) and turned into the black uniform body text form, the most salient and dominant elements when the page opens.

It is after this first block, when a user scrolls down, that he or she is introduced to the heading of the sub-site – the Yahoo! Movies. But as with most phones, the visual picture headline was suppressed and instead a simple text headline (of body-text size) was used. It is, therefore, hardly recognisable that an element is presented that is supposed to speak (meta-textually) for the whole site, its nature and essence. The hyperlinks that were originally there to accompany the headline – 'Sign in', 'Sign up', 'Movies Home', 'Help' – are there because of the original presumption that they are within the scope of the user's view during time at the site. Being virtually at hand, and having a clear function, returning to them is easy and apparent as a possibility. But with a columnised website, these inevitably lose their original function as when users scroll down for content these are later difficult to access (one has to scroll all the way up again). In other words, if with desktop layouts there is a conventional (and a handy)

place for elements with such functions, the mobile Web design still lacked at that point conventions that had grown from the specifics of the medium.

What the SSR algorithm really destroyed was one of the very central structural elements of the composition – the 'tabbed' blue bar. Its semantic role in the composition was to explain both the hypertextual structure of the whole of the Yahoo! Movies sub-site as well as to relate the elements below it to this structure. But now it has been reduced into two blocks of hyperlinks with incomprehensible functions and positioning on the page (in the column). 'Columnising' also means losing the focal points that the original composition created by various rhetorical means and missing out on the semantic value connotations that the different composites obtained via placement in different areas of the layout. Such is the Ideal/Real opposition that is at work on the Yahoo! Movies desktop layout. Or the 'Given'/'New' dichotomy that is less evident, but still generating semantic implications. Similar is the problem with the original rhetorical integration of the page into the thematic or in other ways organised semantic continuities that we recognised above.

Such semantic structuring of the content by the rhetorical means that we recognised in the desktop layout relies on the users' previous knowledge of such texts. To some extent the users always have to be aware of the conventions the designer is exploiting to put the text purposefully into use – i.e., for making their semantic selections from the sememes offered and actuating the amalgamation switchers in the compositions that then start guiding the users' sense making of the site. It is the well-advised use of the existing conventions by designers that should help users orientate in the text, to make sense of the functions of its different composites and, in the end, should enable effective communication. In this context it may be that the automatic reorganisation of the original composition of the Yahoo! Movies website by the Opera mobile browser might have left the users at a loss in their interpretative activities. The paradox is that, although that re-rendering was undertaken for mobile optimisation, it seems, however, to have been done blindly and unintelligently. The conventions used by the original design, the semantic structuring that should have explained the functions and nature of different composites, were mostly abolished and disabled. What users got was a disorganised body of most of the content (hyperlinks, verbal texts, pictures) that were part of the original design. These elements, after being dislocated from their original 'semantic circumstances' they were designed into, were presented to the users in the way that it must have appeared difficult for the users as interpreters to recognise the meanings and functions of these elements. It was made difficult to connect the old

contexts of the presented textual elements and the new circumstances where they appeared. Hence, to interpret such new disorganised websites, users had to rely extensively on their abductive inferences and undercoding as interpretative techniques – they had to rely both on their earlier experiences with the original layout as well as with Opera's SSR and then make hypothesises about the structure and functions of the site and its different composite elements. But this might be assumed to be intellectually a demanding process.

7.4 The CSS effect: comparison of Opera front page on desktop and mobile screens

There were different ways in which a site could have been adapted for different devices and screen sizes. Some of those have already been discussed in Chapter 6. One, which was highlighted at the time in the discourses of W3C and some browser developers, was the use of CSS that could set the rules for how browsers should interpret and display the source code for different purposes. As an example of its workings, let us look at how Opera demonstrates the possibilities of the CSS-based design by making an example of their corporate homepage. In Solomon's (1976) terms this, as the site of the industry leader, and an engaged agent[27], could be understood as the 'lead form', the example that defines the genre, sets its norms and bounds. Both layouts are presented in Figure 7.3.

As we can see, there are many elements that both layouts share, but there are also several that appear on only one. With the help of CSS the browsers choose and interpret different parts of the code and present the page differently. The website is programmed to communicate differently with users who are using different devices. For instance, the focus of the desktop page is on the offer to download the new version of the Opera desktop browser. But the focus of the mobile version could be argued to be partly on the structure of the site as half of the first screenful is used by the hyperlinks that meta-communicate the structure, the content and the scope of the site. But when it comes to the content, then the mobile layout starts with the focus on the mobile browsers and gets to the desktop browser later. The mobile layout uses less pictures, has less news, uses different introductory texts for different sub-sections and also loses many sub-sections that were part of the desktop layout (Nintendo DS browser, My Opera Community, Work with Opera), but introduces some new ones (Business Solutions). The mobile layout has, in general, less content and is more minimalist in its

[27] CSS was originally developed by Opera's chief technical officer Håkon Wium Lie.

design, but is, at the same time, targeted to those who are supposedly its ‘model readers’ (Eco, 1979) and to their assumed purposes and circumstances of use.

Figure 7.3. Comparison of Opera’s desktop and mobile-adapted website layouts

What is interesting in terms of showing new design styles or standards is how the mobile layout utilises the headlines function of XHTML. It creates two different headline levels – first more salient brown bars and light grey bars as second-order headlines. On its sub-sites it also uses bold print as a third-level headline type. With these three levels of headlines it has developed a convenient means for structuring the content in the column and communicating it to the users. When we take a look at the page, we can see how the salient brown bars create palpable discontinuities within the span of the page, indicating clearly what the elements are that belong together and what do not. Bars as headlines meta-communicate the functions of what is below them, and this sequence of integrated semantic continuities is created throughout the column. Also, the different coloured bars create the rhythm that is used for communicating the structure of the site – the salient brown bars that are used in the top half of the column generate the focus of the site and integrate the upper sections, by communicating their similar character and functions. The light grey bars below communicate the somewhat lower status of the sections at the bottom half, but also their functional similarity on the site. The colour-based rhythm creates a structural divide in the composition, where the upper part is made to work conventionally as the 'Ideal' (the valuable products) in relation to the 'Real' (the more practical and down-to-earth information).

We can elicit that by the use of some basic presentational conventions of print layouts (such as relations between headlines and body texts; dividing content into distinct, semantically integral blocks; creating integrative rhythm between blocks with recurring colours and font styles) the semantic structure and practical functions of the site are concerted into one autopoietically functioning and effectively communicating – i.e., relatively easily interpretable – text. As a whole the communicative efficiency of such a purposefully designed mobile layout may be assumed to be greater compared to the automatic redesign by algorithms such as SSR. Hence, we can infer that Opera's site as deliberately 'generic' for the as yet non-existing genre aims to set the path for the mobile website design and mobile Web in general. It also suggests why the content providers of the time were increasingly interested in various adaptation techniques and started to prefer these to transcoding.

In the case of such a potential development (i.e., the use of CSS or other adaptation technologies with a function of differentiating page designs for different access devices), we have as a crucial form-influencing factor the ineluctable

remediation of the structure of desktop website as the older form. Here I refer to the structure of the hypertextual whole of a web*site* that consists of more than one Web *page*. In this case the contents of a Web page could be purposefully reorganised and designed for viewing on a mobile screen, but in general, the hypertextual structure of the original desktop website still has to be followed. In Kress and van Leeuwen's (2001) terms, this refers to the phenomenon of how the expression pane influences the content pane, how the material articulation limits the semiotic event – how the structure of the existing technology (of division into URIs) limits the evolution of the semiotic form of a 'mobile website' that is being developed based on that technology. As a result a page has to include the main contents of the 'original' desktop layout and link similarly to other websites – to sustain the structure of the 'old' website. For a mobile Web page that would mean that there will still in most cases be too much content for one screenful and we have a long vertical column as a distinct form of mobile Web as of 2006 – as an unavoidable (i.e., path-dependent) evolutionary phase. In 2006 the vertical column seemed set to evolve into the generic form of the mobile Web.

This perspective suggested at the time the possibility that there was not going to be a significant split into two – into a desktop and a mobile Web. It is because the mobile and desktop websites as forms, although being somewhat different 'designs' of the same (hyper)text 'underneath', will, because of this shared source and origin, be forced into an unavoidable intersemiotic dialogue and 'material interdependence' – i.e., in the process of their automated generation they are partly dependent on the same 'stuff', in Eco's terms.

7.5 Comparison of different BBC outputs and analysis of their connections

In the following I take a closer look at how such a materially determined and technology-dependent intersemiotic dialogue took place in the development of new mobile forms. I analyse how the forms of different media outputs (such as audio-visual television feed, desktop website and mobile website) of a mainstream media company relate to each other, to what extent they are independent of each other and to what extent they determine each other's structure and form. After exploring the characteristics of media outputs including the mobile websites of major UK television companies (BBC, ITV, Sky), and also from the US – CNN and KATU (the regional station of Portland, Oregon, they had quite a rich mobile website), I chose to analyse in detail the intertextual relations between all the media outlets of the British public broadcaster, the BBC, focusing especially on its news-related content. The main reason

being, first, the status and position that the BBC enjoys in the UK as well as globally; second, the popularity and richness of its online services in general; and third, the relatively innovative and extensive content offered on its mobile website. For these reasons the BBC mobile layout could be understood as potentially a 'lead form', one that set norms for the genre, in Solomon's terms. This potentiality was also suggested by the interviewees – when asked for industry 'leaders' that innovate and drive the mobile Web, many referred to the BBC.

In fact, the BBC had a variegated set of mobile services in 2006. It was possible to order breaking news as SMS alerts and download the 'Headlines Tracker' application that worked as a specific browser for the BBC's top news stories. But in terms of its outputs to the 'open Internet', the BBC had its constantly evolving WAP site and a website that was specifically designed for viewing on smaller screens (for smartphones and PDAs, as it officially stated). The following analysis concentrates on the latter website and its relations to the other BBC outlets. The question is: what are the relations between these different textual entities that are realised in different sign systems and materialities (on different platforms and technologies) and are making their appearance in different spatio-temporal places and conditions? How do they determine or limit each other and how have they grown from each other, or how were they translated from and into each other? The aim here is to analyse the position of the BBC mobile website in the wider semiotic space and to describe its relations with other 'neighbouring' semiotic structures. This means identifying the paths where the forms and generic structures of previous or parallel forms have moved and the borders they have had to cross in order to become part of the new form of mobile website. To what extent were these paths conventionalising and fixed? Can we recognise a path-dependency for the mobile Web? To explore this let us define the main composites of the BBC intertextual space in 2006:

1. The BBC Ten O'Clock News and other news bulletins on its terrestrial television channels
2. BBC News24 – 24-hour rolling news television channel in the UK (now re-branded as BBC News)
3. The two-minute audio-visual news summary that is constantly updated and is 'aired' only via the BBC website – it can be streamed via the desktop site and streamed or downloaded via the mobile website
4. BBC News desktop website (http://news.bbc.co.uk)

5. BBC News mobile website
   (http://news.bbc.co.uk/nolpda/ukfs_news/hi/default.stm?)

The question is how the last item, the BBC mobile website, relates to the other four. Although the day's last news bulletin enjoys the status of the company's flagship product, it cannot be argued to function semiotically as a 'craft where a fleet could be captained'. This means that intertextually it is a relatively lone and passive text – at least for the intertextual relations with the other BBC outputs it rarely works meta-textually, organising and explaining the relations between different texts and their given functions, especially compared to the increasing amount of semantic functions of the BBC News website. If we look at the BBC News front page (from 11.11.2006; see Figure 7.5) we see that it refers to texts of different modalities that were originally

Figure 7.4. Examples of BBC News logos and 'visual identity'

produced for different output channels but are now incorporated into the hypertextual space of the BBC website – either via hyperlinks or by the means of a two-dimensional composition similar to those analysed in the Yahoo! Movies site. Through these means the elements of this hypertextual space are structured into an organised text – connections and continuities are created, discontinuities communicated. From this environment we can find the Ten O'Clock news cast (or any other bulletin originally produced for television output) and also the two-minute audio-visual news summary that is only produced for the online outlets, whereas their relations as well as differences are communicated on the website. We can also find the written news stories that as they are thematically related to the video stories are thus connected to these by compositional or hypertextual means. This is why it can be argued that the BBC website acquires increasingly meta-textual functions in relation to all of the company's output – the website explains the functions of its different composites of different modalities and defines their relations to each other.

At the same time the videos and photographs that are incorporated into this textual space start working as 'proofs', as iconic signs placed in a more arbitrary

multimodal environment where they appear as ‘texts in text’ (Y. Lotman, 1994), as semiotic entities that have remarkably higher modality compared to their textual neighbours. In the new environment they start functioning as imitations of themselves,

Figure 7.5. Comparison of BBC News desktop and mobile-adapted website layouts

in Lotman's terms, connoting higher 'realness' of their contents. Hence, videos or photographs used in news sites have a secondary function to work as pieces of reality, as documentary 'proofs' for the rest of the content. But although the 'real/conventional' opposition characterises all the possible 'text in text' situations (effecting the rhetorical relations that integrate the composition), it could be argued to work on two different levels in such generic news websites as BBC News. Firstly, the automation of photography and the ensuing conventional knowledge of the indexical nature of photographs and videos helps make the connection between a text and the outside world. But the presence of such 'recycled texts' on the page – the videos and photographs that were originally produced for some other media output, for the Ten O'Clock news cast, for instance – render them 'more real' because of having been taken from other 'live' and hence, a different, media reality. This contrast puts the other elements in the composition into context and gives them a new meaning, i.e., the whole composition starts to work rhetorically because of the translatory dislocation of the textual entity from one environment to another. The latter aspect suggests that such elements on a page connect it indexically, not only with the non-textual world but also with its extra-textual reality, strengthening the integration of the connected texts.

And so it works for the BBC's mobile website. When we compare it with the desktop front page we realise that the mobile site re-uses a significant amount of the content that can be found on the desktop layout. And what is especially important, the content is structured similarly. The vertical column of the mobile website starts with (i.e., is topped by) the introductions to the three main stories that are also highlighted by the desktop layout. In the mobile column follow the sections that we can also find in the upper part of the desktop layout – 'Other Top Stories' and 'Sport Headlines'. Under that follow one by one the sections that on the desktop layout are placed in the lower part of the page: 'Around the World Now' – 'Africa', 'Asia-Pacific', 'Americas', etc. The mobile column ends with the same sections that we can find at the bottom of the desktop page – everything that comes under the title 'More from BBC News'. As we can see, the content in these sub-sections, the news stories, are all the same. This suggests that the algorithms that are used for constructing the mobile layout are partly the same that are used for the desktop site. And most importantly, they share the same databases from where the content is fetched. When analysing the URIs of the sites we realise that the mobile site also mirrors the desktop site in its hypertextual structure – the engine that organises the content into Web pages and obtains their addresses is the same and it uses the same structure for organising the pages.

The first result of the fact that the mobile website automatically recycles the same content and the structure of the desktop website is the phenomenon realised above with Opera website – using CSS adaptation technology its mobile site relies on the same site structure and content that was used by the desktop site. The BBC version does not make use of the CSS and obtains mobile pages stand-alone URLs, but in general the site structure is still automatically mirrored and the outcome is the same – the lengthy column as a generic form of the mobile websites as the pages usually have to fit nearly the same content as the desktop layouts.

We can draw from this that the mobile website works as a fairly convention-free environment that is only limited by the capacities of the technology underneath – small screen, limited bandwith, etc. – but which still does not presume any significant redesigning of desktop content. This is because the latter is more widely used and, hence, a primary platform compared to mobile Web as the secondary output. After some technical adjusting, the original form of desktop website is simply dislocated and re-purposed on a new kind of platform. Hence, we can say that the mobile website as a form remediates the desktop website quite directly. Or to be more exact, because of the automatised rendering the latter determines the form of the mobile website (as they are made to be causally related).

Any significant redesigning or further development of content was not needed as the specific conventions and forms of mobile Web had not yet developed. The only exception was the long column, but this was the result of straightforward re-purposing of earlier Web forms. Similarly, the streamable or downloadable video is only adjusted for the smaller screen and bandwith, but any specific editing for smaller screens where many details are easily lost and more close-ups at the expense of long shots might be in place were not practised. At least this was not the case with the two-minute news summaries that one could stream or download from the BBC's mobile site. But these bulletins were in fact originally produced for the desktop website. This suggests that in Kress and van Leeuwen's terms, the mobile Web functioned at that point in many ways as 'distribution media' that had not yet evolved into a 'production media'. It might have already been in an 'adaptation phase' (where the original form being distributed in a new channel is adapted to its new environment), but was still quite far from the 'synthesis phase', a generation of an original in a medium which had been a recording or distribution medium, but is now used to articulate semiotic products or events directly (see Kress & van Leeuwen, 2001: 102).

In this context, the elements – the news stories and photographs that accompany these stories – when they are fetched from the database and presented on the mobile Web page work similarly as discussed above how the elements taken over from television work on the desktop websites. Because of their earlier and parallel presence somewhere else and especially because of users' knowledge of that fact, they start working as intertextual amalgamation switchers that connect the mobile Web page to the textual space of the BBC. Thereafter, in their new rhetoric environment of secondary distribution media, being derived from a different media reality, from a 'production medium' in Kress and van Leeuwen's terms, they acquire in Lotman's terms a connotation of being more 'real', and raise the modal value, the 'realness' of the whole new environment. This also presumes that the users are approaching the new medium abductively; their awareness of these previous or parallel media places, where these elements are derived, is crucial for such a rhetorical effect. Another example is the photographs that accompany the stories. On the desktop sites these are accompanied by captions whose function is usually to make a semantic link between the photograph and the text. The algorithm that constructs the mobile layouts is made to deprive the captions and as a result the photographs often lose their informative functions and start working simply as abstract illustrations whose main function could be argued to make only the connection to the other BBC textual spaces, but not so much to the object of the news story.

As such, in need of constant undercoding, working as a secondary output in relation to the desktop website and, hence, functioning as an adaptive distribution media, the mobile website cannot be argued to work entirely similarly to the rest of the BBC outlets, as we discussed with the desktop site. One reason for this is its limited capabilities (small screen) to use spatial composition as a syntactic tool for working meta-textually toward the rest of BBC textual universe. But the other and more significant one at this stage of its development is apparently its missing communicative conventions for doing so. Re-purposing the texts originally created for a different medium and technological form, that in a new textual environment lose many of their original semantic functions, the mobile Web lacks its own specific conventions for such relatively sophisticated communicative tasks.

7.6 Existing conventions of the mobile Web

The following section focuses on the design conventions of the mobile-optimised Web as of 2006 and examines the tendencies towards further conventionalisation and

differentiation in terms of functions and forms of websites that are specifically designed to be used on the mobile media devices. A taxonomy of design types for the mobile media-oriented (mostly news) websites is outlined based on analysis of the corpus – see Chapter 4. The focus on the media sites is justified by the focus of this study on the evolution of the forms of the media-related content.

The first phenomenon that analysis of the corpus indicated was that similarly to the BBC mobile website, the majority of media websites designed for mobile access are produced by the major media companies as a complementary output channel. These mobile sites then use the same databases for repurposing the content originally produced for other channels. The algorithms that structure the mobile sites may not mirror the desktop sites as straightforwardly as was the case with the BBC, but there was hardly any media content that was generated specifically for the mobile users. There were not many mobile media websites that did not have a desktop counterpart and were in this way independent from other media (only one, an entertainment site, Never2Funky, designed for PDAs, was included in my corpus). Overall, the result is similar to the case of the BBC – content initially designed for larger screens (written 'news story' for instance) is adapted to the tiny mobile screen, with the lengthy column thus a defining form of the mobile Web in 2006.

7.6.1 *Sub-group 1: Maximum minimalism*

There were different ways to approach this problem. The first sub-type of the designs of the time was extreme minimalism, exemplified in Figures 7.6 and 7.7, showing the mobile sites of the *New York Times* and Canada.com, both included in my corpus.

Wireless.canada.com is a mobile output of Canada.com, a nationwide news and information portal with a multimodal (comprising a lot of pictures, animations and video content) desktop design. But its mobile outlet, being a WAP site, could be argued to be an archetypical example of the kind during the first era of the mobile Internet. The opening pages of the site are 'almost not designed', i.e., they rely on a minimal set of layout conventions preset by the WML code – text is aligned to the left, the headline is a little bigger and in bold and hyperlinks are blue and underlined. In terms of the hypertextual structure of the site, the function of the opening page and the following sub-sections of the site is to constantly meta-communicate on the site's structure in as minimal way as possible. The hyperlinks and the headlines such as 'Sports' and 'Soccer' (as in the sequence above) have to be sufficient for communicating the user's

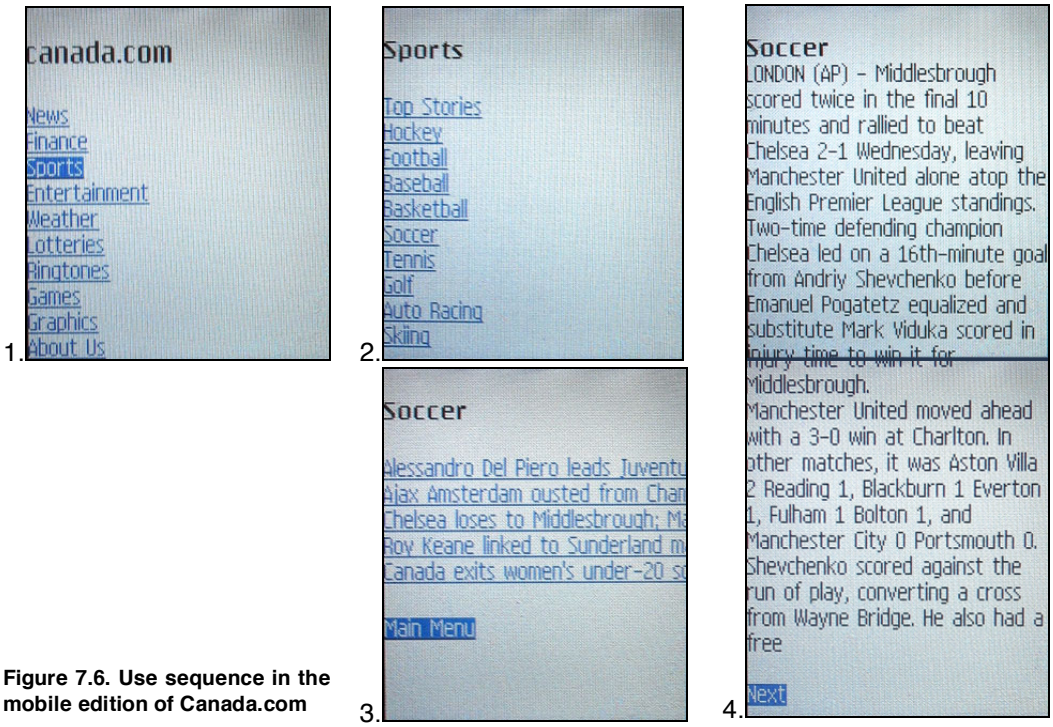


Figure 7.6. Use sequence in the mobile edition of Canada.com

location in the structure of the site and in the unfolding hypertextual narrative.

With a scarcity of semiotic means available, the rhetoric functions of hyperlinks bear great importance. As explained in Chapter 4, links generate tropes on the meta-level of the hypertext and give rhetorical functions to all elements in the textual composition of a page – if the whole text is considered as rhetorical, then all elements acquire an additional coding as functioning rhetorically. The departure page and every element in its composition function together as a degenerated index, in Peirce's sense – it gets its meaning from the assumption that it constitutes a pointer and refers to something else. Since in Eco's sense the additional meaning of being part of something else is a special case of overcoding – one of intertextual frames, which helps the user to make hypothesises (abductive inferences) about how the 'hypertextual narrative' will continue – then the crucial question is what does the compositional whole of the current page as a synthetic meta-pointer signify? Hence, on the front page of Canada.com and on the following pages functioning to guide the users to the content of interest to them, the whole composition serves the purpose of meta-communicating the structure of the textual universe of Canada.com and the past and possible futures of the hypertextual narrative that is enacted by the user at the time. The use of conventions such as blue and underlined text referring to hyperlinks, the menu listing and the canonical names such as 'News', 'Sports' or 'Weather', all work together and communicate the function of the page as a pointing device to the possible continuation of the hypertextual narrative. This

effect is achieved by rather minimal means. There are no 'leads' or other kinds of introductions to the stories or reflections on the nature of the content to come. Reasons for such design could be seen as the limited bandwith of the GSM and WAP era and the rather costly price of WAP surfing at this early time. This made the designers avoid overcrowding the screen with anything that could be done without. This may be the reason that WAP retained for years capabilities similar to the earliest HTML. The fact that the same means were used in Canada.com in 2006 suggests a design decision that points to an insight about the design conventions for the mobile Web at the time.

The mobile edition of the *New York Times* website produced by AvantGo[29], is

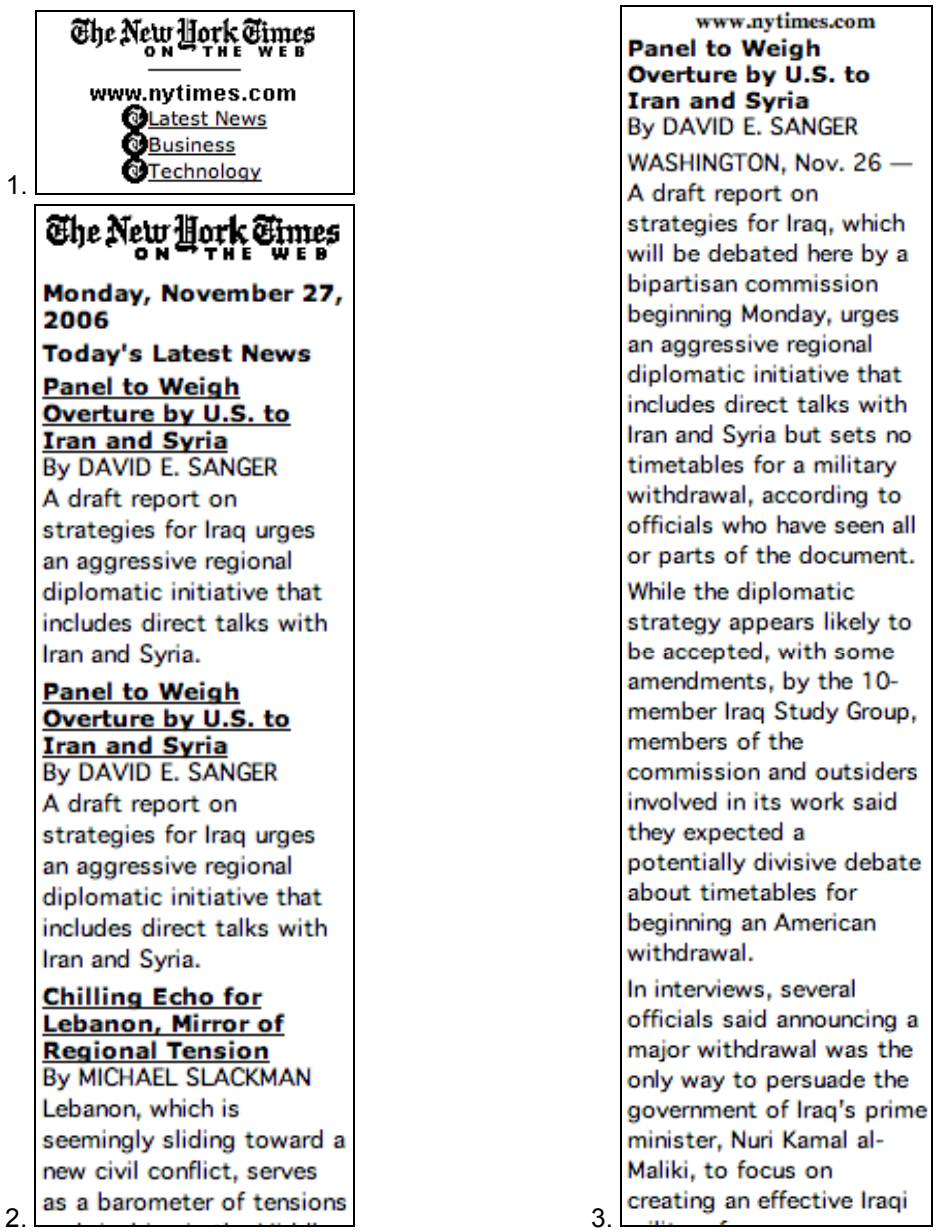


Figure 7.7. Use sequence in the mobile edition of the *New York Times* website

[29] AvantGo is a trademark of Sybase 365, a mobile content aggregator and browser developer whose representative (interviewee #1) was included in this study.

not a WAP site. Still, it relies on a relatively minimalistic design and structure and does not offer much content. As the site offered even less content than Canada.com, there was no need for the interim pages with only meta-communicative functions.

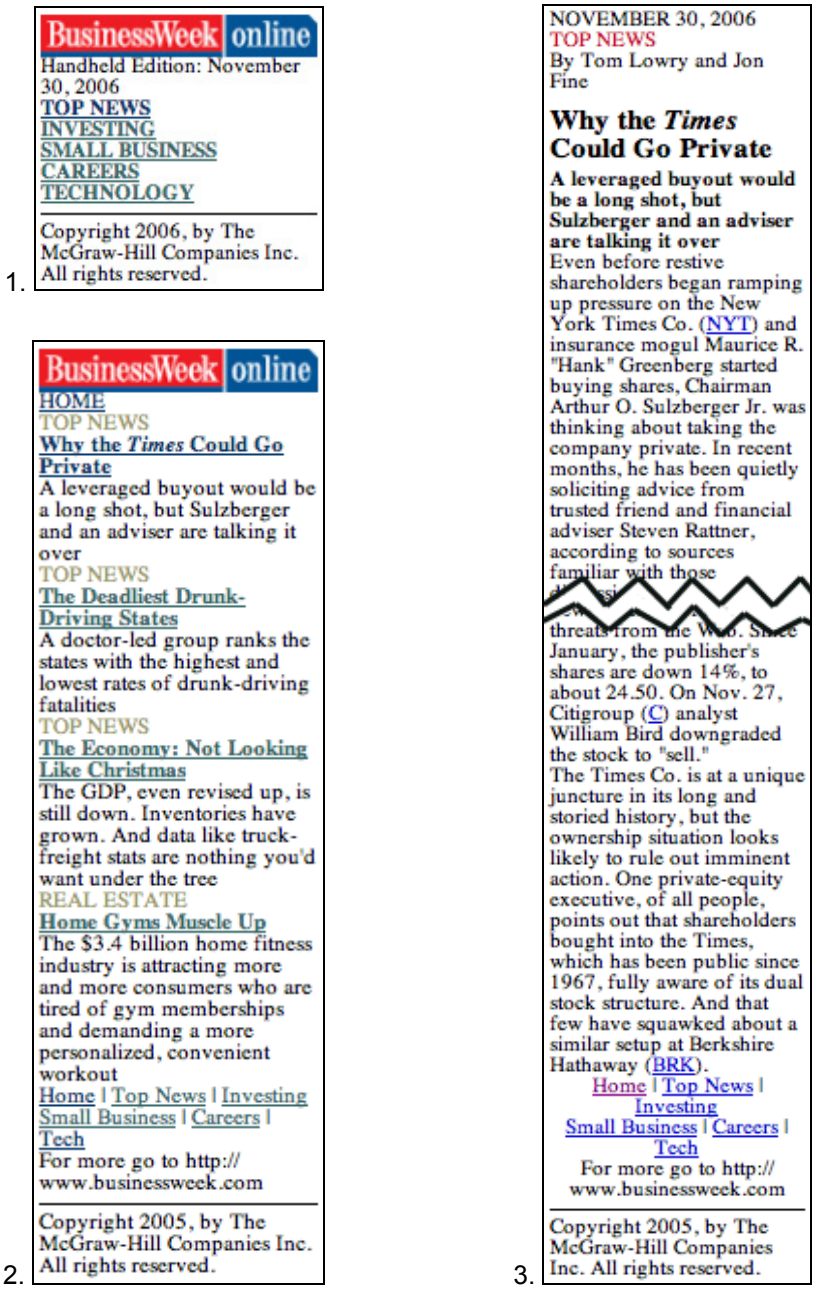


Figure 7.8. Use sequence in Businessweek.com

Instead, the site introduces one of the conventions of mobile designs of the time that tended to remediate from the desktop Web. These were the 'leads' of the stories that were used on the departure pages about the content of the linked news stories. This is an established Web-specific presentational convention that evolved in the journalistic Web pages during the Web's first formative era that was apparently taken over in the early

designs of the mobile websites. In the third snapshot we can see how re-purposing of the content originally created either for printed paper or the desktop website yields the lengthy column as a solution – thus reconfirming its status as a defining form of the mobile website.

7.6.2 *Sub-group 2: Minimalist designs with few introductions to medium-specific conventions*

In Figures 7.8 to 7.10 we can recognise a second group of mobile websites that were offering media content. These were relatively similar to the first group above in their minimalistic design and little content. At the same time, they introduced some new conventions that were increasingly prevalent in the mobile Web and constituted a step further towards more multimodal forms. Take as an example the sequence of use represented in Figure 7.8, the mobile edition of Businessweek.com. Colours were used as a semiotic and communicative device – the colourful header of the site links the mobile site to other outlets under that brand. We can also notice the conventional use of link colours for guiding the interaction, distinguishing the elements in the composition and reflecting on their nature (red 'Top News' on the third snapshot).

What BusinessWeek introduces compared to the earlier examples are the meta-communicative sequences at the bottom of the pages – sets of links that explain the structure of the site and suggest ways to move forward. Such link sets were not unusual in the desktop Web, but in the mobile Web these had acquired a new important function and were becoming one of the defining conventions of this new media form. If for Kress & van Leeuwen elements that are placed at the bottom of a composition connote their practical, 'real' and down-to-earth value, then with columnised layouts and 'papyrus-roll' as the defining form of the mobile websites they might obtain a new value and function. After a user has read a story and scrolled down the lengthy column, this block at the bottom of a page becomes a stop-off and a node in the multicursal narrative (Aarseth, 1997), an element in the composition that, when reached, fills most of the screen. It focuses the user on the choice that has to be made to proceed and to enact the self-created narrative. An old convention dislocated to the new context and reused in a new kind of media form acquires a new meaning and function. As such it constitutes a media innovation and an emerging convention of the mobile Web.

Looking at the second example – a sequence of use in the mobile edition of the Reuters website (see Figure 7.9) – we can see similar practices of remediation/media innovation. These included rhetorical dislocations such as the banner ads that Reuters'

mobile website, along with a few similar (usually business information-oriented) sites, had introduced by the Summer of 2006. These were placed on a page in an area similar to that conventionally occupied by adds in desktop pages – under the header, on the top of the page. Although these were designed for a much smaller screen, their format and positioning on the page suggests the old form from the desktop Web had been remediated relatively

Figure 7.9. Use sequence in Reuters mobile website

straightforwardly. Considering the fact that mobile users are expected to scroll down websites quickly and the vertical banners on the top of the column were to lose their strategic function, it remained to be seen at that point if these forms were to be appropriated to the specifics of the new medium. We should recognise that in that early era established conventions from older media were being dislocated to the mobile space relatively roughly – they were taken as complete units and dislocated to their new environments without much appropriation. Their adaptation by the new medium and their 'grammaticalisation' in Lotman's terms by the industry's meta-discourses was still to take place.

Another phenomenon that was characteristic of the mobile Web as of 2006 was the order of the sequence presented in Figure 7.9. After I clicked on one of the 'Top News' stories on the opening page ('Lebanese army moves south'), the page subsequently opened contained only the 'lead' of the news story. The lead was accompanied by a link that promised the 'full article'. This link, in turn, was complemented by a little abstract symbol of a camera. That stop in the interactive narrative and the poetics of the hyperlink suggests a critical aspect of how the limitations of networks and dominant business models of the time were influencing the evolution of the textual form in its formative era. The user is warned that he or she is

Figure 7.10. Use sequence in Eurosport mobile website

about to download a large page with a photograph that might take more time and money than he or she might be ready to spend (for some reason Reuters used relatively big picture files). At that point it remained to be seen if such interim pages, content alerts

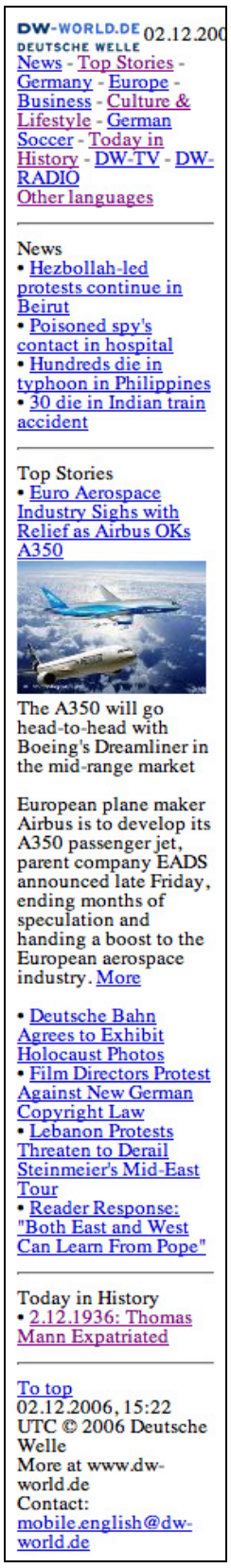
and apportioning of content continued to be distinctive features of mobile websites once the business models and billing systems that enabled cheap Web browsing started to become more widespread in 2006 (when T-Mobile with its Web'n'Walk was an exception).

The example presented in Figure 7.10 – the Eurosport mobile website – is similar to the previous examples in this group in terms of its relatively simple structure and minimalistic design on the opening pages, where the structure of the site is meta-communicated and only little content is offered. It differs from the previous examples in its extensive use of photographs. Every page of this site opens with a thematic picture on the top of the page. This phenomenon could be interpreted as a remediation of a genre – sports news and sports content, in general, in print and Web media tend to use much more visual representations and modes. Sport is in most cases about bodily activities and these can be effectively visually represented. But the fact that a mobile sports website could not do without photographs despite the many limitations of the mobile platform, suggests the 'burden' of the genre – a text needs the accompanying proof, the visualisation of the hero, the activity or a place. We recognise how a new form builds on the traditions of the remediated genre.

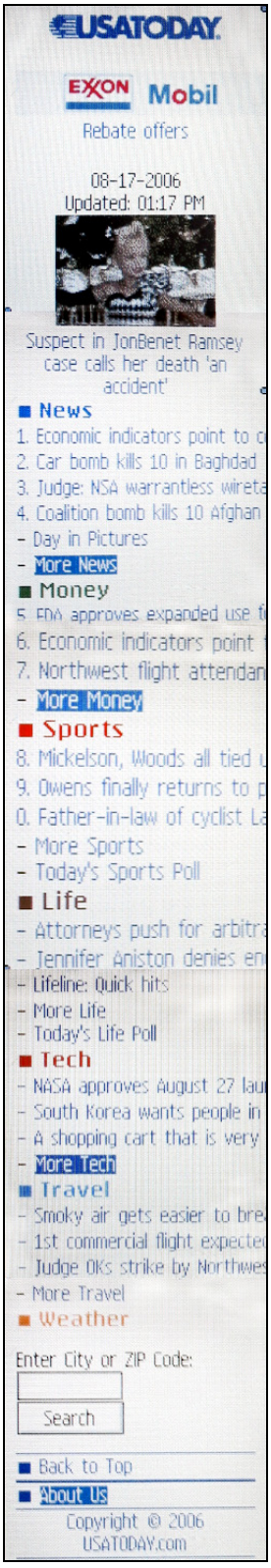
7.6.3 *Sub-group 3: Complex designs with new medium-specific conventions*

The third generic group of mobile media websites (see Figure 7.11) had more complex designs and principles of content organisation. These contained many of the new and old conventions discussed above, but had them developed further and simultaneously in use. In Figure 7.11 we can compare the front pages of Deutsche Welle World, *USA Today* and *The Onion* mobile websites. Two of them introduce on their front pages not only the headline links to various sub-sections, but also leads and links to top stories. This way some of the sub-sections and their contents are already played out on the front page. Lines or colourful headlines are used to establish frames that create semantic discontinuities in the composition. Two of the sites use advertising banners on top of the page and all of them utilise photographs extensively in their compositions. Within the sites (in the sub-pages) most rely heavily on the bottom page link sets to guide further interaction.

1.



2.



3.

Figure 7.11. Frontpages of Deutsche Welle World, USA Today and The Onion

This suggests the evolution of the complex generic features of mobile Web design. We can also suggest that they strive to remediate the conventional form of the desktop front page. This is the form that was demonstrated in the examples of the BBC and Yahoo! Movies desktop sites, where the content was organised thematically into blocks that collocate and present links to the sub-sites, but where the more highly valued stories were also more elaborately reflected, featuring the leads of the stories as well as the photographs or other additional material. The examples of the mobile front pages in Figure 7.11 share the same semantic function. Thus, they remediate the established form of the desktop Web.

Figure 12. Web'n'Walk front page in October 2006

In Figure 7.12 can be seen the front page of T-Mobile's Web'n'Walk. Its design could be argued to take a step further to remediate the 'blocked' designs of similar portal-like functions from the desktop Internet. This was indeed the case – as we learned in Chapter 5, the creators of this site saw one of the functions of this design to indicate that this one is the 'real Internet', differing from the low-key and limited WAP experience. With this site T-Mobile aimed to respond to the horizon of expectations their users were believed to have acquired from the desktop Internet. One of the main purposes of the brands such as Google, eBay, etc. was to connote that this is the 'real thing', the same Internet as it is known from the familiar desktop screens. The eBay and Google logos (the latter together with its search box) become the intertextual switchers that insert and translate the textual universe of World Wide Web into the textual bounds of this particular page. They advertise it as a possibility and, in this way, increase the credibility of every item in the composition (as being derived from some other, previously experienced environment they wield a value connotation of being more real).

In fact, many of the syntactic features of content organisation used in the page carry this function. For instance, the address box on the top of the page functions as an intertextual frame. It is apparently made part of the page by T-Mobile because mobile browsers lack this element on top of the browser window, a canonical convention in desktop browsers. It remediates this convention and serves to indicate the similarity between the 'Two Webs'. Similar is the effect of the use of two-column layout in the context of the previously recognised one-column tendency in the mobile Web. It communicates that the mobile Web does not have to remain low key and limited when it comes to design, but can function and look the same way (remediate) as the Web, already known from desktop screens.

The use of banner ads is also interesting. As seen above, few mobile websites were trying to recycle the form of the top-of-the-page banner ads, but the question is how justified these are in the 'columnised' designs for mobile browsing. Here the ads were strategically positioned to pervade the whole column – there is one even at the bottom of the page, a new strategically important location in mobile Web pages. This suggests that the designers of mobile pages were starting to realise the specificity of the new form and usage and had begun to adjust the remediated conventions according to these specifics – the mobile form had started to emancipate. In this context it is important that this happened on the Web'n'Walk page as this, as a 'lead case' in Solomon's (1976) terms, could be assumed to have driven in many ways the genre's evolution and set its path.

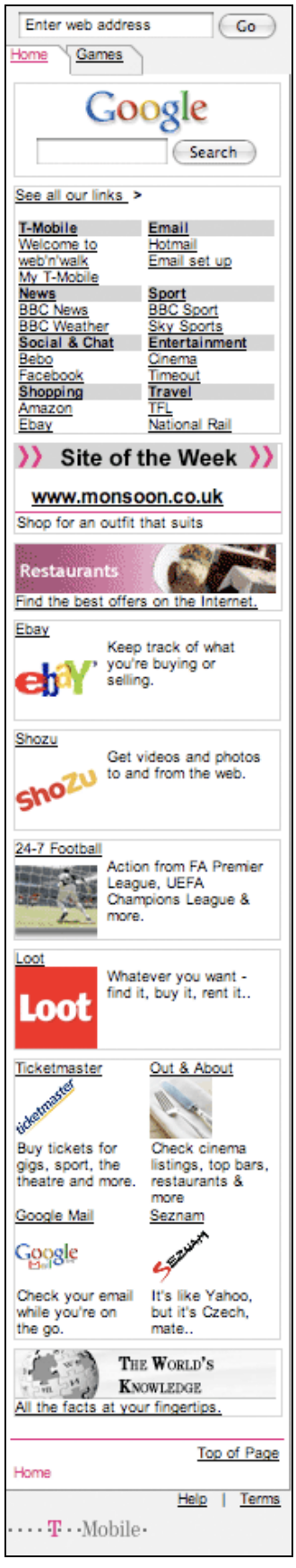


Figure 7.13. Web'n'Walk front page in October 2007

7.7 Conclusion

The aim of this chapter has been to analyse the nature and specificity of the media forms that were evolving in the

open mobile Web environment in its early formative era – in 2006. It initially focused broadly on the form of the website and asked what happened to this form when it was being adapted in various ways for the mobile platform. To answer this question two sets of analytical exercises were conducted: first, comparative exercises where the relations between different mobile and desktop websites were examined and, second, an effort to distinguish some of the emerging specifics of the 'mobile website' as a new form.

The first set of exercises demonstrated how the existing media forms, and especially the established form of the desktop website, in various ways 'locked in' the evolving characteristics of mobile websites. The first exercise focused on one of the ways that websites originally created for desktop computers were automatically and *post factum* optimised for mobile access. The analysis demonstrated how the Opera SSR algorithm, which redesigned the original layout into a long vertical column, destroyed the rhetorical functions of the page designs, greatly undermining their communicative effectiveness. This pointed to the recognition also prevalent in the content industry, that algorithmic redesigns are not 'perfect' and their user experience will always be poor. Thus technologies that enable designers to adapt their sites for different access devices from the outset should be in place. The second exercise, therefore, focused on the functions of CSS – another technology that was promoted and developed at the time to serve that purpose. The example of Opera's homepage showed how the use of CSS made it possible to adapt content effectively according to the type of access device. It also showed how, even though this technology enables creating new mobile-optimised page designs, the new 'mobile site' still had to rely on the same source code and the same hypertextual structure. This means that there could not take place a significant split between the two forms – desktop and mobile websites – as they were forced to be in dialogue and interdependent on each other due to their shared 'source'.

Related to this, the comparative analysis of the third example, a set of the BBC's different media outputs, demonstrated that the main reason for dependency on the desktop form by mobile sites was, first, their secondary status as compared to desktop sites and, second, lack of own established conventions, frames that would guide content production from the start. After some technical adjustment the original form of the BBC News desktop website was dislocated to the new environment and, thus, the desktop form conditioned the form of the mobile website. The latter was, in effect, path-dependent on the first. As such the mobile Web was, at the time, in Kress and van Leeuwen's terms, still very much in the 'adaptation phase' of its development and

functioned to quite an extent simply as a ‘distribution medium’ and not as a ‘production medium’.

The second part of this chapter was dedicated to discerning the emerging conventions of the mobile Web – the first signs of a mere distribution channel becoming an established production medium. However, much of the discovered specificity suggests more about the limitations of the mobile platform in that early era. At the same time, there were a few new conventions – bottom page link sets, banner ads along the column – that were related to the new generic specificity of the mobile-optimised websites. Their development was conditioned by the long column as the generic form of the mobile website and, as such, they constituted the next steps in the emancipation of the new medium. However, the example of the Web’n’Walk homepage demonstrated how the developers of one of the ‘core sites’ of the mobile Web were apparently determined to remediate many of the benchmark desktop conventions, represent its iconic brands, etc. – in order to make it look like the ‘real Web’. In terms of the split between the two forms, the differentiation and emancipation of the mobile Web, this tendency puts it in a new light. Therefore, this chapter demonstrated that there were signs of both tendencies in the early era of the mobile Web – of the ‘Two Webs’ staying as one, but also of differentiation and emancipation of the mobile Web as a new and independent medium in terms of its media forms. In the following chapter we look at if and how these tendencies were present in the discourses of the authors of these forms.

8 Early meta-languages for the mobile Web-media forms

8.1 Introduction

The main speakers in this chapter are the interviewees whose job at different media companies, 'content aggregators', design consultancies or similar institutions, was to devise the means of content presentation for mobile access. The chapter presents an analysis that brings under inspection their discourses on the norms for mobile Web content design. In Chapter 7 the analysis demonstrated what these forms were like and offered suggestions with respect to the potential motivations behind these forms and designs. This chapter considers these more directly. Building on the analysis in Chapters 5 and 6, this chapter also focuses on the relationship between the mobile and desktop platforms of Web access, i.e., between the evolving forms of the mobile Web and the more established forms of the desktop Web.

8.2 Materiality of the media motivating discontinuities in design

As indicated in Chapter 6, one of the biggest challenges for mobile content providers was the fragmentation of the mobile domain in terms of its technological standards, input interfaces and the physical parameters of the mobile devices. This complexity, as a conditioning factor, seemed to impact the perceptions of content designers with respect to the limits for cross-platform Web content production. As briefly indicated in Chapter 6, in general content providers were not in full agreement with the 'One Web' imperative of W3C and its related MWBP guidelines. Take, for instance, the rather forthright position of interviewee #10, a mobile design consultant from the US:

> "I think that they are schizophrenic in nature, and have, in a lot of ways doing a disservice, they are pretending to advocate to do the best things for the users, but in reality they are advocating one Web design as if a design for a desktop website is somehow going to work fine for a mobile website. And I think they are doing the entire industry a disservice and I think they don't really understand design."

For the same 'sin' of not understanding design or the specifics of the mobile platform she also indicted the players we recognised as participating in conditioning the 'One Web' vision. She pointed specifically to Opera for being in the 'One Web camp':

> "You can tell they don't really understand the mobile because they don't have the right designs for different types of devices. They are using one device design for the browsers and it works great on a Nokia, mediocrely on my Samsung and really horrifically on my Blackberry […] they don't really understand mobile yet and they appear to be wilfully blinding themselves to that fact." (#10)

This quote recalls what was evident in Chapter 6 – that it was 'adaptation' that was assumed to be the best practice among the content providers at the time. Interviewees representing various content providers saw that the sheer variety of devices in the market did not suggest one generic design for all. In addition, as evidenced in the interviews, those in the content industry were realising that the risk accompanying 'One Web' design was of being confined to the 'lowest common denominator' in design. As the adaptation engines were still very new to the market, the problem was, as several interviewees admitted, that the lowest common denominator design had become an established practice for the mobile content providers. Take, for instance, the following explanation by the designer of Deutsche Welle's mobile portal:

> "So yes, it [the portal] is not very colourful and blinking, but there is a reason behind that. In this case, particularly that we do not… we wanted to exclude as few people as possible from accessing the sites because, again, we always have to keep in mind that we are targeting an audience that could be anywhere in the world. That means it could have any device possible under the sun. And all these devices, be they manufactured in China or Hong Kong, in South America and North America, in Africa, or wherever have different characteristics so we want to supply a version that uses the lowest common denominator. Strange, but that is a no frills, no gimmicks approach, which is hopefully accessible to as many phones as possible." (#8)

We see how the fragmentation of the domain appears to motivate the rather minimal design of the Deutsche Welle mobile site, also demonstrated in Chapter 7. The content companies countered this by increasingly adapting content for various device classes. In the words of interviewee #4, despite the BBC being a devoted supporter of the 'One Web' vision they still did "slightly different treatments to their content depending on the device" because of the variation in devices on the market:

> "So I think, you know, our aspiration is that the same content and a similar user experience as possible is delivered to the user, but obviously taking into account, you know, the realities of the different devices, and different bandwidths and so on, that are available.[…] So you really have to do some re-versioning in order to make that same content accessible. It's the same headline, same story, text, potentially the same other elements if it can support images or whatever, but

> obviously our effort goes into making sure those experiences are **as similar as possible, but that they are as functional or as effective as possible**."

This quote signals one of the central dilemmas of the mobile content industry in that early era of the mobile Web platform, i.e., the dilemma between keeping the new designs closely related to the 'original' or developing new, 'functional' platform or device-specific forms. One of the era-specific discussions this dilemma surfaced was the question of new 'full Web-capable' browsers such as Nokia's S60 and iPhone's mobile Safari emerging and enabling viewing of original desktop layouts. In this context, rather important was the scepticism with which this innovation was received by the majority of content providers. Several interviewees from the content industry expressed doubts about its feasibility as a long-term solution. Some of them criticised the usability and quality of a browsing experience where one has to zoom back and forth between general overviews and close-ups of page layouts. For instance, interviewee #31, the product marketing executive from Volantis, compared this user experience to working with a very large spreadsheet through a small window. She observed bluntly that in this way it was easy to get lost on a page and concluded that such browsing of desktop sites as a solution was "only a temporary holding pattern until you get to a made for mobile site". That statement was also supported by the interviewees from the BBC and dotMobi (the latter saw itself as a mobile Web design authority):

> "And, 'cos I think with the Nokia S60 browser what they are mainly trying to do is just render the Web pages so it looks like your PC on your device. And I think that is inherently flawed to be honest, now that I stop and think about it. I think that it is a really **good kind of step for now when people aren't really trying to re-purpose this stuff** and it allows you to kind of get to a Web that they feel comfortable with. But that presupposes that they are doing most of the Web access on a PC and then are trying to transfer that experience to mobile and will get freaked out if it doesn't look the same. Whereas I think that if you go to your PC and access train times, and you go to your PC and access you know train times on your phone **it's better if it's re-purposed and it fits more on your small screen** and you don't have to scroll to the right and down when you don't need to you know to get the form into the middle. Erm, and I think that's the same for a lot of content." (#3, executive producer, Mobiles & PDA, BBC)

The general presumption was that *post factum* re-rendering of desktop layouts could not be a long-term solution. But in what way were the new mobile-specific designs suggested to be different from the desktop pages and sites? There were more and less

radical views in this regard. As we saw in Chapter 7, the hypertextual structure of the BBC mobile site followed the same logic as the desktop site. And as interviewee #4 above evidenced, they were aiming to keep the two platforms as closely integrated as possible. At the same time interviewee #10, the mobile design consultant, questioned the use of CSS as these require the use of the same site structure on all possible access platforms (as we saw in Chapter 7 when comparing Opera's desktop and mobile sites). Hence, she posited that, "Information architecture should differ depending on delivery mechanisms". Other suggestions focused on the redesign of the individual page layouts:

> "But you've got to remember the phone screen's 2 inches wide and the PCs 14 or whatever. What makes sense to show on that screen does not make sense to show on the other screen. And you can shrink it all down but it's not going…. Here's an example: if you have a broadsheet newspaper let's say *The Times*, right, it's huge right. Like if you open it up it's this wide, right. You can have a column there, you can have a story there, an ad down here, another column here. And that makes sense because it's a high-resolution device, the newspaper. It's old technology, but high resolution, you can fit in a lot of stuff. *The Times* website, the normal PC website, does things in stories. It has one story per page. That goes down, right, because your screen is inherently limited. Take that analogy further, on the phone you have to kind of squeeze it down a bit more. You've got to dispense with all this side stuff, and no columns here, no columns here, you have to take into account that **the channel is limited**. So it's work and it's hard, but if you want **good user experience** on the phone, you pretty much have to do it." (#12, director, Developer Initiatives, dotMobi)

This quote introduces the discourse along the lines that the physical and material capacities of different platforms eventually cause their divergence into different media, such as printed paper or the online website. But it also points to another central conditioning feature that seems to have forced that divergence into different media – the differences in the limitations of individual platforms. At this time, despite having new distinctive capabilities in regard to mobility and location-aware data processing, as pointed out in the last quote, the mobile devices were still rather limited when it came to processing power, memory capacities, input interfaces and screen sizes. Hence, in addition to the lowest common denominator design factor discussed above, the general limitations of mobile technologies were seen as another set of factors that motivated the designs of mobile sites to remain low key and encouraged a divergence into two separate Web-media platforms. This was best exemplified by the statements from Deutsche Welle employees when explaining their strategies for Web output for different platforms.

"At the moment we see the necessity to actually create a different version, if you like, a low-tech display version of our website in order to make it possible for mobile appliances to actually access our stuff. So, in that sense we do have two versions of our website there. The mobile low-tech, low graphic version, and the real Internet version." (#7, editorial director of Deutsche Welle World)

"Generally I think that for the foreseeable future, we will have the different versions, maybe even in the longer term because I can't see 99 or 100 per cent of mobile devices having screens that are large enough to provide for a pleasurable user experience when you supply full websites that are made for 600 by I don't know 640, for large screen resolutions." (#8, strategy development, Distribution Directorate, Deutsche Welle)

8.3 Differing functionalities motivating discontinuities in design

A different set of motivations for keeping the mobile and desktop domains distinct in terms of their media forms was their perceived differing 'functionalities', as articulated by many of the interviewees. The main differing functionality of mobiles as compared to computers was evident – their mobility, their being 'always on' and with their users most of the time. In the words of interviewee #8 from Deutsche Welle: "[A] phone is possible to take ice skating for example, but imagine ice skating with a lap top". That, in turn, was seen to motivate different uses of the platform. As stated by interview #10, the design consultant, mobile applications should be designed to work when the user is mobile and thus has "many many different user needs".

The different uses, hence, would also come to condition the ways the content would be presented on these platforms:

"There's the **behavioural differences**. So **if people use the device in a different way then the media on that device has to take note of that**. Just in the same way that I'm in a **different, you know, mindset when I'm sitting down in front of my TV than I am when I'm on a bus with my mobile phone**. So I think the kind of… the attitude or the mindset of the viewer is very important.[…] Now increasingly a brand is going to expect to be everywhere and it's going to have to be everywhere. So if I'm, you know, a brand worth my reputation, then I have to have a presence or a play on all the media that people consume. So in that sense you are talking perhaps about one great Internet media. But I think it's going to have to be tailored to different devices that are accessing this media. I don't think you can just talk about one Internet. I think you can access an Internet, you can access the Internet whatever you call it. But it will have to be sites or media that are **tailored towards a device this size and the mindset that goes along with viewing this device,** to a device this [mobile] size, or a device when I am sitting at home and

> I've got my IPTV [Internet Protocol television] all set up. And it's completely different." (#6, head of Content, Buongiorno UK)

How did the content producers see this mobile-specific 'mindset'? What did they see as potential motivations to access the mobile Web and how would these motivations and uses of mobile access be different from the uses of the desktop platform? The analysis revealed four main groups of justifications for such differences. The first of these was the stronger 'utility feel' of mobiles as suggested by interviewee #6. He posited that the desktop Web is like an 'archival resource': "You can really drill down to detail". In his articulation, the desktop Web is a convenient means to "find out how many miles from here to Planet Pluto", but on the mobile such uses would not be typical. Mobile Web access, he suggested, would be needed for more pragmatic purposes:

> "[T]o find out as it happens at the moment, what time the train goes, how do I get from A to B. How do I pay my bills? A real kind of utility, a kind of workman type thing. Rather than a kind of a university resource. So I think this is more about applications that have an immediate… that can deliver immediately, an immediate kind of pertinent delivery." (#6, head of Content, Buongiorno UK)

> "[T]he primary motivation of mobile is functional. So, I want information and I want it now, and it could be news or sport, or a train time or a weather report or something. And that's a very, that's an important driver in mobile usage of content." (#4, Mobiles product manager, BBC News Interactive)

> "So usage context is usually the one where I am on the go, I am moving around, I'm not connected, and I want, and I think most people want more shorter information, not lengthy and in detail but shorter, and get as much information as possible, for example. Or stuff that I cannot get elsewhere. For example, football results, or football information. Time-critical information." (#8, strategy development, Distribution Directorate, Deutsche Welle)

The interviewees from the BBC and Deutsche Welle expressed the view that with their respective news portals they were trying to meet these 'functional needs'. But not all uses of the mobile Web were seen to have an immediate utilitarian value. Although interviewee #4 from the BBC argued that entertainment purposes were not yet among the common uses of mobile Web access, he predicted that this too – especially 'social networking' – would be 'translated' from the desktop Web in due course. However, when it came to ways to translate these forms for the mobile platform, similar principles of briefness and immediate gratification were stressed.

The second main group of motivations for the mobile Web access was seen by the content providers to be boredom. Take the words of interviewee #2 from Axel Springer, suggesting the uses for mobile Web access: "When I use the mobile portal I use it when I'm bored and I am sitting on a train or something or on an airport, and when I have five minutes or something – I want to have a short look". As suggested by interviewee #9 from Deutsche Welle, such a need for entertainment in situations of enforced inactivity like commuting might motivate content providers to come up with more attractive, audio-visual forms: "Because I think it's more attractive if you are somewhere on the way like sitting on the train, and you are going to your work, or whatever. And then you can just take your device and watch the latest episode or something like that".

The third group of suggested motives for mobile Web access that would be different from desktop usages was the use of location-aware services. For instance, motives to learn about one's location or to find the adjacent service providers of interest, to find the way to one's destination or to be aware of the location of one's family members. These were all potential mobile-specific usages that were expected by the interviewees to be motivating divergence in the 'functionality' of mobile and desktop Web access.

The fourth group of motivations for accessing the Web on mobiles that was suggested to differ from the desktop was the more private nature of mobile devices. While desktop devices are often shared, used by colleagues or family members, mobiles rarely are in developed countries. That aspect was emphasised by several of T-Mobile's marketing people among the interviewees who claimed that this makes the mobile a 'private Web'.

> "If you're an 18-year-old, that might be about I can search and look for what I want whenever I want rather than it being a family computer or it being a college computer where other people might be able to see what I'm up to. Not because I am necessarily embarrassed but because it's my private Web, it's much more personal Web. And that's what's getting quite interesting because the usage is slightly different to the sort of big screen." (#23)

Overall, in this early era there was already a set of discourses on the new functionalities of the mobile Web in place that established a general direction of development for the industry and the evolutionary trajectory for the media they were producing.

8.4 Continuities in practices and institutional structures

The previous section considered how the representatives of various content providers explained the causes of existing and potential discontinuities between the two access platforms to the Web. We saw that one group of explanations established the materiality of these different media as either limiting or enabling different features of the platform and, hence, effecting a split into two separate content domains. The second group pointed to perceived differing uses of the mobile platform that were expected to condition different targeted sets of media forms and services for these two access platforms. At the same time, however, the analysis of the interview texts evidenced the realities that were generally rather different from the stated principles, as illustrated above. The references that interviewees made to their actions and the justifications they gave for these actions pointed to deliberately sustained continuities between the two platforms. In the following we focus in greater depth on these justifications.

The main trend (that relates to the general feeling of uncertainty among media producers that seems to emerge in the previous section) is summarised in the following observation by interviewee #6 from Buongiorno:

> "I think that it might be easy to say, right, we've got a new technology, what the hell do we do with it? And this is what the old technology did, so lets just feed it through and lets just use the new technology as a delivery mechanism for the old content. And I think that's what Vodaphone are doing with TV at the moment. And they are obviously making a real play of going for the brands – so Channel 4, MTV, Sky Sports, whatever it may be. But they want the brands there and they figure that if you get the brands there the people will come."

Although he spoke specifically about streaming television channels on mobiles, the moral is wider – as he put it, "the brands need to be there" and hence they are simply dislocating their existing content mechanically onto the new platform. That observation was supported by interviewee #31 from Volantis that was producing mobile websites for an increasing number of media companies. She described how their clients, among them the big household entertainment and news brands such as Channel 4, Discovery, CBS, Reuters, *Financial Times*, were all about to take their content onto mobile. "They are taking their traditional media and just extending what they've got into another medium, into another channel. It's news headlines, video clips, all the typical news assets they've got" (#31).

One justification for these practices was provided by interviewee #18, the senior executive from ProSieben, who suggested that their aim was to mobilise all the brands

and formats they had at that time. Although we saw in Chapter 6 how he argued strongly for the mobile Web needing to be on an independent medium, offering a unique USP, he contended that they needed to give their established brands a "home in the mobile world too". He explained how for their entertainment brands their strategy was to capitalise on already established brand value in the mobile domain, so that "the audience learns that when they go to related mobile sites, they will be entertained again". For instance, in the case of ProSieben's MyVideo, which was effectively another YouTube replica with localised versions for a few Central and Western European countries – although its then nascent mobile edition was only for short video clips – it was still, as he explained, the central function and the brand asset that "you can share videos here". This was also the case for their main news brand N24, a German 24/7 news channel:

> "If you go to the mobile Web for N24 you know what you get. So it's news. So that's why you go there. This is where the brand is sort of like positioned. So if we talk about an extension to the Web we have to transform the core asset of the brand to the mobile. And if it's entertainment it's entertainment. If it's news, it's news. If it's video upload and download then that's it. Simple as that. We don't want to rebrand something in the mobile world. Doesn't make sense."

Although he speculated that, similarly to earlier media, mobile will in time start generating some new brands for the company, we can see how their existing cross-platform publishing strategies with the principle of not changing much when dislocating content were manifesting various continuities among the different media available at the time.

However, there were even more straightforward ways to create these continuities. In Chapter 6 we saw how the various emerging adaptation and transcoding engines and systems were about to create automised continuities between the mobile and desktop forms. In Chapter 7 we saw the implications of a variety of these – starting with Opera SSR and ending with CSS and BBC's inhouse adaptation engine/content management system (CMS). But the analysis of the BBC's desktop and mobile websites revealed that, despite the fact that the mobile edition was clearly more limited in design, there was a dependency between the two, whereby the mobile version was simply a smaller clone of the desktop site. In the following we examine the reasons for these relationships using the BBC and Deutsche Welle as examples, which both exploited similar cross-platform publishing and adaptation engines. First, we consider how interviewee #3 from the BBC explained their approach:

> "I don't know if they are exactly two different media, but maybe they are. I think that underlying it all you've got in many cases the same information behind it. But how you present that information and more importantly how you present access to that information erm.… So, you know, much of our news content is, if you think about it, we have a separate team for the Web but fundamentally it's the same kind of news reports going on TV, radio, Web and mobile. And some of that content, you know, sits in a central repository and is really just technically customised for those platforms rather than extra editorial work going into them."
>
> Interviewer: "As you said there is not much editorial work going into them. This is how the BBC works right now. But what do you see are the pluses and minuses of this approach, that it's sort of automatically rendered – the content for different screens, different access devices?"
>
> "Well, one of the driving things is just cost. It might be better for us to have a team that just focused on delivering the perfect mobile experience for whatever format. And that's what they did as an editorial job and nothing else. But that would be quite expensive and it's not something we can really afford right now so we try to do what's best – in the future perhaps it would make more sense to have a team that focuses exactly on how that content appears on the mobile device, and then it is automatically somehow re-purposed for the PC device because usage is switched. I don't think that will actually happen, but it's possible. So cost is one of the issues."

As implied above, this worked similarly for other content providers. Interviewee #7 from Deutsche Welle explained how few original design decisions were made when their mobile publishing system was created – what content and how to put it out for mobile users. But once the original design was deployed the subsequent process of content appropriation for mobile was wholly automatic. He explained that their CMS was designed to output content for all sorts of access platforms: television, videotext, desktop, mobile, podcasts, etc. "So basically it's just a big content box. And what the editors, the online editors basically do is they just fill in the content and we find different ways of redistributing that" (#7).

As suggested in the quote above, the interviewees from both international news services – the BBC and Deutsche Welle – celebrated the low cost of such a solution and used it as the main justification for it. As indicated by interviewee #4 from BBC News Interactive, once the development work to create the adaptation engine and the relevant templates had been done, "it can then be switched on and it can run". The marginal cost of producing the additional versions for the mobile was very low. The same was emphasised for instance by interviewee #8 from Deutsche Welle, the original designer of that system, who underlined that such a system does not disrupt any established

workflows. And that was, of course, the main factor that made this solution seem cost-efficient. Although interviewee #4 from the BBC recognised that they "do some editorial tweaking to add special content or highlight particular features" to the mobile edition, the representatives from both institutions acknowledged that there was no specific day-to-day editorial work being done for the mobile content.

> "It is basically because editorial work is expensive, and at the moment we are not persuaded yet that it's worth it basically. Simply because the reach we get through the Web is so much larger than the reach we get on mobiles that we decided it is probably best to just use the material we've got already and use technology to transfer it rather than editors to do it and actually think up new type headlines, new text etc. It's simply a question of how many people are using the service – well, not enough to make it worth it." (#7, editorial director of Deutsche Welle World)

The fact that human input was not deemed to be cost-effective at that time and, hence, the 'algorithmic translations' for adaptation were used refers to the then emerging automatised and standardised continuity between the two platforms, whereby one was seen to condition the form of the other. The way the automatisation of the process was achieved led to unambiguous continuity where two platforms were in direct association. As the quote testifies, the desktop was the prevailing form of digital interactive output at the time and could be seen to set the constraints for the forms of the mobile. Despite the fact that the content providers emphasised that, in principle, the two domains should stay separate, in reality, they followed a different strategy. As the mobile platform was perceived as being comparatively minor in terms of its reach and contributions to revenues (the economic aspect was emphasised by the representatives of the private publishers ProSieben and Axel Springer), it was not afforded the opportunity to emancipate as a medium – without special content being produced by dedicated editorial staff, the medium-specific forms of content could not evolve. Being economically tied to the desktop, the mobile remained effectively part of the latter, as a distribution medium, in Kress and van Leeuwen's terms.

The interviewees did not see this situation as ideal. When asked about the negative aspects of the arrangement almost all pointed out that the lengthy stories written for either print media or desktop Web were inappropriate on mobile. Many suggested that shorter stories would be needed. As can be seen in the following quote by interviewee #7, the editorial director of Deutsche Welle's Web portal, they were starting to establish a strategy of how to proceed gradually with content optimisation for mobile:

> "So what we are moving into is actually reformatting headlines, and teasers and things like that, so that an editor would have to edit or write two types of headlines let's say. A headline for the website and a headline for mobile phones. And maybe a specific teaser for the mobile and a different one for the website. So that's something we are sort of looking at at the moment. You might also decide that you can actually put in specific breaks for mobiles – you know, end the article here and this sort of things. But still we don't want two content teams at the moment at all […] given that it's not used as heavily as the website. And we, of course, have no effort for the mobile website, but all the effort for the traditional website. That's at the moment the way we do things. But, yes there are discussions, and we are sort of, you know, beginning with headlines maybe and teaser text. We may move into a position where editors will actually have to think about and write for both screens as it were."

It should be pointed out, however, that in this regard the approaches of the media companies that I have discussed were somewhat different. The interviewees from the BBC, with their clearly established 'One Web' vision, stressed that they would not work towards an institutionally established special mobile edition. At the same time, similarly to Deutsche Welle, they noted the relative insignificance of the mobile output as it was still a "tiny percentage of their page views" and that they were "not going to change everything just because it doesn't work perfectly for mobile" (#4). But, secondly, the interviewee from the BBC News service indicated that his editorial colleagues were gradually starting to "think more about the mobile platforms and where the content they are producing is being consumed" (#4). He anticipated that over time that would have an impact and that there would be more impetus to change working practices to embrace the multiplatform publishing.

At the same time, interviewee #18 from ProSieben described how they were starting to work towards customising their existing content for mobile and, as part of that, were hiring special editors for the mobile output. "I think this will be an extension, to have sort of like the same environment for mobile Internet like we have for online. This means we have special editors, we have special technicians and we have people selling special ad forms on the mobile Internet" (#18). He said that although they were not investing too heavily in this, they had a "real belief in mobile Internet" and were starting to build the institutional structures for their mobile editions at the time of my interview in 2007. What these developments suggest, despite the differences in individual institutions, is that there was some impetus for moving towards discontinuities between the mobile and desktop Web – grounded potentially on differing practices of production and an organisational divide within existing institutions.

When it came to the potential of further 'institutional emancipation' of the mobile Web content production, however, another already existing divide in the institutions came to the fore – one between the editorial staff and technical enablers. As explained by interviewee #4 from BBC News Interactive, he was mostly working with "engineering-type people or producers" who he stressed were not "journalists really". While the journalists got on with, in his words, "producing their stories and providing video and audio reports for us and doing all that stuff", he and his colleagues were focused on "re-versioning that existing journalism content for the new platforms", enabling it for mobiles and handheld devices. But, as testified to by interviewees from both the BBC and Deutsche Welle, there was a generic problem in such task segregation.

> "[T]he fact that it [mobile edition] does not require any extra attention or any extra care by editors, also results in editors or journalists not being aware that it exists. And, for example, that they do not check it as regularly as they should be or that they are told to. Because they are not really aware of its existence, because it just runs automatically somewhere in the background. So this is a problem, because you constantly have to remind people to check it, because the mobile world works differently, has different paradigms." (#8, strategy development, Distribution Directorate, Deutsche Welle)

> "The problem is that the journalists are not necessarily thinking about the multiplatform output. So they are thinking, 'Oh, I am creating this for a website'. So they are happy adding in tags and images and stuff for Web. But not necessarily thinking oh, this might not work on another type of device. So I think there is a huge minus, or there is a huge amount of complexity in this question about to what extent when you are producing the content at the journalists' end, do you make them think about multiplatform output. Or do you say, well, actually, they should just produce the stuff and we'll worry about the reformatting at a later stage." (#4, Mobiles product manager, BBC News Interactive)

Here we should note one of the central concerns of my interviewees and the question, exemplified in the last quote by interviewee #4 from the BBC; that is, who should take responsibility for the mobile Web output – should the journalists, the content producers, be engaged at all or should it be entirely their engineering colleagues who would then develop the *post factum* ways to transcode or adapt content for various outputs. We see, however, that the forms of the mobile output were almost entirely being created by the technical people in these institutions – the principles for how the content was translated between different platforms and subsequently presented, were created by them and not

by their editorial colleagues. The latter were only sporadically engaged in the design process of this new medium. Hence, the editorial emancipation of the mobile Web could not take place. But we are also starting to see how, in the situation where mobile as a media platform was starting to gain momentum, the executives in these companies were starting to plan the first steps for raising awareness levels and augmenting the role of the editorial practitioners in developing the forms of the mobile output. These developments suggested, potentially, the future editorial emancipation of the mobile Web and the evolution of another layer of discontinuities between the two platforms.

8.5 Perceived 'horizons of expectations' of users motivating continuities in design

In Chapters 5 and 7 we saw how T-Mobile tried to demonstrate to its customers that what it was offering to them was the 'real Internet'. The 'real Web' was believed to comprise the users' 'horizon of expectations' and, hence, everything on the new platform was intended to match that horizon. Therefore, a question that should be asked in this context is how were the perceptions of the users and their established Web-based expectations motivating the designs of the new mobile-specific forms of content?

As indicated by T-Mobile's vice president (#25), their proposition was to build on enabling people to "… leverage the experience that they gathered while using the fixed-line Internet". In Chapter 5 we also saw that T-Mobile claimed to be correct in its assumptions as their traffic growth indicated that users indeed continued to mostly visit the same sites on their mobiles as they did on their computers. This is, for instance, how one of their employees (#22) summarised the changes in user behaviour in the first year of Web'n'Walk:

> "The frequency has increased, the frequency of usage has increased, the number of sessions has increased. Erm, but where people go I don't think that's, that hasn't changed. It's still the same, it's still e-mail. People are really simple. It's not, you know, it's not rocket science."

The fact that the usage patterns were very similar to those on the desktop platform was confirmed by their partners from Opera[31]. They said in the interview, and later announced publicly (see Opera Software, 2008), that the most popular sites were the same on both platforms and the full websites were clearly more popular among users

[31] After deploying the Opera Mini proxy server they could monitor the traffic patterns of mobile users around the world.

then the made-for-mobile sites. What this suggests is a certain inertia in user behaviour, as the new mobile-specific destinations, brands and services were simply not yet established, nor widely known among audiences. Hence, users turned first to their familiar destinations known from the desktop. It was also recognised by the content industries:

> "So they are saying I want to get broadly similar or the same content on my mobile device as I get on a PC. And you know you see Google, you see Yahoo!, you see eBay, you see Amazon, BBC, you see all these content providers who are very big on the PC Web all enabling their content for access on a range of devices including mobile phones. And that's primarily because that's what that user group wants. To be able to translate their PC experiences and get access to the same content as on mobile." (#4, Mobiles product manager, BBC News Interactive)

As pointed out by several interviewees, the historical difference between the early mobile platform and early desktop platform was that, while the latter was in its time exceedingly new for the audiences, the first could rely on the competence that the majority of audiences had acquired from their encounters with the desktop Internet. The mobile audience was seen to be "a lot smarter than the early adopters of the desktop Web" (#17) and therefore also "the transformation from online to mobile Internet will be much easier than it was from a classic media like TV or print to online" (#18). This ease of the potential transformation on the one hand, can be seen to drive and streamline the development of the mobile Web. On the other hand, however, it sets it on the path established by the desktop Web.

However, in relation to the quote above, we should ask if the emerging continuity between the different platforms was relying only on the persistence of brands or favoured Internet destinations as implied above. In Chapter 7 we saw how the BBC recycled the same content for its various device-optimised sites and it created continuity between them by means of branding and visual design as well as by using the same general site structure. As interviewees from various content providers admitted, such a strategy was a practical means for building on the established intertextual horizons of their users – in order to ease user learning and to encourage the embracing of the new platform. We can see that even if the content was optimised for mobile devices, it still had to resemble the original form, it had to be structured similarly and it had to interact similarly.

> "I could just assume that they would expect a lot of similarities because it is a similar thing. Similar things they get there, so they expect things to be similar here. For example, if a link works online or if a link is marked a different colour or underlined in the online version, in the desktop version. I think they would expect that to be similar on the mobile version just because of experience being transferred from one to another. If they suddenly had to learn completely new ways of usage that would just hamper the process and it would not be advantageous." (#8, strategy development, Distribution Directorate, Deutsche Welle)

> "Yes. I mean we have just to be careful I guess about the words that you use but I think the familiarity is important. So you might say this about consistency of look and feel. So that I as a user coming to the BBC feel that I can trust the content that I am looking at because it has the similar look and feel as the Web page, or even branding on a TV, on branding elsewhere. So that I know that by just looking at the page this is a BBC, or looking at the screen, this is a BBC experience. And I think that is important. I think it is easy to underestimate how important that is. Certainly the user studies that we have done, the user is much happier when they felt that there was clear link between the kind of experience on a PC to the mobile device or whatever it was. And I think that I would be very keen to maintain that as much as possible." (#4, Mobiles product manager, BBC News Interactive)

What these accounts suggest is that the expectations of users' interpretative abilities, the perceived link between these abilities and their experiences from the desktop Web is the factor that motivated the content producers to design the new forms to be similar to the old and to establish in this way, on another level, continuities in design between the two platforms. In other words, even the mobile-specific forms in the early era were designed to be intertextually related to the earlier forms of the mobile Web.

That paradox – that the new forms were, on the one hand, optimised for the materiality and perceived distinct functionalities of the new medium, but, on the other, still needed to remediate the old forms – indicates the era-specific dilemmas of the content providers. We have seen how the providers of mobile Web content were establishing both continuities as well as discontinuities with the older form of the Web for various reasons – finding justifications for both strategies. And as several of them explicitly admitted, they really did not know which of the strategies was more appropriate. Take, for instance, the following quotes:

> "[W]e still don't know if that's ['made for mobile content'] going to be sort of wildly successful or not. You know, do people want to consume different media? Is there a different need? You know, is there something different going on? And if it's not fed and people don't try things then it may be that we'll never know. Or, people will try and do things, but people won't download it because they say we don't have any need for this. We'd rather have stuff that we know. So, you

know, do you re-purpose stuff? Do you take clips out of broadcast TV and that's what you put on there? Or do you actually make stuff that's optimised for the screen, it's optimised for the time that people are on there. And it's quite, you know, its quite intensive, rich content. Particularly in the video space. So, you know, don't know." (#22, head of Content, T-Mobile)

"Maybe we have to wait a little bit till the people have gathered more experience on mobile Internet. So personally I don't know what would happen if say I have a brand like MTV and people know it from online, and I offer a complete different thing mobile. Would the people like it because it brings USP to them, or would the people hate it because it's something new and it's not MTV, and maybe I'm wrong here, so I don't know what's right or wrong. But I think right now the first step is to sort of like show the people that there is a certain similarity to what they know from online and then we have to add USPs and new products to it so maybe there is a new brand asset we can create over time." (#18, head of Mobile Services, ProSiebenSat.1)

What these quotations suggest is the uncertainty that the content producers of the time were experiencing with regard to whether to work towards emancipating the new medium in terms of its forms or whether it should stay closely related to the 'parent-medium' desktop Web. But as the above quotes also testify, there was already ongoing work to find a way between the extremes – i.e., taking the first small steps towards the emergence of the new medium-specific forms.

8.6 Suggested content categories

Until now we have been discussing either the general principles that the content producers adhered to the mobile Web media or their actual practices of producing that media. We saw how in different ways and at different levels both the processes of convergence and divergence occurred. Another way to shed light on these developments is to analyse the meta-languages these content providers were using to address the new mobile media forms produced either by themselves or their competitors. I first examine how they divided content into different sub-categories and how these categories related to the categories and genres of the desktop Web. As suggested in Chapter 3, in theoretical terms the development of such distinct categories and related normative frameworks should point to the maturity of the medium.

Starting with the content categories suggested by the interviewees, it was significant that when I asked for these many of my interviewees had difficulty in coming up with them. At the same time these categories and divisions that were eventually offered were often disparate. These difficulties and the incongruence of the suggested divisions point to the relative immaturity of the normative meta-languages

that were defining the medium. However, there were a few reoccurrences in the statements about these categories that enabled me to draw up a tentative 'discourse network' that seemed to constitute the genres and other categories of the mobile Web content of this early era.

As we have seen above, an increasing number of media companies started to dislocate their existing content onto the mobile platform and, in this way, many new continuities were generated in terms of norms for the media forms on these different platforms. As my analysis has demonstrated, this was also the case for the sub-categories applied to media content. When discussing the general categories for their content many of the interviewees representing media companies suggested the categories that were related closely to their output on these other platforms. These were categories well known from other media: 'News', 'Sport', 'Entertainment'. In addition a few genres from other interactive platforms were mentioned – for instance interactive games or 'social networking'. These references reoccurred often enough to infer that these as established media genres were being dislocated to the new platform and that, in this way, new intertextual continuities between different media were being generated.

However, my analysis of the producers' discourses shows that new discontinuities were emerging with regard to how the media forms of the mobile Web were identified and categorised. The first of such new and distinctly mobile genres was the 'location-aware services'. Mobile technologies make it possible to take into account where the device is located in space and to use this data for content personalisation with respect to a user's locality and proximity. Although not many such services were working at the time, these were often referred to by the interviews as an independent category, indicating that it was an established and widely acknowledged goal for the industry. In parallel, however, the new capability of location awareness was often mentioned in relation to the other categories. For instance interviewee #4 suggested that the new capabilities of mobile devices could relate and add positive value to existing BBC services in the form of more personalised and localised content. Interviewee #9 from Deutsche Welle proposed social networking being supplemented by location-based services – as, for instance, being aware of the location of one's cohort and being alerted by their proximity. He stated that this would turn the new social networking applications into distinctly mobile-specific forms of content. What this might suggest is a convergence of genres and the emergence of new ones that integrate the elements, functionalities and characteristics of the converged forms. By integrating the location information, the dislocated old forms from other media were effectively innovated and

constituted potentially the first steps of the emancipation of the mobile-specific Web forms.

The second category of Web content that the analysis of discourses of the interviewees identified as distinct and specific to mobile devices was the 'practical and time-critical on-the-go services'. The following statement was eloquent in identifying the nature and bounds of this category:

> "I think that if mobile devices can present users with services that are relevant for them at the time when they are using it, and where they are, and perhaps for the immediate planning of what they are going to do, then mobile devices can deliver highly valuable services to end users which users will in some way be willing to pay for. So I think that type of services is one class of services that users will be interested in.[…] I feel certain about news, […] weather, public transportation for those using that, maps, information about what's going on around you, so that you can pick up your mobile and see when is something starting at the cinema or at the theatre or something like that." (#15, manager and chief architect, Opera)

With this division of services and content what we have is several of the established services or forms from other media being dislocated onto the new platform and being innovated there to obtain new mobile-specific functionalities. The fact that this grouping of media content was identified as a distinct new genre in the industry's discourse suggests the normative emancipation of the mobile Web as a new medium.

8.7 Suggested 'lead forms'

Identifying the established genre divides from the industry's meta-discourses gives us a picture of the state of affairs in the development of the medium and its norms. In order to have an indication of the potential further trajectories of this evolutionary process it is necessary to examine examples offered by interviewees for innovative solutions, services and forms which in their view were driving the medium and were defining its future directions. These examples could be conceived of as 'lead forms', ones that set the norms for the emerging genres, in Solomon's (1976) terms. As such they can give us indications of the directions that the new medium as a whole was moving towards.

It should be acknowledged that there was quite a lot of variety in the answers to the related questions. The first notably recurrent trend was the references to 'community' or Web 2.0 solutions. Many of the big brands well known from the desktop were mentioned – YouTube, Facebook, FaceParty, Shozu, Flickr all surfaced in the statements. In addition, many smaller initiatives were referred to. However, these

examples were mostly just briefly discussed as a potentiality that was not yet fulfilled. Still, the recurrence in the discourse was there and that in itself is suggestive of the direction that was emergent at the time.

Much more often the services were referred to and at length discussed that had become prominent in terms of content optimisation for mobile specifics. In this regard, for instance, the BBC was often credited and Yahoo! and Google were given recognition for their new mobile-specific e-mail and search clients. As admitted by interviewee #11 from Microsoft, Google's push for optimisation of their mobile Web-search had excited the industry: "I think there's been a lot of improvement in the last few years since they've made such a push and it's pushed the rest of the major properties to do similar enhancements". The following from interviewee #4 from the BBC is especially telling:

> "The most recent ones probably is Yahoo!'s Onesearch stuff. So they're in terms of things I have been impressed with. What they are saying is that although they are embracing the notion of online equals mobile, they are using their search technology to make the experience faster and more satisfying from a user point of view. So if you go to the Yahoo! site on your mobile device and you search for say London, or even SW12, it will give you some recommendations at the top, which will be based on sort of intelligent thinking around what that user is looking for. Rather than just saying 40 million results for keywords that match SW12, it's saying, do you want restaurants in this area, do you want tube times, or something like that. So it's trying to intelligently present you with quick links to content that they think is relevant to your search. And I think that's a really excellent approach because what it's saying is yes, online equals mobile, but the mobile motivations are about things like I need information and I need it now. So speed and convenience are very valuable to me."

The search format had altered on the new platform, but what is more important, is that change was acknowledged as a lead example by the rest of the industry. The utilisation of location information when optimising established media genres for mobile had started to define the platform and its new forms.

The third main group of examples of leading services and forms was the time-critical services that were suggested to innovate the usage of the medium. Many of the interviewees discussed the first services that offered live public transport information. Several others suggested future improvements for such services. But when it came to 'time-critical services' that might become definitive for the mobile platform, then the main example and, as such, the 'lead form', was eBay's mobile site.

> "Like eBay, for example, it has an intrinsic mobile benefit. You know, auction is running somewhere and it is then more flexible, more independent. It's a new freedom. Which is then linked to the specific use case and is then quite easy to understand for everybody." (#25, vice president of Mobile Data, T-Mobile)

> "[L]ike eBay who are using our platform to build made for mobile application that does a particular task. And the aim there is that eBay recognised that everybody takes their mobile phone with them – so why not telling them about things that they're bidding for or things that they've got up for sale while they are out and about, when they are away from their PC." (#31, director of Product Marketing, Volantis)

> "There are some candidates around, and it could be things like YouTube or eBay. There is a potential for applications where having a mobile access is important and could drive the need to make them the same [with desktop sites]. They are not the same today, they are **actually implemented in different ways – and that may be OK, that may be how things actually progress**." (#30, Volantis)

We should note the third quote here. In general it was interesting that when examples of innovative forms were asked about almost none of the interviewees referred to any examples that would have highly valued the similarity between the two platforms. Interviewee #30 was one of the few who referred to that dilemma, but still proposed that the eventual development would be the evolving incongruity between the two access platforms. The interviewees from the media industries made reference only to the kinds of examples of the 'lead forms' that were increasingly platform-specific, that effectively utilised the new capabilities of the mobile devices and developed the distinct functionalities of the new platform. This suggests the possibility that the content industry had taken the route towards the gradual emancipation of the new medium.

8.8 Conclusion

The aim of this chapter was to examine the discourses of those media producers who at the time of the study were actively engaged in developing new media forms for the mobile-accessible Web as an emerging media platform. The chapter started by studying the justifications that the interviewees gave for the discontinuities between the desktop and mobile platforms. We saw that the materiality of the new platform, the specifics of this materiality (that, as we saw in Chapter 6, were conditioned by the wider industry dynamic) –being ultimately fragmented and having many limits as compared to desktop platform – encouraged the interviewees to observe, in principle, the apparent divergence

between the two platforms regarding their media forms. In the analysis the second group of justifications for the discontinuities between platforms focused on the new distinct capabilities that the mobile platform could offer as compared to the desktop Web. Mobile devices being always on, connected and at hand wherever the user might be were seen to condition many new functionalities and uses of the new medium. We saw how the material specifics of the emerging platform – both 'limiting' and 'enabling' – were suggested to enforce the divergence in media forms of the two platforms.

However, we subsequently saw how most of the interviewees from various media companies acknowledged that, despite the stated principles, in practice they were still firmly on the track of maintaining continuities between the two platforms. As the interviewees stated, the brands needed to be extended to mobile space. But the brands went there mostly with their already existing content that was rarely significantly redeveloped for mobile output. As the mobile platform was still relatively marginal compared to the desktop in terms of reach and revenues (when applicable), it was not deemed cost-effective to emancipate in terms of employing dedicated journalistic staff to create dedicated content for mobile output. The solution of the time was CMS creating 'algorithmic translations' that brought about unambiguous continuities between the two platforms. Related to the institutional inertia of production were the perceptions of the need to produce for the audience's 'horizons of expectations'. Hence the paradox: despite the need to optimise the new forms for the materiality and new functionalities of the mobile platform, the content providers were trying to utilise the perceived interpretative abilities of the users by designing the new forms to be as similar as possible to those familiar from the desktop Web. The result was emerging intertextual continuities between the platforms. The second part of the chapter suggested how the (interdependent) path-dependencies among both the audiences and the industry contributed to the generation of continuities between the media forms of the two platforms.

The third part of the chapter indicated that both of the main tendencies – creation of continuities as well as discontinuities – ran in parallel. When asked to name the main genres or content categories of the mobile Web, many dislocated genres from other media were referred to, but also a few new ones, which utilised the new capabilities of the mobile platform, had got a name and recognition in the industry's meta-discourses. Even more important is that when asked for the 'lead forms' that were innovating and driving the medium, only the kinds of forms and services were named

that effectively exploited the distinctly new capabilities and functionalities of the mobile platform. That, together with the examples of ‘rhetorically synthesised forms of old and new’ and the many indications throughout the chapter that the media industry was keen to take steps towards medium-specific forms, pointed to a growing impetus at the time for working towards the gradual emancipation of the new medium and its forms.

9 From desktop to ubiquitous: early evolutionary dynamics of the mobile accessible Web

9.1 Introduction

The purpose of this chapter is to integrate the results of the last four empirical chapters, to consider them in the light of the conceptual framework outlined in Chapter 3 and to set out answers to the initial research questions. That is, this chapter seeks to explain the constitutive evolutionary dynamics of the 'open mobile Web' and its media forms in their early formative era. The result provides insights into what the agents and relevant societal sub-systems were that participated in the dialogues that modelled the mobile Web as a new medium, and analyses how that dialogical dynamic between these domains conditioned the evolution of the new media platform and its forms. The chapter also examines how these dialogic dynamics were dependent on the institutional legacies of the agents, on the memory of the productive cultures and on the path-dependent processes in media and society in general. The analysis focuses on how these path-dependencies and social and institutional structures were constituted and maintained by their underlying power relations and how these relations were further negotiated in the process of the evolution of these structures.

9.2 T-Mobile's innovation: creation of a new market and its constitutive continuities

As we saw in Chapter 2, in Huhtamo's (2004) terms, the genealogy of the mobile media and mobile Web in particular has been shaping up for centuries. When discussing the pre-histories of the digital mobile media Huhtamo emphasises the 'cultural desires' for such services and that media have been moulded through continuous processes of negotiation between cultural formations in different eras. In other words, such processes of dialogical practice have established shared 'horizons of expectations' (Jauss) with all their limits and pre-set conditions for the particular society. We saw how the desire for media has evolved in conjunction with the necessity and experience of mobility and how such traditional travel companions as books, newspapers and notebooks have, in the phenomenological sense, gradually been constituting the media that inject into our *umwelten* (Uexküll, 1957), an idea of distant otherness and an act of communication with this distant being, be it in time or space (Geser, 2005: 238). It could be argued that

these forms of communication paved the way for the perceived necessity and desire to browse news sites on the mobile screen when, for instance, on a commuter train.

In Chapter 2 how that desire was conventionalised over the course of the 20th century was discussed and shown to parallel the gradual development of mobile telephony and its associated industries. In its formative era as a niche market service the mobile telephone was, in the first place, a communications service without any indication of moving towards becoming a media platform. However, it utilised a network infrastructure, its main attribute was any-time connectivity and it was, effectively, an interactive device with a screen interface. It could be argued that it is no surprise that the parallel success of the fixed Internet and Web platform triggered the established cultural desire for portable media, in the hope of dislocating the successful media model into the mobile telephony context.

The paradox at the time was that, despite the similarities and relations between the mobile and fixed technologies, networks and industries, the differences and discontinuities between them were more influential. Since mobile networks and handset technologies were comparatively more limited at the time, the dislocation of the original Web was not a feasible option. At that first stage, the Web was being dislocated onto mobile not as a full medium, but as a model, a *topos*. The mobile telecommunications industry in the West started WAP that used the core principle of the Web – a system of interlinked hypertext documents that could be accessed via the Internet with a special browser (i.e., was 'remediated', translated generically, as a more or less abstract model of the original form or genre). But despite the intertextual relations, these two platforms were practically not interconnected. WAP, despite its many limits, was in many ways the 'mobile Web proper', independent of the 'regular Web' both institutionally and technologically as well as in terms of its forms. Standardised by the telecommunications industry body, it was technologically differentiated from the regular Web and was principally designed for the small devices that fitted into the pocket. At that stage it was set to become emancipated as a self-sustaining new media platform, together with its own distinguishable usage patterns, functionalities, representational conventions and media forms.

But the problem was its limitations as compared to the desktop Web and the fact that the meta-language created for its public consumption disregarded that difference. The promise 'Internet in your pocket' did not relate to the audience's reality. It was titled 'mobile Web', but the Web the users of the desktop Web had learned to know by that time was already colourful, audio-visual, cheap and quick. In Chapter 5 we

considered the view, widely shared in the industry, that since WAP did not meet the users' 'horizon of expectations' it failed, i.e., take-up was very small. And although its usage continued to increase, growth was slow and WAP remained a niche market.

In Chapter 5 we also examined the governance aspect specific to the WAP era. As its development was led by mobile operators, it continued to be largely under their control. This meant that the WAP platform was dominated by the operators' portals presented to users as premium data services. These portals were functioning as walled gardens – leaving these was restricted or hindered by high prices applied to 'off deck' browsing. This means that the operators were, effectively, the normative cores of the mobile content semiosphere in its WAP era. They established who could publish in their portals and on what terms, they set the norms for published material and they established the design norms for these portals as the cores of the mobile-specific textual space and thus as 'lead forms' for the mobile content. Furthermore, their pricing policy set limits for the sites outside their 'decks'. We saw the results of this in the examples such as Reuters' mobile site in Chapter 7, where users were warned of costs for downloading full stories and photographs.

The WAP pricing model hindered the further development of the platform since high prices suppressed usage, restricting the forms from evolving into anything more sophisticated and, in general, hindering the offering and development of mobile-specific content by independent content and service providers. The result was a poor offering on mobile, especially as compared to the flourishing Web domain to which the mobile Web was still intertextually connected. And this, again, continued to undermine the uptake of mobile data services, revenues from which were needed to recoup the investments in the new 3G networks. Hence, as we saw in Chapter 5, from the operators' perspective, the walled garden model was not deemed feasible and the need for disruption was in the air.

At first, in 2005, there was only one operator, T-Mobile, for whom that need was plausible. In this context it was noteworthy that the dialogic dynamic that enabled this realisation involved its engineers as part of a wider discourse community than that of their immediate company or telecommunications industry – that of the IT/Internet developers. This conditioned the dialogues between the two industries and their gradual convergence. Some of these engineers had started rather independently of their company's established course to work towards turning it from a mobile telecommunications company into an ISP – to enable the usage of full Web over the mobile networks. That is, when it comes to the convergence of the industries, the first

crossing of established boundaries took place on the level and in the language of 'technology'. Differences between the respective business models and institutional structures maintained the discontinuities between the two domains.

However, in parallel, we saw that one of the senior decision makers who was behind what was to become the disruptive change for the company said that he had entered the mobile domain from the media industry and had always believed that the open Internet model would be vital for the mobile media. This further transcending of the boundaries between the industries, effectively another dialogic act, is illustrative of the gradual emergence of the perception in the company, that the 'walled gardens' as unavoidably limited environments under unilateral control could not compete with the dynamic of the open dialogically controlled Web, its 'long tail'. Walled gardens were seen to lack relevance for the mass market. The answer was the re-actualisation of the conventional desire to dislocate established media onto the portable devices. Once the technical convergence had taken place it was realised that the Web, with its established usage patterns, audiences and enterprises, could be potentially simply dislocated onto the new platform. Therefore, T-Mobile abandoned its walled garden approach and its niche market and sought to exploit the mass market.

What followed was a convergence of two domains on all levels. On the object-language level, the technology was developed to enable presenting and viewing the full HTML sites on the mobile screens. The aim was to maintain strong continuities with the original designs of these sites. On the level of meta-codes, first, the price structure was matched to the conventional pricing models of the desktop Web and, second, in advertising and other marketing, the sameness of the two platforms was industriously communicated – to convince the users that there was continuity in the experience and that the dislocated medium would meet their 'horizons of expectations'.

In parallel, the systemic convergence of the mobile telecommunications and Web industries also took place. In Chapter 6 we saw how the normative institutions of the Web (W3C) and WAP (OMA) domains gradually cooperated and integrated at an intensifying pace. We also recognised how a swap appeared to take place in the self-identified genealogies of the mobile industry, its 'memory fields' in Foucault's terms. The historical narratives that were positively valued in the discourses were not about the experiences with the WAP as an independent content domain, but stories from the history of the Web. This recalls dialogues and convergence and the changing focus of the mobile industry's identity – the space from which to pick positive experiences to be re-enacted was wider. The fact that the narrative material for re-articulating and re-

building the 'own-domain' was borrowed suggests the greater authority of that other domain with which the mobile industry was merging.

The latter aspect – the attributes of one domain being dislocated into a new one – characterises the disruption T-Mobile's move created for the firms and markets, the established division between different media and the representational forms of these media. It is important to recognise that one of the aims of T-Mobile was to offer a USP, to create a disruption in the market – which it achieved. But also significant is the dynamic that enabled it. In Chapter 3 it was suggested that innovations are conditioned by individual sub-systems evolving gradually at their own pace – some slower, some faster – until the communicative event between them takes place that injects new information into the receiving system. In T-Mobile's case the technological sub-system was working towards its self-set goals, while the business sub-system was making the best of its walled garden model. Once the potential of the new technological capabilities was perceived by the business system, the basis was established for innovation proper – the dislocation of a different medium onto a new platform and the disruption in the meta-codes for that platform. In fact, one has been shown to have presumed the other: in addition to technical enabling of viewing the full websites on mobiles, the dislocating of a medium to a different environment meant constituting it in meta-discourses. It was named like it: 'real Internet on your mobile'. It was valued like it: similarly priced. And it was made to look like it: the use of Internet-specific brands like Google or eBay together with the use of established website design conventions on the service's front page and, with the general meta-communication in advertising and other marketing activities, these were used to convince the users that their experience of the dislocated medium corresponded to their established 'horizon of expectations'. In other words, the innovation in the medium and the innovation in its meta-discourses were not only parallel developments, but were the same since they had to be the same.

In Chapter 3 we observed, drawing on Lotman (1990: 137), that 'textual innovation' is the situation where 'the texts of one genre invade the space of another genre' and when 'the principles of one genre are restructured according to the laws of another'. This is what seems to have happened when the Web was being dislocated onto mobile phones – it restructured the norms of the receiving environment, but was also restructured by that new environment (as we will see below). We have the dislocation of the rules and norms of one domain into another – the technologies of the desktop Web, its economic models, its content and its forms together with their audiences were all dislodged to a new space. At the same time, in terms of Schumpeter's (1934) definitions

for economic innovation, this qualifies as a creation of a new good (Web connectivity on mobiles) and as the creation of a new market. That is, by merging the two existing content domains the result was a new market – the now increasingly ubiquitous Web, a new continuity and a space for business where many wanted to and could participate.

Lastly, as observed in Chapter 6, once the evolution of this new and extended market was conditioned by operators, other kinds of players saw opportunities in the 'One Web' vision and joined in to further reinforce it. For instance, the browser vendors were developing their agendas of becoming the indispensable 'translating cores' of the ubiquitous Web. By the time of the study, it was these firms that had become in many regards the main drivers of the convergence of the two Webs. First Opera, later S60 and iPhone's Safari, were celebrated for making Web browsing on mobiles an attractive proposition and the realisation of the 'One Web' vision a realistic goal. Altogether we can recognise the formation of a new sub-system within the industry which I have named 'infrastructure enablers', who aimed to capitalise on the new continuities between the two domains and worked towards advancing those continuities – since a scenario of market re-fragmentation, associated with emancipation of different access platforms, would have not been in their immediate interests.

As we observed, that conditioning took place on many 'levels' and 'languages'. In Chapter 2 we saw how many of the developments were conditioned by the infrastructure companies who devised the air interface standards of 3G networks with the aim of enabling the ultimate 'fixed-mobile convergence', including the data and Internet services. As demonstrated by this study, once network convergence was arrived at, it was followed by the processes of convergence on the level of mark-up codes as 'object-languages' together with the corresponding convergence on the level of the institutionalised communities who 'spoke' these languages and had the power to codify them. The homogenisation of technologies was parallelled by the increasing dialogical activity between the normative cores of the telecommunications and Web domains – W3C and OMA, their gradual convergence and harmonised normative activities. Taken together, there is substantial evidence of interdependencies between the emergence of continuities on the levels of different object- and meta-languages and between their respective institutions – in aggregate constituting the emergence of a new industry sub-system, that of 'infrastructure enablers' destined to frame and design the mobile Web in a certain way and to set it on a specific evolutionary path.

9.3 Material circumstances of media effecting the emergence of discontinuities

My analysis also demonstrates, however, that there were 'languages' and institutions that resisted that co-evolution and convergence. We saw how W3C was aiming to establish similar continuities in the design of Web-media content – how content is presented on different access platforms. To achieve this goal it started to work towards new meta-languages, MWBP that were to set the norms for designing 'device-agnostic' Web content – displayable with continuity on all platforms and screens. However, as interviewees who participated in creating these norms themselves admitted, these did not focus on the existing limits of the technologies (i.e., of the particular materiality of media, of 'the stuff' that media is made of, in Eco's terms). As these norms were said to be designed to be 'future-proof', they focused on these futures and ignored the existing contexts, the 'real circumstances' on different platforms. Despite the convergence in software codes and related technical standards with regard to the physical parameters of various access devices (their technical capabilities, differences in input interfaces, etc.), discontinuities remained not only between mobile phones and desktop computers, but also between different classes of portable devices. In this context, the norms aiming to be 'future-proof' but disregarding existing 'lowest common denominators' appeared to be too idealist and impractical for the 'real developers' of mobile Web content. In Lotman's terms, this might suggest that the idealist norms discounted the 'actual semiotic milieu' and were bound to meet resistance.

And resistance came – in Chapters 6 and 8 we saw how the various industry sub-systems, be they 'mobile developers', 'mobile designers' or 'content providers', countered the suggested norms for design continuity by arguing that the standardisers did not 'understand design' or the 'actual practices' of mobile content development. The implied assumption was that the opponents emanated from the 'real circumstances', they were 'close to the object' in Foucault's terms, were aware of the practicalities of their craft and of the limits of various access platforms. In this context, it is perhaps unsurprising that 'content adaptation', a different code of conduct and a way to develop mobile Web content, an alternative to the guidelines of W3C and associated initiatives, emerged from the industrial periphery of independent content and service developers (as we saw in Chapter 6). They perceived the material differences between different platforms to presuppose discontinuities in media forms and came up with a method (or a technology) to effect these discontinuities – to 'adapt' content to the 'delivery context', taking into account the particularities of the access device, its screen size, its browser

type, its input interface and other qualities that might be critical for providing what was perceived as an adequate user experience[32].

The different material form of mobile devices (small and portable) was related to another set of motivations and statements as to why the forms of the mobile and desktop access platforms should diverge. These were the statements arguing that, as the uses and the functionality of the mobile platform were to be different, so also should be the dedicated forms of its media. In Chapter 8 we saw how content providers shared the discourse that when 'on the go' Web users would have different motivations for use than when at a desk. There were different groups of justifications for such differing motivations – either mobile gratifying immediate and practical information needs, or being used to overcome boredom, or being used as a private node of access to the Web. The interviewees from the media industry proposed that such differing motivations and uses were intended to induce more targeted and, hence, diverging forms of content and, therefore, eventually, emancipation of the mobile platform. With its meta-discourses on the genre divide and lead forms of mobile content, the content industry had taken the course towards such emancipation (see Chapter 8). As recognised in Chapter 5, this scenario was also not alien to the operators and was visible in their discourses on future agendas. Although T-Mobile's immediate agenda was to create credible continuity with the desktop-optimised Web and to capitalise on its established usage patterns, the interviewees admitted they were ready for these uses to diverge and become medium-specific. They were ready to accommodate these potentially differing uses into their meta-discourses about this medium. That is, they were ready to codify the disparity and to normatively differentiate the platforms. We can infer that the perceived differences in the usage of the access platform were emerging as another set of motivators for discontinuity and the divergence of the mobile platform into an independent medium.

After realising all these ways that the 'materiality' of the mobile access platform to the Web was starting to affect the emergence of emancipating new media forms, we can consider this in the light of the conceptual framework outlined in Chapter 3. We should realise that either prompt or gradual redesign and customisation of the dislocated media text or form because, for instance, of the different material circumstances of its

[32] It should be noted that the notion of 'user experience' emerges as an important rhetorical device in the associated discourse. While 'infrastructure enablers' used the assumed preferences of users as an argument for converging the two content domains, content and service providers used the users' assumed need for quality experience to justify their own strategy. In this situation the 'user' was both an argumentative device as well as an addressee in the discursive struggle that referred to the power struggle over who can control the design of the media and its forms (the dynamics of this struggle are discussed in more detail below).

new environment, is, effectively, what characterises generic media innovations. Although there was work towards converging mobile and desktop technologies, still, at that stage, the first was less developed and the actual physical form of mobile devices was different (because of their portable functionality). Hence, the dislocation of the Web-media forms to the mobile platform was a challenge that motivated its 'restructuring by the receiving genre' in Lotman's terms. The forms of the desktop Web had to be accommodated on the new platform, both with its limits as well as with its emerging new capabilities. At first such accommodation often took place in an automated way – by the new browsers and by the purposefully developed 'transcoders'. This suggests the relative immaturity of the new platform – its own new 'grammars', i.e., detailed norms of such translations had not evolved. In Lotman's terms, the mobile Web was still in the phase of 'textual culture', where texts were dislocated to a new environment as more or less whole units. Such automated translation, however, suggests the paradoxical nature of the balance between continuity and discontinuity of the platforms. We have websites re-rendered and increasingly fine-tuned for their new usage circumstances – referring to the emergence of gradually legitimising discontinuities between the platforms. At the same time, as stated above, the automatisation of such translation maintained the continuities and the use of the same 'proto-text' established limits for its effective re-rendering on the mobile.

However, in Chapters 6 and 8 we saw that content providers, increasingly aware of the imperfection of such transcoders and browsers, were even more motivated to take control of their mobile output. Specifically developed mobile websites started to flourish. At that historical moment, however, it was important that these efforts to develop medium-specific forms could rely on the already existing tradition of WAP design. In Chapter 7 we learned about a few such 'own conventions' that had become characteristic of the domain. For instance, in the example of Canada.com we saw how the 'conventional form' of the website or the hypertext document had mutated on the mobile platform to become exceedingly meta-communicative on its own structure. This may have been due to the 'material' nature and economic governance of the medium – its small screen, slow networks and expensive data transmission. These conditioned the minimal design and the compositional focus on the precise overview of the enrolling interactive narrative. Another example was the link set at the bottom of the page – this and the meta-communicative tree structure of Canada.com were both emergent medium-specific forms that appeared to be conditioned by the material circumstances of the new platform to which they were dislocated. That is, the receiving genre

restructured the 'invading genres' and the outcomes were media innovations, new forms with a potential to become medium-specific conventions.

9.4 Conventionalisation untying the path-dependencies

However, when it comes to 'intentional mobile design' – websites specifically designed for mobile access – we should still acknowledge the other side of such innovations – their ever-persistent intertextual relations with the rest of the culture, with the forms they continued to remediate. For instance, Canada.com's compositional focus on browsing along its tree structure was emerging as an effective medium-specific solution, but at the same time, it was also one of the oldest HCI conventions and continued to effect the intertextual relations with this history and its kin on other platforms. Similar too were many other examples discussed in Chapter 7; for instance, Eurosport and its use of photographs, which we recognised as a genre remediation. Although it was an optimised mobile site, the remediation of specific conventions of sports news genre maintained intertextual continuities between different media and platforms. Similarly, the mobile sites of Deutsche Welle, *USA Today* and *The Onion* can be seen to have been remediating the conventional form of a Web newspaper. Although these sites as remediated forms were heavily optimised for the mobile platform, the structural essence of the form remained quite similar. It could be suggested that as these mobile editions were recycling for the most part the material originally developed for desktop output, this motivated the similar presentation and structure of the mobile site. The result – the remediation of the journalistic website as a distinct genre and a form on a new platform – could be also understood, in the light of the conceptual framework outlined in Chapter 3, as a path-dependent process.

In this context, we should recall the insight arrived at in Chapter 8 – the historical specificity of the emergence of the mobile Web was path-dependent on the desktop Web. The majority of its new (Western) audiences were familiar with the desktop Web, competent with it and had established their 'horizons of expectations' (Jauss) for such interactive and networked services based on their experience of the fixed Web. That the new mobile audience was "a lot smarter than the early adopter of the desktop Web" (#17) was seen to streamline the mobile development, but also set it onto a well-established path. As I proposed in Chapter 3, based on Lundgren (1991: 70-1): learning as a mass phenomenon is unavoidably a slow process that hinders revolutionary changes in established systems. With end user products, such as the

majority of media content, knowledge and skills emerge as crucial sources of positive feedback that may lead a system into path-dependency. Relatedly, to meet the expectations and interpretative capabilities of the users, the developers of the new mobile content forms were careful to maintain intertextual continuities with the preceding forms familiar to users from the desktop Web. This could be understood as being effected by the 'historical lock-in', where the comprehensively codified and, hence, well-conventionalised (i.e., conventions being recognised by wide audiences) parent-medium motivates the early development of the offspring-medium along a set (already conventionalised) pathway.

Related to this was the practice of content providers, not to create new brands and not to re-brand their existing services for the mobile platform (see Chapter 8). Instead, the mainstream strategy was to enable access to the brands their customers were already accustomed to in the desktop Web – again, creating continuities between the two. Hence, it could be suggested that it was not accidental that nearly all of the mobile sites in my corpus were mobile-optimised editions of various desktop sites. In such a tendency, in addition to the need to respond to an audience's expectations, the established institutional legacies also appeared to play an important role. The usage of content management systems for automated recycling of desktop content for mobile access, similarly structured sites and the avoidance of re-branding and creating new brands are all implications of institutional reactions to the secondary status of the mobile access platform at the time. We saw this, first, in the BBC's mobile site (see Chapter 7) and it was confirmed in Chapter 8 when interviewee #4 from the BBC acknowledged that their mobile editions did not receive much editorial attention. They were marginal in terms of audience contact and, hence, the BBC was avoiding investing too many resources in them. The media institutions that were providing optimised content for both access platforms were, in reality, mostly focusing on the output for the desktop – that therefore had the status of a primary or a parent platform for networked hypermedia. The desktop Web with its audience contacts was an established medium and market. But the nascent mobile platform, despite its increasing take-up, was at that point receiving limited attention from the content-producing enterprises. That is, the institutional legacies of these enterprises served to maintain the dependency of the mobile Web on its 'parent platform'.

The limited attention given to the mobile access platform could also be seen as a reason for the scarcity of its specific conventions and its limited representational means in general. We saw in Chapter 7 how the BBC's desktop site had developed a function

of being a 'meta-medium' with regard to all its other outputs. The mobile website, at the same time, lacked the presentational conventions for obtaining a similar role. Related to this was the general tendency of how the advertising banners as a form were dislocated to mobile sites – these practices were relatively unsystematic and not adapted effectively to the mobile specifics. This may have been due to the small take-up of mobile surfing and hence the relatively small size of the market – i.e., little money was to be made from mobile advertising which may explain the lack of attention to its representational forms and hence also the differing best practices as compared to the desktop Web. The result was that the new forms and innovations were not evolving and the general 'grammaticalisation' of this particular sub-domain was not taking place. The mobile Web and its advertising sub-domain continued to be a 'textual culture' in Lotman's (1977a) terms, where the new texts were created by copying others as the detailed 'grammars' for generating new texts had not yet evolved. Or, in the terms of Kress and van Leeuwen (2001), the mobile Web at that point had not evolved from a 'distribution medium' into a 'production medium'. It might already have been in its 'adaptation phase', but not in its 'synthesis phase' – the generation of original medium-specific texts was not a widespread practice. This state of affairs was evident when I asked my interviewees about their perceptions on the existing genre divides (see Chapter 8). They were rather perplexed by this question and their disparate responses suggest that the meta-norms for this domain were immature.

However, the apparently secondary status of the mobile platform and the institutional continuities in practices that reproduced that status were running into problems. The outcome of the automated recycling of desktop content for the mobile platform resulted, among other things, in the long column of text as a distinctly era-specific phenomenon (see Chapter 7). This was apparently motivated by a need to fit texts developed for desktop usage onto small mobile screens and it can be understood as a negative outcome of a path-dependent process (i.e., of a locked-in configuration, in David's terms). The content production institutions were self-configured to enframe and output content for desktop access as that was the conventionalised form, standardised platform and a functional market. The mobile platform at the time lacked most of these attributes. The particular, historically circumstantial, mesh of established conventions, standards, institutional legacies and market conditions (all interdependent with each other) can be seen as locking in the Web output of mainstream media producers to be designed predominantly for desktop devices and subsequently re-rendered, in one way or another, for mobile devices.

From the perspective of the mobile output, however, this can be understood as an unfortunate path-dependency – in Chapter 8 we learned in many instances how the emergence of the 'long column' was being repented, and there was a need for shorter stories, specifically written for the mobile platform. This indicates that there was some impetus for remaking their selections in Luhmann's terms, and shaking free of the existing path. In this regard one can suggest the 'external force' in David's (2000) terms, or the accelerating diffusion of an innovation ('third selection environment') in Dolfsma and Leydesdorff's (2009) terms, that is needed for such unbinding – in our case it was the increasing take-up of mobile data services and the related promise of the new market, the hope articulated by many of the interviewees that the development of the mobile Web would copy the success of the 'regular Web', only faster and bigger. The expectation shared across the industry was that the mobile Web, although a peripheral practice, form and norm, had the potential to become the new core that would rewrite the rules of the industry. However, only a few of those interviewed were preparing for that hoped-for-future – they had started hiring new staff to create dedicated content and were taking the first steps towards creating new medium-specific output. However, the interviewees representing content providers indicated that they were taking care to avoid innovating too audaciously. Despite the predicted future growth, there were only a few signs of a will to take risks. Instead, they were developing their services in step with the take-up of mobile Web by users and with the related evolution of the mobile content market. This phenomenon corresponds to my argument in Chapter 3 about how the co-evolution of different systems – audiences, productive systems, representational conventions, technologies, their different standards, norms and meta-codes – on the one hand, effects change in the media system, but, on the other, creates a balancing mechanism whereby none of these sub-systems can ultimately shake completely free of the others – the functioning of the parts is contingent on the functioning of the whole (Lundgren, 1991: 70-1). The result, therefore, is a feasibly paced evolution of media and its forms.

That phenomenon is also reflected in the analysis of the genre divisions (see Chapter 8). There were two tendencies – first, the remediation of the established content categories, such as 'News', 'Sport' or 'Entertainment', from other media; and, second, the emergence of new medium-specific categories such as 'location-specific' or 'on-the-go' services. However, in the characterisations of the suggested categories we recognised a normative and wished-for 'synthesis' of older and newer forms, evidencing the motivation to keep the new connected to the old (to the context needed

for sense making) and innovations needing a history (a preceding form that is then innovated and a context that defines the innovation). These phenomena can be related to my definition of textual and media innovation – (rhetorical) constellations of dislocated forms to a new context where they have the potential to obtain new meanings and functions for signifying and communication. If that potential is recognised by wider publics and the productive culture, the new form may evolve into an established convention. The fact that some of these solutions had obtained recognition in the discourses of the productive communities (i.e., they were recognised as content categories) and that in particular the kind of solutions that were built to effectively utilise the new capabilities of the mobile platform were taken as examples by the same communities (see Chapter 8) refers to that potential of conventionalisation taking place. In addition, as the take-up of the mobile data services increased, the attention to the mobile Web output in media institutions also appeared to intensify – the executives in the sample of institutions were increasingly concerned about their employees' awareness of the mobile output, some of the companies were planning to hire dedicated staff members, etc. That is, there was the promise for the practices, institutional structures and its meta-norms evolving, conventionalising and emancipating hand-in-hand, as suggested in Chapter 3.

The signs of early conventionalisation and the related institutional emancipation (see Chapters 7 and 8) can be understood as a gradual setting of a diverging and independent path. The literature on path-dependency often suggests the need for a system-wide crisis or a significant disruption to enable a sub-system to shake free of historical lock-in. However, the analysis of the early mobile Web points to a different (potential) scenario – a co-evolution of different, but interdependent sub-systems, whereby the developmental direction is set in their dialogues, in the process of dialogical control. In case of the mobile Web, content providers were interested in moving towards the emancipation of the forms of the mobile Web, but success depended on their power to conventionalise and codify the emergent new forms. This analytical evidence helps us to re-theorise the path-dependency concept in the specific context of media evolution. In Chapter 3 we discussed how, for instance, Manovich (2001) sees the evolution of media taking place in two main stages – a first period when it quickly evolves and transforms and a second when it continues to exist without going through any major changes. I discussed this in the light of Lotman's division into 'textually oriented' and 'grammatically oriented' cultures, showing that proceeding from the first to the second depends on the development of normative grammars and

meta-discourses in that particular cultural domain. The 'textually oriented' culture was characterised by its focus on copying the existing texts while the 'grammatical' culture had developed its own norms and can produce new texts based on these rules. That is, the 'grammatical culture' can be seen to be relatively emancipated from earlier systems. Therefore, the new media platform that has been self-codified, and hence, conventionalised and emancipated, can be understood to have been shaken free of its historical lock-in, i.e., its dependence of its predecessors. The mobile Web that was developing its own genre categories can be understood to have been on a route towards untying itself from the path on which it was set by its parent-medium.

9.5 Multidimensional power struggles and parallel movements towards continuities and discontinuities

The step-by-step evolution of the mobile Web and its forms can also be understood to be affected by the power relations between different divisions in the industry. To address the power dynamic that appears to have conditioned the development of early mobile Web we begin with the motivations that led T-Mobile to launch Web'n'Walk and to open the mobile platform to unrestricted and unlimited Web browsing. The fact that it opened its WAP-based walled garden and created continuities with the Web can be interpreted in different ways. On the one hand, it opened its unilaterally governed content domain to dialogical control that could be understood as an enlightened recognition of the virtues of cooperation. On the other hand, it may have done so because the existing model of governance was not economically feasible, failing especially in comparison with the Web. Thus, the decision to merge the domains into one was the outcome of dialogical control where one party wanted to benefit from the established market and the other wanted to extend it to the yet unconquered domain.

We should also recognise how the initial outcome of that dynamic – the potential for the new medium and a market – effected many of the associated developments. For instance, in the early stages of Web'n'Walk T-Mobile was in intense dialogue with Opera to develop solutions to enable full Web browsing on mobile devices. As recognised by T-Mobile's interviewees, the mobile browser vendors were generally not ready to enable Web browsing and T-Mobile saw itself as a pathbreaker in terms of creating the first meta-norms for the Web on the phones and in pushing the vendors to meet these. However, these norms continued to evolve via dialogic interrelationships between T-Mobile and different handset and browser vendors. When other operators started to follow T-Mobile's flat fee strategy this became a further

motivator for browser vendors to focus on enabling better Web-surfing experience on mobile devices. When we add to this how T-Mobile's interviewees themselves admitted being in their decisions and strategies dependent on the new handsets and network technologies, it suggests a very complex set of dialogic interrelations, phenomena of control and counter-control, that appeared to be conditioning the early evolution of the platform.

However, when it comes to how exactly the Web as a particular form was dislocated to the mobile platform, the underlining power relations emerged as less cooperative and more confrontational – driven by the particular interests and legacies of the engaged enterprises and industry sub-systems. T-Mobile, despite being in relation to the Web a receiving party, appeared to be willing to receive it only on their own terms – they started to design and re-design its forms and appearances and in this way to gain control over the way the Web was being extended to their domain. The first indication of this gradually mounting tendency was the way T-Mobile, with its new ACS and with its justifying discourses, started to balance between the needs to optimise the forms of the Web to the circumstances of the mobile platform and to maintain the continuities with the original shape of these forms. Especially interesting was how that difficult balancing remained mainly unarticulated by the interviewees. On the one hand, this may suggest their relative unawareness or ignorance of that central conflict of this early era, but, on the other, it may also suggest that their right to redesign the existing Web content was seen as 'natural' – it did not need justification. And even if it was, inexplicitly, justified, then the dominant argument was significant – enabling a good user experience. However, when analysing the work of Opera SSR as one of the early transcoders we saw that the re-rendered Yahoo! Movies site was potentially challenging for users as interpreters to untangle (see Chapter 7). This suggests that users and their needs were used as a rhetorical device to justify and legitimate the speakers' long-term strategies.

What followed was the emergence of a variety of such transcoding engines at all possible levels and interfaces with the mobile Web – operators deployed their own, browser vendors developed theirs, search engines set up further ones (see Chapter 6). New companies emerged that started to develop specified transcoding solutions for all kinds of service providers. The algorithmic *post factum* redesign started to emerge as an industry norm. As revealed by interviewees from Opera, their apparent agenda and that of similar software vendors was to turn their browsers and engines into the 'translating cores' of the multiplatform Web. This can be understood as a strategy to make

themselves indispensable for the functioning of the emerging ubiquitous Web. As the technological convergence was creating enabling continuities between different platforms, their positions as creators and controllers of that technology were expected to give them the power to establish various norms for the mobile Web. This holds especially for design norms, as it was to be their algorithms that were to determine how the designs were to be re-rendered and optimised for various platforms and individual devices. Using users and the promise of a better experience as the justification for their role, the operators and various browser and transcoder vendors were trying to claim the right to determine the designs and forms of the Web-media. That meant seizing the initiative from the content providers – an aspect that makes this particular media change historically distinctive.

In this context we need to identify the whole of that new system which was aiming to claim the power to determine the design. It did not consist only of operators and mobile-oriented software vendors, but of all players that were working towards making the Web truly multiplatform and ubiquitous – i.e., towards realising the 'One Web' vision articulated by W3C. This was the process highlighted at the beginning of this chapter – that the gradual systemic convergence between the traditional mobile telecommunications and Web industries was triggered by their ambition to merge their respective markets. The aim was to extend the technological continuity that enabled the Web as a marketplace for goods and services. However, significant in this context was exactly the belief that this goal could be achieved by technical means, for instance, by harmonising software codes (see Chapter 6). This appeared to be the core agenda of W3C and as we learned from the statements made by T-Mobile's interviewees, the IP was perceived to be the ultimate driver of the convergence. Similar was the stated vision that if one of the transcoders (as suggested, the Nokia S60 browser) emerged as a standard, most of industry's troubles would be over. All this suggests the emergence of a mesh of systems, consisting of the converging telecommunications and Web enterprises (the 'infrastructure enablers') that were aiming to converge the technological systems in order to gain control over the new domain, over its media forms and over the code of conduct for cross-platform publishing. This means that technology, chiefly the software code, was being used as an instrument of power – as a means to enframe and organise the evolving ubiquitous Web, conveniently for its designing sub-system.

This power did not, however, go uncontested. It should be noted that despite the questionable quality of the re-rendered websites there was no evidence of content providers voicing their protest at the time. The mere fact that their websites were being

accessed from mobiles must have been gratifying for them. However, as identified in Chapter 8, there was a mounting tendency by content providers, being scared of the poor quality of automatically re-rendered websites, to be increasingly motivated to output mobile-optimised content. This practice may be understood as a tacit counter-action to the conduct of the 'infrastructure enablers' and as silent disapproval of the design they were favouring for the device-agnostic Web of the future. Indicative of a structural divide in the industry was that these steps were either ignored or not noted by the infrastructure enablers, as identified in Chapter 5.

The opposition of content providers became more articulate and vocal once W3C, instead of working towards enabling technological continuities, started working towards establishing standards for the website design in the projected device-agnostic 'One Web'. In Chapter 3 it was suggested that power relations emerge in 'languages' and, hence, in different language systems these relations may be different. When W3C was standardising continuities in software code there was no evidence of resistance as this effectively supported the interests of the content and service providers, enabling them to 'create once and publish everywhere', or at least to do this more easily technically. But once W3C started to regulate the presentational standards of the Web, opposition mounted. Content and service providers resisted the proposed 'generic design' for all devices as this would have meant leaving their content effectively 'undesigned' and ceding the power to determine the eventual design of their products to other parties such as browser and transcoder vendors. The content providers wanted to keep that power to themselves, to decide what content and in what form to deliver in what circumstances and to what platform. This meant nothing less than claiming the right to establish discontinuities between the various access platforms. In the context of the merging telecommunications and Web industries working towards the 'One Web' vision, the content and service providers emerged as a counter-culture of a kind. It was not insignificant that the solutions for the content adaptation emerged not in the industry core, but at the periphery – being developed either by communities of independent mobile developers or by small companies on the margins of the industry. Emerging out of the 'actual needs' of the service and content developers and finding wide take-up among their colleagues, the content adaptation for different access devices evolved as another new technology, a code of conduct and a structuring principle for the Web-media with a potential to develop into a new industry convention.

As demonstrated in Chapter 6, these two conflicting views and strategies collided on the negotiation desks of W3C MWI. It should be noted that there were no

real media institutions participating in that work, but there were people who were representing independent developers (for instance, interviewee #33), also the governing body for the mobile specific Web (dotMobi) and companies directly in dialogue with content providers in the market (Volantis). In roundabout ways the needs and views of the content providers reached the standardisation process, influencing the dynamically changing conceptualisation of the 'One Web'. The solution to the conflict emerging at the time was a new understanding that the 'One Web' could mean continuities in the technological code, that content accessible from the same URL by different devices should stay 'thematically the same', but when it came to the forms of the media, i.e., how content was to be presented, the discontinuities between the access platforms were increasingly legitimated. In other words, the dialogical process between the different industry sub-systems yielded standards that were to condition the divergence in the media forms.

However, related conflict and power struggles were far from being over. W3C continued to promote its MWBP (its design norms for the device-agnostic Web), its MobileOK trustmark and its MobileOK checkers – all in order to make its favoured design guidelines an industry standard. However, as these did not suit the interests of many of the Web content and service developers, 'local' codes of practice and design started to emerge – many of the interviewees from various media institutions acknowledged developing their own. Significant in this context was the wave of protest that swept through the content and service industries in 2008. The cause for the protests was the conduct of some of the transcoders deployed by a few of the biggest European operators. These transcoders failed to tell the difference between the desktop websites and made-for-mobile sites and re-rendered both according to their own algorithms. The fact that the content and service industry reacted and eventually forced the transcoders to change their practices confirms my suggestion that the content providers were determined to fight for the power to determine the form of their media content and that these struggles were not over – the medium was still in its early days and still an object of power struggles over its design and codes of conduct.

Overall, there was a whole mesh of power struggles taking place in the core of standardisation initiatives, at different 'sites' of the industry and among different players, that had a bearing on the early evolution of the mobile Web as a media platform. The early stage, the unsettledness of the underlying dynamic was evidenced, among other phenomena, by the relative inarticulateness (or rather vague articulations) of the conflicts. This was visible in the analysis of the standards documents of W3C

(Chapter 6) and in the statements made by interviewees. T-Mobile's employees noted the need to move toward the conflicting objectives of content optimisation and maintaining the continuities with the original forms (see Chapter 5). In Chapter 8 we recognised the same unarticulated conflict in statements by interviewees from the BBC and Volantis. This suggests the relatively dim awareness among the people in the industry of this and related conflicts and dilemmas of the time – associated with the dynamic changes in the strategies of the participating players. Alliances were changing, scenarios for the further development of the domain were manifold and the participants in this dynamic observing the environment would not always be aware of the conflicts between different strategies or scenarios. The domain was unsettled, and so were the meta-discourses on its constituting conflicts.

However, despite the fact that alliances were undergoing change and there was much ambiguity, there is evidence of two major constituent industry sub-systems when it came to creating continuities or discontinuities between the two main access platforms to the Web – the 'infrastructure enablers' and the content industries. The formation of these groupings, their differences and power struggles, have been shown to be related to their systemic path-dependencies. The pursuits of these sub-systems resulted in the developments toward both of their respective aims – we recognised a parallelled creation of continuities and discontinuities within the disputed domain. This observation can be associated with Lotman's insight, discussed in Chapter 3, that there are concurrent centrifugal and centripetal movements in culture, that unity and plurality presume each other and that there are always parallel movements towards both of these. However, in the present case, we have traced some of the reasons for these parallel, but incompatible, developments. To explain, we recognise two concurrent, but conflicting scenarios being pursued in that early era of the medium's development. First, we have the systemic convergence of industries and homogenising normative modelling conducted by the infrastructure enablers, in Peirce's terms, deductively from a distance, on the industry's meta-level. But we also have the divergence within the established industries of media content production and the emergence of new structures – we realised how the content producers were ready to fragment themselves, to allow gradual institutional divergence within their boundaries. They did that in order to retain the power to determine the forms of the media content. It was perceived that new structures that would stay 'closer' to the object-languages would be responsive to their actual circumstantial differences on different platforms and would therefore model more adequate and hence more powerful meta-norms, 'grammars', for their governance, in

that the meta-norms for the governed media – the content adaptation technique and similar principles – could be understood to have been emerging inductively, from immediate contacts with the governed objects, from their modelling in their contextual and circumstantial particularities. In all this we can see, once again, the parallel centrifugal and centripetal dynamics of cultural evolution, as we have both, the drive towards unity as well as plurality in the domain of Web content and its representational forms.

9.6 Conclusion

The original research question for this study asked, what are the dynamics that underlie the creation, evolution and conventionalisation of new media forms? Empirically, the study focused on a case study – the early evolution of the 'open mobile Web' and its new media forms. However, it is not so much the mobile Web as a bounded textual space, but the change in its isomorphic relations with its super-system, with the 'Web-semiosphere', that has been of interest. The focus has been on changes in the social formations that I identified to have been involved in enframing these relations and setting the boundaries between the different textual spaces.

The first instance of change that was addressed was a decision by a particular mobile operator, T-Mobile, to abandon the then prevailing (but also failing) business model for governing the mobile Web and to enable its subscribers unrestricted access to and virtually unlimited browsing of the 'regular Web' from the mobile devices. In practice, what emerged was an attempt to merge the formerly discrete textual spaces of the WAP and Web. I have suggested that the main motivation for this development was the will of various 'infrastructure enablers' either to gain access to, or simply to extend, the realm of the Web as an established and successful marketplace for goods and services. To enable the effective functioning of that market they had to safeguard its constitutive continuities. The main means to do that, the instrument of power to organise the domain in a convenient way, was perceived to be the technology. The first instance of such enframing was the convergence of the software codes of the two platforms, and the second was the development of algorithms for all the possible interfaces within the Web-semiosphere that were to automatically translate the forms of Web content for its different access platforms. I suggested that with such conditioning of the new ubiquitous and device-agnostic Web, the 'infrastructure enablers' were to claim the power to universally determine the forms of the Web content – what and how

it is delivered to the users of this medium on different access platforms.

I suggest that this claim constituted the central conflict that continued to influence the further evolution of the ubiquitous Web. The service and content providers were keen to retain the power to determine the forms of media in different 'delivery contexts'. They were not interested in the ultimate and uncompromised continuity of the Web, but in the differences between its various access arrangements and in the ways to utilise these differences to the maximum extent to create disruptive media products. The content providers constituted, in effect, a counter-power, determined to generate variety in the textual space of the ubiquitous Web and, especially, to effect discontinuities between its then two major access platforms.

The analysis also demonstrates how the emergence of such discontinuities can be associated with both the institutional as well as the textual untying of the mobile Web from the path established by the desktop Web as its 'parent-medium'. We recognised that such a process of shaking free from the 'historical lock-in' is in the case of mass media industries and products usually not a revolutionary but, rather, an evolutionary process – depending on changes in the interpretative and productive skills of the communities that use or design these media. Only in step with the take-up of the mobile platform was the media industry ready to remake its constitutive selections, to offer new medium-specific forms and content, to codify its related practices and to allow the emergence of new institutional formations. We saw the initial signs of such self-codification and grammaticalisation of new textual forms that suggested, potentially, the emancipation of the platform from its existing path.

A process of co-evolution of the sub-systems engaged in designing the Web-media has been exposed. This resulted both in their convergence as well divergence, wherein one was presuming and affecting the other. Convergence was pursued by some agents to overcome the existing discontinuities; divergence was pursued by others to overcome the circumstantial ineptitude of the homogenising codes. However, we should not only recognise the apparently universal principles of the media evolution evidenced by this study, but also, as emphasised by Kittler and Zielinski (as highlighted in Chapter 3), the historical uniqueness of these developments. The first aspect of such historical specificity is the comparatively strong path-dependency of both the institutional structures and the perceived expectations of the (Western) audiences that conditioned the early evolution of this media platform. One reason for this was its birth in the industry core – it was designed, controlled and commodified from its start in the example of the desktop Web by the telecommunications and Web industries. And,

hence, in contrast to the early Web, it lacked an early period of comparatively 'free' and independent evolution in the industries' peripheries. Instead, it was an object of power struggles between various sub-formations within the core of the established global media and communications industries. Nevertheless, this study revealed the first signs of, or at least the potential for, the mobile Web-media forms emancipating from the parent platform. The analysis bears witness to the early evolution of the previously single-platform Web into a ubiquitous and platform-agnostic textual space. It points to the historical emergence of the new constitutive tension in the media and communications industries over who can control content delivery to the various access platforms of the Web and, subsequently, have an upper hand in determining what is delivered and in what form in its various 'delivery contexts', that is, over who can define the extent and nature of the continuities and discontinuities between different access platforms to the Web content.

10 Conclusion

10.1 Introduction

This chapter first returns to the motivational agenda of the study and relates this to the conceptual framework developed in Chapter 3. In the following the empirical findings are summarised as they relate to the argument about how dialogical practices among a variety of sub-systems affect and constitute the media's evolution. Next the empirical findings are summarised that relate to the phenomena of societal path-dependencies and systemic memory as conditioning the evolution of media forms. Following this, the findings regarding issues of power are set out. The penultimate section discusses some of the problematic aspects of the study, addresses the lessons learned and suggests some strands for future research that could build on the conduct, findings and propositions in this study.

10.2 A study motivated by the immediacy of history

It could be suggested that one of the central concepts in this thesis is contingency. The emergence that might occur but might also not motivates actors to act, but also makes them hesitant, careful in planning and responsive to changes in environment. Modern societies are complex in their fragmentation into alternative social identities and sub-systems and this complexity generates conditions that increasingly appear contingent for all the actors involved. As Pottage (1998: 22) observed, each of the actors is dependent on the autonomy of others who reproduce themselves according to their own principles of replication. This dynamic, on the one hand, could condition the emergence of new relations, systems and properties, but on the other, makes this emergence contingent, generating uncertainty. For the developers of new media this presses, at any given time, for the immediacy of the moment – for mastering it, for assessing the environment and for responding appropriately. But for the observers of their work this also calls for immediacy, as I proposed in the introduction to this thesis. In the same way that Raymond Williams (1974) called for the acknowledgment of the immediacy of the situation in the early 1970s (referring to the significance of decisions regarding the further development of television), the motivation for this thesis was to acknowledge the immediacy of today regarding the contingencies associated with the mobile Web.

The development of the mobile Web in recent years has been explosive and, as the interviews demonstrated, the general sentiment has been that rapid growth is not only expected to continue but will outpace the regular Web. Industry optimism has been visible in forecasts (Roberts & Mavrakis, 2007; Wilcox, 2007) that by either 2011 or 2012 the mobile platform will be the dominant broadband platform in the world – the majority of the world's citizens will use mobile rather than fixed systems for connecting to the Internet and for Web browsing. It is in this context that many have started to emphasise the role of the mobile platform as a means to overcome the 'digital divide' globally (Boyera, 2008). The suggestion is that with the deployment of high-speed mobile data networks reaching all corners of the world, and with the arrival of increasingly affordable Web-enabled phones, the potential to help bridge the digital divide has increased – people with access to a mobile phone will be able to access the Internet and the Web[33]. This suggests that there is great potential for current and future developments in the mobile Web domain to reduce the inequalities and scarcity conditions around the world. This again emphasises the immediacy of issue – the need to study whether the potential can be fulfilled.

However, if we wish to take a critical stance towards the existing structure and its future potential we first need to know 'why they are the way they are, what historical variations there may have been, if any, between historical periods and between societies or cultures, what historically rooted practices are inscribed in the institutions of social communication we have inherited' (Garnham, 2000: 18). In other words, 'history matters' for the future of the media, and we need to study it. This study set out to investigate the early dynamics of the development of the 'open mobile Web' so as to understand what, at the time of establishing its evolutionary trajectory, the alternatives were for its design and in whose interests and for what purposes was that direction taken. Secondly, the study was designed to study how these historically circumstantial designs of the 'infrastructure', the *de jure* standards for the networks or the *de facto* prevailing solutions, for instance, for browsers, have conditioned the many forms of our mobile media, down to the smallest representational convention used. And vice versa, did these forms, their usage functionalities and their specific characteristics shape or appropriate the very platform they are utilising as a 'channel'? Based on these motivations, the central research question for this study was:

[33] PricewaterhouseCoopers (2008) proposed that mobile broadband will continue to be the fastest growing segment of broadband globally because, in emerging markets with poor fixed-line infrastructure, this is the only way that people will be able to go online.

What have been the dynamics that have underpinned the creation, evolution and conventionalisation of new media forms in the open mobile Web following the launch of 3G mobile networks?

10.3 Reflection on the conceptual framework

The conceptual premise of this enquiry was established in the introduction to the thesis – as observed by Lievrouw and Livingstone (2002), the Internet has never been a 'single medium' that sprang on the world in a polished form. Instead, it is an indefinite constellation of technologies and forms of media and communications that continue to evolve as a result of innovations introduced by a broad assortment of actors. The Internet is an 'ensemble' that consists not only of a variety of artefacts, but also of practices of their development and use, and of forms of social organisation around these artefacts and practices. This argument was further developed in Chapter 3, where an exploratory conceptual approach was suggested that emphasised the inherent heterogeneity of the Internet. To introduce this framework I began by demonstrating the plurality of the representative codes inherent in all textual entities and suggested how this principle becomes especially important in the case of new unequivocally multimodal media forms. Related to this, the creative combination of existing codes of culture and the mechanics of semantically inventive rhetorical figures were understood as the principle mechanisms of form and meaning innovation in culture and especially in the case of the new forms of Web content.

The conceptual framework emphasised the dichotomy of continuities and discontinuities in culture. It was argued that every text, being a unique combination of a culture's codes, creates its own new code of sense making through the mechanism of 'overcoding' and, via this innovation, establishes a discontinuity with the rest of the culture. However, since each text is also a remix of many preceding and parallel codes and languages of culture, it always sustains an intertextual continuity and contact with other texts, spaces and discourses of the culture. One of the central ideas of the proposed conceptual framework, however, is that such dichotomies of open/closed and continuities/discontinuities are not only in place on the level of separate texts, but also of their systems. Building on Lotman's concept of semiosphere and Luhmann's theory of social systems I demonstrated how the whole cultural space could be understood as inherently heterogeneous in terms of a variety of 'sub-semiospheres' or social sub-

systems that transect or intertwine with each other in complex ways. The semiospheric approach enables us to analyse the relations among the various sub-systems – how they are connected, how they are in dialogue and how they intervene with one another. One such sub-semiosphere or a social sub-system should be understood as a textual domain that has self-reflectively established a certain social identity. It comes together as a mesh of texts that as a whole, works auto-communicatively – there are texts and discourses that work meta-communicatively towards others or towards the whole of that mesh. Such texts model each other and the whole they make up, describe its specificity and differentiate it from the rest of culture and society. In this way they eventually codify it and establish expectations for the future evolutionary trajectory of a particular system. Furthermore, the suggestion in Chapter 3 was that the discourses that are embedded in texts, when defining the nature of the media forms, also codify the practices of their production, together with the forms of the social organisation of their production. Hence, they are interdependent in their evolution. This proposed framework was designed to analyse the interdependencies of the kind – among the discourses, textual forms, practices and forms of social organisation.

When it comes to change in the systemic formations in society, the proposed conceptual framework puts special emphasis on the dialogical practices among systems as the principal mechanism conditioning societal evolution. New systems emerge out of contacts between the existing ones through their convergence. The existing systems change due to the dialogical acts between them – these have a potential for disrupting the systems and setting them on different evolutionary paths. However, as balancing the dialogic dynamics that drive change we also established the importance of the phenomenon of recursive auto-communication as a mechanism how the 'memory' of systems locks them into certain evolutionary trajectories, i.e., affects their 'path-dependence'.

Lastly, the proposed conceptual framework emphasised the phenomenon of power as a factor conditioning both the nature of the dialogical acts between the systems as well as the perseverance of existing path-dependencies. There are systems that are more codified and hence also more firmly locked into their existing path, but are also relatedly less dialogic and open to absorbing new information. These tend to be the dominant systems of the 'core' of the semiosphere. But the systems in the 'periphery' are less codified and therefore more observant of their environment, absorbing new information, recording it auto-communicatively and creating novelty in the process – if socially relevant as meanings and codes, they may emerge to define

social reality. In this way, the formerly peripheral systems may emerge as the new dominant cores of the semiosphere and, as a result, we have a system where there is constant change in the power asymmetries of society. As was also proposed, such asymmetries tend to be complex since systems, because of their inherent semiotic heterogeneity, may also participate in multiple dialogical relationships where in some, they may be in a receiving and absorbing role, while in others, they may have the role of the dominant governing system. The term 'dialogic control' was proposed to denote the complex dialogical dynamics, infused by existing power relations that condition societal evolution, including its media and their forms.

10.4 Interdependencies in mobile Web evolution

The general research question of this thesis was specified in greater detail in two sets of sub-questions. The first of these enquired into how the textual dynamics of media evolution are constituted by the complex mesh of dialogical interactions among the actors and social sub-systems that, in various ways, are involved in media design. This sub-question was operationalised in Chapter 4 in the form of specified empirical questions to guide the discourse analysis. These asked, first, about how the discourses spoken by the representatives of the different sub-systems of the converging industries involved in the mobile Web content defined and differentiated the characteristics of the emerging platform, its media forms and the nature of its productive systems. Second, about how the circumstances and nature of the dialogical contacts among the existing industry sub-systems effect the processes of convergence between them or the emergence of new systems out of such contacts. Third, about whether and how the discourses function auto-communicatively – effecting or recursively confirming the formation of an industry sub-system, its codes of conduct and favoured designs for the mobile Web media. And lastly, whether it would be possible to identify 'the competitions' between the discursive constellations and the associated industry sub-systems that exist in parallel, but are mutually exclusive, thereby establishing the alternative evolutionary trajectories for the industry and for the mobile Web as a media platform.

In the analysis the interdependence and parallellism of different associated sub-systems in their evolution was highlighted first. The conceptual framework suggested that social systems come together from a mesh of modally different texts, discourses and other semiotic systems that, to some extent, model or meta-communicate about

each other or about the aggregate they make up. These kinds of phenomena were in evidence in the 'grassroots' dynamic in and around T-Mobile and in the industry 'meta-dynamic' at the negotiation tables of W3C. We saw how, after T-Mobile had made its decision to launch the open mobile Web approach, the convergence was realised on all levels. Software code, pricing structure, layout design, marketing discourses – all had a role in executing and denoting the new continuities between the converged platforms. Analogous was the conduct with similarly motivated W3C – they too had realised the need for converging the two domains at more than one 'level'. There was work on harmonising software codes, but also on the design norms for the two platforms, together with the gradual convergence of the institutional structures. In other words, continuities were emerging and evolving in parallel at multiple 'levels', in a mixture of sub-systems, meta- and object-languages – in aggregate, conditioning the emergence of a new industry system.

In other words, one of the notable historical phenomena, identified by this study, was the institutional convergence of those industry players who, for varying reasons, were motivated to work towards merging the two platforms. As a result, the emergence of a new industry sub-system – the 'infrastructure enablers' – was identified. This new sub-system was coming together, first, from the former major telecommunications industry players – operators, handset manufacturers and specialised software vendors. And second, from the major online players (in particular search engines) and Web-specific software vendors including many of the major browser companies. Based on the interviews it became clear that the convergence was conditioned by the first of these groups being motivated to gain access to the Web as a functional market. For the second group, motivation was shown to be to extend their business to yet another platform, to gain new customers and to cement their position in the context of the evolving new ubiquitous and cross-platform Web. It is important to recognise how the affiliates of this new sub-system or industrial network reciprocally conditioned each other's involvement and roles in the evolving 'network'. Once the new 3G networks were deployed, first T-Mobile, and later other network operators, launched business models that enabled unrestricted full Web browsing on mobile devices leading to the early take-up of this utility. This, in turn, affected the activities of numerous software vendors who saw an opportunity to improve the quality of such browsing – existing browser vendors and new transcoder vendors with their re-rendering solutions. These browsers and transcoders were, in turn, deployed by operators as default solutions in their networks, or by Internet search engines to transcode their search results for mobile access. All

these stakeholders were in constant dialogue, working privately together on particular solutions and publicly on negotiating associated standards either in W3C, dotMobi or OMA. In this way, their formation as a system was executed on many levels and in several 'languages' – in discourses, institutional structures and, most importantly, in the technologies that enabled their cooperation and formation as a system.

However, we also identified a point of diffraction in Foucault's terms – an historical emergence of a 'competing' social system favouring a different evolutionary trajectory for the mobile Web. This second industry group was that of various content and service providers. This group was dissimilar to the first in terms of its self-formation as a distinct industry group, reciprocal conditioning and developing institutional structures. In their meta-discourses on the nature of the mobile Web domain they were, however, cohesive in sharing similar interests and analogous perspectives on the further development of the mobile Web that were different from the 'infrastructure enablers', and developing and utilising a different set of technologies that were setting the mobile on a different evolutionary path. These technologies of 'server-based adaptation' were developed and utilised as the content providers did not share the 'One Web' vision of the infrastructure enablers. Both the mobile-specific content providers as well as the cross-platform publishers saw the need for developing optimised and differentiated content for mobile users and wanted full control over the delivery of their content on all possible access platforms. Although these institutions were not self-reflective on themselves as a group, their sharing of views and in particular their similar discourses on the nature of the mobile Web made them collectively distinct as a discourse community and hence, also as a potentially emergent industry sub-system.

10.5 Path-dependencies

The second set of specified sub-questions that this study set out to investigate focused, first, on how the above dynamics were dependent on the legacies and memory of the engaged agents and of the associated societal sub-systems. Relating to this, the operationalised empirical questions for the textual analysis were developed in Chapter 4 to enquire, first, into the intertextual relations of the corpus of mobile Web-media forms with the media forms in the past, how the new forms were remediating the previous or parallel forms. The empirical questions for the discourse analysis enquired relatedly into the appearance and nature of the recursivity in the meta-discourses for the media design.

In this regard the study investigated numerous 'path-dependent' phenomena on a variety of 'levels'. On the level of media forms we identified how the mobile Web and its forms were path-dependent on their parent platform, the 'regular Web'. In Chapter 8 several structural reasons were discussed that could be seen to have conditioned these path-dependencies. We saw how the legacy investments of content providers into the means, infrastructures and organisational structures dedicated to outputting content for the desktop Web as a functional and dominant market hindered making similar investments or giving organisational attention to the mobile Web as a platform characterised by comparatively low take-up by users. Hence, only very little content was specifically developed for the mobile Web by the major (cross-platform) content providers. Most was developed only for desktop usage and then, in one way or another, re-purposed for mobile access. This relationship established the desktop platform as primary for the media publishers and the mobile Web as secondary, its content forms being negatively path-dependent on its 'parent platform'. Its possibilities to emancipate as a platform, to 'remediate less and mediate more', were reliant on the readiness of the content providers to start investing in developing dedicated content and codifying its specific characteristics – leading, potentially, to the 'grammaticalisation' of the platform in Lotman's terms, which would mean the mobile Web evolving from being a mere 'distribution medium' into a 'production medium', in Kress and van Leeuwen's terms.

The second set of factors behind the continuities and path-dependencies between the two platforms was identified as perceptions on the interpretative abilities, needs and wishes of others, especially of end users. Due to the need to meet the perceived 'horizons of expectations' of users, the developers of new mobile content were careful to maintain the continuities with the presumably familiar forms from the desktop Web. So not only did the institutional memory of the content providers effect the remediation, the intertextual continuities between the platforms, but also their perceptions of the memory of all other 'speech communities' using or producing the various Web-media forms. It was via such perceptions and observations of others that the evolutionary trajectory of the less conventionalised platform was locked in to the path set by the comprehensively conventionalised parent-medium. My analysis suggested that it was for these reasons that the mobile Web as a content domain was not conventionalised enough to be functionally emancipated as a platform – to have widely recognised characteristics, usage functionalities, genres of communication and media content, etc. As there were still a fair number of alternative visions and strategies for future

development, the social structures for the codification were either not in place or were still too young and weak.

Despite the fact that the study revealed the first signs of potential further emancipation of the platform and its media forms, another finding was that most interviewees representing the content providers reported avoiding innovating too audaciously. Instead, they innovated in step with the take-up of the mobile Web by users and with the related development of the mobile content market. This suggested that in the case of contemporary media evolution the functioning of the parts is contingent on the functioning of the whole. None of the sub-systems making up the particular whole of the media system – for instance, representational conventions, technologies, audiences and their skills and knowledge, productive institutions, their organisation into value chains or nets, etc. – can ultimately shake completely free of others but are conditioned to co-evolve. This study, therefore, offers two conceptual suggestions: first, to shake free of historical lock-in media systems do not always need significant disruptions or system-wide crises as is sometimes suggested. New directions can occur gradually via the dialogic control among the co-evolving sub-systems. Second, for new media and their forms, shaking free of the paths established by the earlier media depends on their self-codification, on the development of a social sub-system 'around them', on the development of new medium-specific normative 'grammars' and on the wider conventionalisation of these grammars.

10.6 Power

The second sub-set of research questions for this thesis put a special emphasis on the issues of power. How are the industry legacies and path-dependencies constituted by the underlying power relations of the industry? And how are these relations further negotiated in the process of the evolution of the industry? The changes in the global information and communication economy are producing degrees of uncertainty for all participating stakeholders. Their power relations and their associated capabilities to participate in media design and in the related dialogues tends to be in flux, as discussed in Chapter 1. As set out in Chapter 3, in the context of Luhmann and Foucault's theoretical approaches, power can be theorised as the ability to reproduce autonomy, as 'actions upon actions' in contingent environments, such that power is dialogically embedded, emergent in communications with the Other. Hence, this study examined the

degrees of freedom, the scope of choice for various participants to mould the evolutionary trajectories of the mobile media within the particular historical context.

In this context we learned in Chapter 2 how it was during the WAP era that the operator-centric value chains were disrupted by the influx of new players – content and service providers whose bargaining power was on the rise. The associated market horizontalisation started to turn value chains into 'value nets', and market competition was seen to be replaced by cooperative models of 'co-opetition'. This was understood to be interdependent with the parallel process of industry convergence. That is, the industry convergence of institutions with traditionally different functionalities is equivalent to the horizontalisation of their power relations. The findings of this thesis seem to confirm the continuation of these processes. We revealed a flux in the roles of different stakeholders, in the boundaries separating and defining them, in their social organisations and in their capabilities to mould their environment. There was a mesh of dialogical relationships, processes of dialogic control between an indefinite number of actors, that in concert made up the evolutionary dynamics of the mobile Web and its media forms.

However, in parallel to all this, there were differences in the aims of the infrastructure companies and content providers and these legacy-based conflicts were partly reconfirmed. The 'infrastructure enablers' who as a sub-system were building on the legacies, roles and positions of the online industries together with the previously dominant roles of network operators were working toward sustaining their position by developing technologies that enabled them to centrally control the newly cross-platform Web. The content providers, at the same time, were recursively building on their legacy of being in control of their contacts with users and of content delivery. With that aim in mind they were developing related technologies.

The fact that both processes took place – the movement towards continuities as well as towards discontinuities, convergence and divergence – can be understood as confirming my suggestion about how the parallelism of these movements in cultures is not only unavoidable, but presumes and preconditions each other. In this particular case, however, what was made visible was how the textual and social dynamics were interdependent in conditioning this dynamic. The content providers as institutions that in Foucault's terms were 'closer' to the textual forms in their varying particularities worked towards technologies, meta-codes and social organisation that supported these differences in the textual field. They approached the modelling process inductively, in Peircean terms. But the institutions that were at a greater distance from the textual

objects approached the domain in reflective terms deductively, developed accordingly their respective meta-discourse and worked towards associated forms of social organisation and governance of the domain. This insight into interdependence between the social and textual dynamic and its effect on parallel movements towards convergence and divergence in the Web-media field is one of the contributions of this thesis.

10.7 Outlook: emerging tensions

After identifying the historical formation of the two industry domains in terms of their favourable future design of the Web it is time to address the question, why does it matter? In the introduction to this thesis it was suggested that we have to study historical developments so as to become aware of the alternatives to our contemporary social structures, their technologies and designs. In this context, what did we learn? What were/are the consequences of the two alternatives described in this thesis? As suggested in the introduction, the negotiations on media design in society are underpinned by existing power relations and this has implications for the selection of values that become embedded in the technical systems of our media, reproduce existing social inequalities and conditions of scarcity (Mansell, 2004). In this regard, the two scenarios that emerged can be provisionally assessed for their effects on existing social conditions globally.

To start with the 'One Web' vision, effectively the latest phase of the globalisation processes of mobile services that we tracked in Chapter 2, this suggests a homogenising Web that comes together as a single market where the homogenisation is effected by the development of the market and vice versa. These processes are understood as being conditioned by the evolution of a few selected technologies of 'transcoding' that would emerge as the control apparatus for the ubiquitous and cross-platform Web – that translate content between platforms, delivering it in a standardised way to different contexts and circumstances. By taking such a central role, these technologies and their controllers would assume some of the traditional roles of both content providers and their customers, rendering them in their roles and capabilities more passive. On the other hand, if the aim is to enable access to the 'long tail' of the Web for user groups whose only access device is a tiny mobile handset, the 'One Web' could be understood as a worthwhile goal as this would enable these users potentially to access the wealth of the global Web instead of the limited amount of content

specifically tailored for their devices or for regionally or socially designated user groups. From this perspective the universality of the 'One Web' would turn into a virtue.

The alternative design for the mobile Web that we identified to be favoured by content providers, however, would break that universal space. This design of the Web would emphasise the plurality and discontinuities in the social world. When all Web content is adapted and specifically tailored according to these differences it would make the Web more responsive to its real usage circumstances. That is, the content would be tailored to the specifics of the particular access platform, or, with the emergence of content localisation, to the specifics of the access locality, proximity, etc. Such tailoring and targeting would significantly improve the usability of the Web content. However, it would also undermine the universality of the Web, its sameness for all its users around the world whatever might be their access devices or localities, thereby threatening the feasibility of the Web's undifferentiated 'long tail', that is, the wealth of the Web being accessible by all. The paradox of these alternatives for further evolutionary trajectories, then, is that the scenario favoured by content providers would, on the one hand, bring about a movement from forms of centralised control over the Web towards more dialogically oriented forms of governance. On the other hand, this movement could also mean the dissolution of the Web as ultimately a universal content domain. From the users' perspective we could be envisaging the emergence of an era-specific dilemma associated with the emergence of a 'device-agnostic Web' – that between Web content usability on the one hand, and Web accessibility on the other. Pointing to the emergence of this new dilemma and to the related alternatives for future trajectories of the Web's development is one of the practical contributions of this thesis. As implied in the introduction, what could potentially follow from this recognition are civil society interventions in the processes of Web standardisation and governance at W3C that would emphasise the accessibility issues together with the issues of usability of the cross-platform Web; compromises must then be sought to resolve this dilemma.

10.8 Evaluation: challenges and lessons

The development of this study was not a linear process. From its early planning at the beginning of 2005 until the writing of these words in early 2010 much new knowledge has been acquired both by studying the literature, but in particular by studying the field and conducting the empirical research. Many of the initial foci of the study changed

over the years and new directions were taken. At its inception, this study was strongly conceptually motivated, and the research questions sprang out of the theory books and not from the observations of the rapid developments in mobile communications. The mobile Web was chosen as a valuable case study of the evolutionary dynamics of new media forms because it was nascent, still to be designed, standardised and conventionalised. However, because I was equipped only with theories and not with concrete knowledge of the particular developments in the field I was also more open to recognising and mapping the relevant developments and, subsequently, sorting out the core dynamics shaping the domain. As such the process was one of discovery and learning, with the empirical findings eventually starting to evolve into conceptual insights.

However, in the process many hurdles were tackled, lessons were learned and challenges taken into account that should inform further studies. The first is the issue of bounding the research object, i.e., to what extent the relevant phenomena can all be embraced by a single study. The theoretical argument was that textual dynamics, discursive dynamics and institutional organisation all condition each other's development. The methodological question should therefore always be whether the right objects have been chosen that have either a crucial effecting role for the processes under examination or, at least, a strong indicative role of these processes. If we are studying interdependencies between textual and social dynamics, then are the chosen texts or enterprises actually connected and interdependent in their development? Were some relevant phenomena or dynamics left out? In the case of this study a few such questions emerged. First, were the websites in the corpus and interviewees from the institutions connected closely enough to make inferences about the interdependencies between the social and textual designs? Second, were all the relevant stakeholders interviewed?

The answer to the first of these questions, as established in Chapter 4, is that although the connection was not the most direct in some cases, the somewhat indirect relationship enabled generalisation of the analysis of the developments in the domain. The second question is more difficult to answer. In the process of conducting the empirical research I identified several companies and other stakeholders that could have been relevant for this study and approached these for interviews. However, the mobile Web development was as competitive a domain then as it is now and many of the interviewees were not ready to share information with me. Also, in the analysis phase of the empirical material and in further examination of industry press and fora, new institutions were identified that should, perhaps, have been part of the study in the light

of their role in the industry. Still, the line had to be drawn somewhere and the field research for this study ended in early Summer 2007. However, in the further study of the phenomena considered here, I suggest a focus to a greater extent on the micro-dynamics of the field, and more interviews with independent developers to discover the important peripheral dynamics shaping the discourse. Also, the professionals under-represented in the study were the actual (graphic) designers of mobile websites. As it was very difficult to gain access to many of the content-providing institutions I usually talked to their managers, executives who make the decisions and have an eagle eye perspective on the processes. Their insights were good for gleaning the industry discourses, but the discourses of those more closely engaged with actual design matters would have enriched the picture.

Another important question, given the rather short period this study investigated in empirical terms, is whether it really was about 'evolution' – i.e., were claims made about the crucial dynamics that have effected the long-term formation of the domain that can withstand scrutiny? I would argue that it was about evolution. It was about an irreversible development of an 'organic whole' – heterogeneous but interconnected, consisting of textual, discursive, technical and institutional entities. In other words, it corresponds to how we defined 'evolution' in Chapter 3 based on the works of Schumpeter, Luhmann and Lotman. Although the studied period was brief, the aim was not to tell the 'full story' of the mobile Web but to ask if it was possible to justifiably connect the contingencies in a certain present with the history, both with the past as well as with the future. And to ask how such connection making could be possible with any given present, despite the different historical circumstances, settings and contexts. In pointing to how the early 'open mobile' Web was built on its past and how its 'evolutionary dynamic' conditioned its futures, the study suggests that the proposed conceptual framework can be regarded as a helpful analytical tool for such connection making.

When assessing the robustness of the proposed conceptual framework and its empirical application, another question is, was it really 'dialogues' that I studied? In Chapter 3 a dialogue was understood as reciprocal information exchange between two or more parties where what is received and how is it received by any one party is always a choice. The exchange does not always have to take place in natural language, but in any semiotic code. However, the normative meta-communication is most effective in verbal discourse. In this regard, I suggest that the information exchange in a variety of codes – technologies, standards, marketing, prices, layout designs – that was analysed in

this thesis should be understood as dialogical dynamics between a variety of actors that together conditioned and constituted the media evolution. However, the most explicit and most important dialogical activities that this study addressed and analysed were the ones taking place at the negotiation tables of W3C. Relatedly, another lesson was that although interviews with participants were useful in terms of identifying references to dialogical contacts with others, even better contextual sources were the actual dialogical situations themselves – discussions on related e-mail lists, W3C Internet fora and industry blogs where in the Comments sections many interesting arguments took place between the opposing parties. Hence, one suggestion for similar projects in the future is to study this kind of textual material.

Finally, did the proposed conceptual framework fully support the aims of this study? I established in Chapter 3 that this thesis is an 'exploratory foray' into the potentials of the proposed framework. The question is whether the suggested integration of Lotmanian cultural semiotics with evolutionary economics and systems theoretical sociology is, in effect, useful as an analytical apparatus for offering us insights into the evolution of media and its forms. To answer this I would suggest, first, that the theoretical discussion in Chapter 3 evidenced that there are many interesting parallelisms between these otherwise distant approaches and, hence, that the integration is potentially worthwhile. However, as will be explained in the next section (10.9), more work is needed for the development of the proposed integrated framework. Second, I suggest that the empirical analysis of this thesis demonstrated the usefulness of this potential further work since, as applied, the framework led to original insights into the phenomenon of mobile media evolution. Starting with these, first, one of the core principles of the proposed framework was that it is the dialogic exchange between semi-independent sub-systems that conditions the change in each of them as well as in the systemic whole they make up. It was identified how it was the dialogues between the engineering and marketing sub-systems within T-Mobile that first conditioned its then innovative open mobile Internet approach and how, on the industry meta-level, it was similarly the dialogues among a variety of industry sub-systems that started to condition their convergence into a new system aimed at conditioning the Web as a new cross-platform space.

Another of the theses of the conceptual framework was that such new systems come together as discourses, texts or 'communications' of different semiotic modalities or systems that eventually make up a certain autopoietically functioning whole. Focusing on this, we learned how that new system identified could be understood to

come together exactly as a variety of semiotic systems and 'communications' – of marketing discourses, pricing systems, technological standards, design guidelines, industry regulations – that were either modelling each other or the whole they were making up.

A special emphasis in the conceptual framework was on defining the 'textual innovation', how it appears and is conditioned in the case of new media texts. It was suggested that it was via the dislocation of *topoi* from earlier media and their inventive rhetorical combination in new textual combinations that the new media forms are innovated. When looking at this I indicated how the dislocation of the Web as a textual whole and as a media form to the new platform can be understood as such a textual innovation and how the textual innovation subsequently transformed into a market innovation. Later, in Chapter 7, the textual innovations were inspected that were coming together from circumstantial combinations of such *topoi* from a variety of preceding or parallel media spaces and the intertextual relations of the new forms with these spaces were analysed. However, I propose that the main value of the conceptual framework in this context is its capacity for application in the study of the processes of emancipation of the new forms and their systems of production from the preceding forms of media and industry organisation. We were able to discern the interdependencies between the take-up of the mobile Web, the early development of its medium-specific representative conventions, the 'grammaticalisation' of these conventions and the self-codification of the new associated industry sub-systems. Although only the early signs of these developments were discussed, the framework enabled me to focus on and to identify these interdependencies and how they affected the gradual lock-out of a new media platform from its path-dependence on the desktop Web, its 'parent-medium'.

When it comes to the special focus of the framework on the industry power relations as conditioning media evolution, we were then able to analyse how the path-dependencies are affected by the many institutional legacies and recursive self-production of the established industry sub-systems. We were also primed to recognise the complex centre-periphery dynamics where, for instance, the content adaptation technique was one example of a peripheral innovation rising to become an industry norm – as a result of the reciprocal processes of 'dialogic control' in the industry. In Chapter 3 it was suggested that this concept of dialogic control, building on Lotman's theory, provides an answer to cultural studies' age-old dilemma between the hegemonic unity and decentredness of power and enables us to conceive instead both the centrifugal and centripetal forces that effect the parallel processes of convergence and

divergence in cultures. In the empirical analysis this was evident in the emergence of two competing industry sub-systems that out of their own path-dependent roles and relations to the designed object worked towards two main alternative evolutionary scenarios for the new Web – one bringing it centripetally together, the other working towards the centrifugal effect of creating a plurality of representational forms for this platform. The parallelism of these developments was highlighted as was the way these were, in effect, interdependent – reciprocally conditioning. Overall, I suggest that the conceptual framework that was developed on an exploratory basis to integrate some rather distant disciplinary approaches to societal evolution can be argued to have provided us with some original insights into these processes that would not have been revealed within the analytical scope of alternative approaches or by the separate application of any of these approaches. I therefore suggest that the conceptual framework has a potential that should be developed in similar studies of media evolution in the future.

10.9 Suggestions for future research

To outline some strands for future research that could follow on this study these can, first, be divided into two – empirical studies on the early and ongoing evolution of the ubiquitous and cross-platform Web and the further development of the proposed conceptual approach for studying the evolutionary dynamics of new media forms. Although the two could be taken as the best match, the evolution of the Web into a cross-platform environment means that the approach that enables us to analyse the intertextual relations between the media forms of different platforms together with relations between their designing institutions might be appropriate for understanding the further evolution of the Web. The latter would serve as a valuable example for further theory development. When it comes to expanding our understanding of the dynamics of the early evolution of the mobile Web then, in addition to studying the 'micro-histories' of various more peripheral developer or designer groups as suggested above, the dynamics of other arenas and bodies of standardisation should be studied similarly to W3C – as, for instance, OMA, dotMobi, WURFL, but also other more 'local' bodies and fora. But to move from studying the 'history' to the study of the ongoing evolution of the cross-platform Web, then, in addition to studying the institutional practices of media design and production, the focus should turn to the dialogical practices of the end users and producers and to the participation of end users in meta-discourse generation

for this domain. Attention could also be given to the now rapidly evolving forms of commercialisation of the mobile Web – the development of new forms of advertising that are starting to influence the textual dynamics of the Web as well as the social organisation of its industry, its business models and its technologies. And lastly, special attention could be given to the evolution of mobile Web '(pro)dusage' (Bruns, 2008) practices in the developing markets, since it might well be the case that the nature of the 'mobile Web' and its relation to the 'full Web' may come to be defined by the users for whom it emerges as the first and primary access platform to Web services.

With regard to further theory development, future work could look towards further integrating the semiotics with economics of innovation and sociological approaches in order to understand the specifics of media evolution. We are, for instance, still lacking a satisfactory definition of what an 'innovation' is in this field as a whole – how do either textual, economic, discursive, organisational or technological innovations translate among each other? How do they precondition, shape or limit one another? When do such translations fail and when do they not? How do the differences in the concept of 'value' within these systems relate to the process of translating 'innovations' successfully between these systems? These are questions that this thesis has only started to investigate, but that need to be addressed in more detail with a special focus on the ongoing changes in the media content markets – on the apparent emergence of what has been termed the 'social network markets' (Hartley, 2010; Potts et al., 2008), together with the general 'participatory turn' in networked media content production.

10.10 Conclusion

This thesis offers both conceptual suggestions as well as empirically grounded insights into the historical evolution of the early 'open mobile Web' and into the social and textual dynamics that underpinned this development. Theoretically a new explorative conceptual framework integrating evolutionary theories and aimed at studying the complexities of historical change from different disciplinary perspectives has been developed. This new framework enables us to study the textual dynamics that constituted the evolution in media forms as interdependent (i.e., the dependency and conditioning is reciprocal) with the dynamics in the media industry, with the market dynamics and with the social organisation of the media and communications domain. It enables us to focus on how dialogical interchange between autonomous social sub-systems effects innovations and the emergence of new social systems and facilitates

their self-organisation in the contingent social environment. It further enables us to study the role of memory and societal, textual or technological 'path-dependencies' in guiding the processes of self-organisation and affecting the nature of related power relations that shape the dialogical processes among the relevant stakeholders. Lastly, the framework gives special emphasis to placing all these dynamics firmly into their social and historical context – as inheriting their past, as constituting their present and as conditioning their futures. In other words, the core aim of the framework is to enable investigations into the dynamics that condition media evolution, how they do that and what, at every historical instant, have been the alternatives for our futures regarding our media, their technologies and forms.

The empirical contributions of the thesis are closely related to the theoretical ones. In the case of the particular historical example – the early evolution of the open mobile Web – it was the dialogues and processes of dialogic control that were shown to have conditioned the interdependent processes of reorganisation in the industry, changes in industry meta-discourses and the evolution in the Web-media forms and technologies. More specifically, for the account of historical developments, the study demonstrated the formation of two main industry groups – 'infrastructure enablers' and content providers – with different preferred alternatives for the future design of the cross-platform Web. The self-organisation of these groups was shown to have been conditioned by the historical legacies of various industry stakeholders and sub-systems, but also by the mesh of dialogical relationships among them and by the resulting changes in the discursive constellations framing the social organisation of the industry. And last but not least, the industry dynamic was shown to have been conditioned by the textual dynamic – by the nature of the intertextual relationships among the forms of different platforms and by the ways these relationships were changing as the mobile specific forms were conventionalising. That is, the study pointed to the first signs of the historically momentous emancipation of the mobile Web-media forms, their shaking free from path-dependency from the desktop Web and its forms. All in all, the thesis has presented an exploratory study of the interdependent and reciprocally conditioning evolutions in media forms, in discourses, technologies and in social organisation of the media industries. It has also presented empirical evidence to clarify how and why these interdependencies condition the parallel developments towards both convergence and divergence in the modern media. Lastly, the study has pointed to the potential emergence of a new, historically distinct dilemma for the Web-media and its industries as a result of the development of the formerly uni-platform Web into a ubiquitous and

cross-platform content space – the potential conflict between media usability and its accessibility on all possible access platforms of the Web.

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Appendices

Appendix A: Analytical framework for distinguishing cultural codes of spatial composition

Kress and van Leeuwen (1996) have distinguished three interrelated systems that organise spatial composition. Relying on their original framework I outline the main rhetorical mechanisms that can be used for the semantic integration of compositions – those that I decided to focus on analytically.

Cultural value of topological placement. The first of such mechanisms is the system of cultural conventions of information value, which rely on the placement of elements in the composition. As analysed by Kress and van Leeuwen, different zones of two-dimensional spaces – left and right, top and bottom, centre and margin – endow the elements with specific semantic values depending on the particular culture and its conventions.

In Western cultures the horizontal axis of left and right is the opposition of Given and New. For something to be placed left of the centre, i.e., to be Given means, that it is presented as something established and as an agreed on point of departure for the message. If an element is placed right of the centre, it means that it is presented as something new, which needs special attention. The New is therefore essentially 'problematic' and 'contestable', while the Given is presented as self-evident.

The vertical axis of top and bottom, again, is canonically the contrast of Ideal and Real. If something is placed on the top of the picture, it is presented as the idealised or generalised essence of the information, hence, also, as its most salient part. But the element in the bottom of the picture presents more specific information, more 'down-to-earth' or practical information.

The third topological opposition, which imposes semantic value on the elements in the composition, is that of the centre and margin – if a visual composition makes significant use of the centre, placing one element in the middle, and the other elements around it, then the one in the centre is presented as the nucleus of the information on which all the other elements are, in some sense, subservient.

It should be stressed that such ideological structuring through topological positioning is culturally based, it is not universal and is not always applied or interpreted as such. As for all conventional values, these oppositions are also constantly questioned and challenged in modern culture. But at the same time all culture works with margin and centre, left and right, top and bottom, even if they do not all accord the

same meanings and values to these spatial dimensions. Kress and van Leeuwen stress that all information in visual composition is presented *as though* it had this or that status for the reader, and that readers have to read that information within that structure, even if that valuation may then be rejected by an individual reader.

Salience. The second system of Kress and van Leeuwen, which integrates elements in the composition, is that which takes notice of the relative salience of the elements. All elements in the composition are there to attract the viewer's attention to different degrees. This is achieved by such factors as placement in the foreground or background, relative size, contrasts in tonal value or colour, differences in sharpness, etc. As the composition is the integrating code, salience is judged based on the relative difference between its elements – the greater the weight of an element compared to others, the greater its salience. It results from a complex relationship among a number of factors: size, sharpness of focus, tonal contrast (areas of high tonal contrast, for instance opposition of black and white have high salience), colour contrasts (the contrast between strongly saturated and soft colours, or the contrast between red and blue), perspective (foreground objects are more salient than background objects), and also quite specific cultural factors, such as the appearance of a human figure or a potent cultural symbol (Kress & van Leeuwen, 1996: 212). Because of the temporal dimension of hypermedia we could add to Kress and van Leeuwen's list the animated fragments of hypermedia layouts. Such contrasts in salience are used in compositions in order to relate its elements semantically to each other and to marshal them in this way into a coherent text.

Frames. The third main integrating system is the frames that disconnect or connect the elements in the composition. The elements or groups of elements are either disconnected, marked off from each other, or connected, joined together. Framing can be a matter of degree: elements of the composition can be framed either mildly or strongly. Framing can be realised in many ways: by elements alone that constitute the frames by themselves, or by the actual frame lines, by discontinuities of colour or shape or simply by empty space between the elements. Connectedness, again, can be emphasised by vectors, which can be realised by depicted elements or by abstract graphic elements, leading the eye from one element to another. Frames within the composition constitute its structure.

Rhythm. Another important constitutive feature of audio-visual syntax that this study brings into analytical focus is rhythm. 'Without rhythm and balance, physical co-ordinate in time and space is impossible. They form and indispensable matrix for the production and reception of messages and are vital in human interaction' (Kress & van Leeuwen, 1996: 214). One important feature of rhythm is repetition. For instance, the repetition of colours and shapes in different elements of the composition forms an important device, which connects different parts and elements of the composition. Repetition has an even bigger role in temporal media where, as Liestøl (1999: 211) shows, in addition to graphical elements the temporal sequences can be repeated as well as, for instance, the editing techniques, etc. For Lotman (1981: 45), repetition of one object on the screen creates a certain rhythm, and the sign of the object begins to separate from its visual source – the repetition muffles the primal denotations and emphasises the abstract connotations, whether logical or associative. Barthes (1977: 24) stresses that repetition creates a new connotative code that connects and covers the repeated elements.

Appendix B: Overview of interviewees in terms of key characteristics

Interviewee number	Age	Position and other involvements in the industry	Institution	Location	Date interview conducted	Length of the recording
#1	30-39	Engineering services manager	AvantGo (Sybase 365)	USA	12.03.2007	52:13
#2	20-29	Product manager	Axel Springer	Germany	20.04.2007	1:11:08
#3	40-49	Executive producer, Mobiles & PDA; used to be W3C MWI Program Committee member	BBC	UK	09.05.2007	1:04:31
#4	30-39	Mobiles product manager, BBC News Interactive	BBC	UK	24.04.2007	1:19:33
#5	30-39	Managing director	Buongiorno UK	UK	09.03.2007	47:09
#6	30-39	Head of Content, UK	Buongiorno UK	UK	20.03.2007	1:05:36
#7	40-49	Deutsche Welle World editorial director	Deutsche Welle	Germany	16.04.2007	1:12:41
#8	40-49	Strategy development, Distribution Directorate	Deutsche Welle	Germany	16.04.2007	1:07:38
#9	30-39	Product manager Mobile, Distribution Directorate	Deutsche Welle	Germany	16.04.2007	1:09:23
#10	30-39	President and founder	Little Springs Design	USA	12.03.2007	1:12:34
#11	20-29	Program manager, Windows Live Mobile; W3C MWI Program Committee member	Microsoft	USA	23.04.2007	1:17:39
#12	40-49	Director, Developer Initiatives; participated in W3C MWI work	dotMobi	Ireland	05.12.2006	57:34
#13	30-39	Senior product marketing manager (S60 Web browser team)	Nokia	USA	05.04.2007	57:26
#14	20-29	Distribution manager	Opera	Norway	11.12.2006	1:06:04
#15	30-39	Manager and chief architect, Web Applications Team	Opera	Norway	11.12.2006	1:14:08
#16	30-39	Director	Phonething	UK	21.03.2007	48:43
#17	30-39	Founder and CEO, member of W3C Steering Council	Segala	UK	26.02.2007	1:08:03
#18	30-39	Head of Mobile Services/head of Mobile TV	ProSiebenSat.1 Group (SevenOne Intermedia & SevenSenses)	Germany	17.04.2007	1:00:47
#19	30-39	Chief architect, ISP Development, head of Mobile Internet Domain	T-Mobile	UK	05.09.2006	45:04
#20	20-29	Design architect	T-Mobile International	UK	13.07.2006	1:16:10
#21	20-29	Technical architect	T-Mobile	UK	13.11.2006	47:31
#22	30-39	Head of Content	T-Mobile	UK	16.10.2006	56:55
#23	30-39	Head of Internet on the Move	T-Mobile	UK	19.10.2006	58:44
#24	40-49	Head of Terminal Engineering	T-Mobile	Germany	20.11.2006	57:30
#25	30-39	Vice president of Mobile Data	T-Mobile International	Germany	20.11.2006	56:09
#26	30-39	Chief engineer, Terminal Engineering	T-Mobile International	Germany	20.11.2006	54:47
#27	30-39	Standardisation manager, Department of International	T-Mobile International	Austria	23.11.2006	1:03:03

		Standardisation; has participated in OMA work				
#28	40-49	Head of Application Fora, Department of International Standardisation	T-Mobile International	Austria	23.11.2006	1:35:00
#29	30-39	UK head of Internet & E-mail Products	T-Mobile UK	UK	29.08.2006	1:18:52
#30	50-59	Chief scientist, later chief technical officer, member of W3C MWI Steering Committee, chair of W3C DIWG	Volantis	UK	27.03.2007	1:31:18
#31	50-59	Director of Product Marketing	Volantis	UK	27.03.2007	1:14:03
#32	40-49	Deputy director for Europe, Ubiquitous Web Domain leader, MWI activity lead	W3C	France	13.12.2006	38:00*
#33	30-39	Mobile evangelist, consultant	Openwave, WURFL	Italy	2006-07	**

Notes: * The first half of the interview was conducted by e-mail due to the request of the interviewee. The second half that relied on the first in terms of the further questions was conducted via telephone.

** A constructed interview – analysed text included respondent's interviews with industry press, his blog posts and e-mails to the MoMo London community e-mail list.

Appendix C: Coding sheet and code definitions

AJAX	Talk about AJAX and its future in mobile
algorithm_transl>betw_2webs	Algorithmic redesigns (translations) between different content platforms – especially between mobile and desktop Webs
autopoi_defins	Autopoietic self-definitions of very different kinds – institutions, individuals but also industry-wide, etc.
Browsers>competition	Statements about browser competition
Challenges	Talk about challenges of different kinds
Challenges>tech	Technological challenges to overcome being referred
com_bus_emphasis>ent_downloads	Statements that company's business emphasis is on entertainment downloads – such as wallpapers, ringtones, etc. So more traditional mobile business and not so much mobile Web
com_bus_emphasis>media_via_web	Institution's business emphasis is on providing media content via Web as a platform
com_bus_emphasis>standards	Standards being company's business focus
contin	General talk about continuities established between different systems and sub-sections of the mobile domain, between history and present, etc.
contin>betw_2webs	Discourse around the need to establish continuities between the two Webs – desktop and mobile
contin>betw_2webs>media_forms	Talk about continuities between the media forms of the two Webs
contin>betw_2webs>tech	Technical continuities between the two Webs being discussed
contin>legacies>content_prov	Continuities in the legacies of content providing industries being discussed
contin>legacies>deskweb_industr	Continuities of the desktop Web industries into the mobile Web being discussed
contin>legacies>mobile_industr	Interviewee refers to the legacies of the mobile industry
contin>tech	Technological continuities – especially between the two Web domains
contin>tech>hist_evol	Continuities in the historical evolution of the technology 'underneath' of the mobile Web
design	Discourse on design in general
design>conv_evolv	Discourse on how design conventions are evolving in the mobile space
design>conv_evolv>via_copying	How design conventions are evolving via content providers or aggregators copying each other's solutions
design>desk_web_via_mob>bad_usab	Interviewee refers that desktop Web might have poor usability when accessed via mobile devices
design>emerg_new_stand	References to emerging new design standards
design>enforces_split	Need to design differently for different devices enforces the split between two Webs or more
design>faces_fragm	Designing to mobile Web access faces fragmentation as a problem
design>good_OMWdesign_defined	Definitions for good mobile websites' design
design>guidelines	Discourse on design guidelines emerging or existing
design>how_norms_are_imposed	References to how the many design norms are imposed to the mobile Web domain and community
design>main_aim_good_usabil	Main aim of an institution is argued to be to achieve good usability on mobile devices
design>need_to_optimise	Need to optimise the site designs being referred
design>nego_over_conv	Negotiations over design conventions
design>who_defines_norms	References on who defines norms for the mobile design
determ	Discourse on how different domains such as hardware are having determining effect on other domains – e.g. on design conventions
determ>differ_funct>split	Differing use functionalities of different Webs and devices are argued to be behind the split
determ>differ_URLorTLD>split	Differing URLs or TLD names (.mobi) are argued to cause the split
determ>econom>media_forms	How economic aspects are argued to determine the

	evolution of the representational forms
determ>econom>split	Discussions on how economic reasons can be behind the split
determ>fragm>design_split	Fragmentation of access devices causes the split in design, in media forms and in the information architecture of the sites
determ>fragm>lowest_comm_denom	Fragmentation brings along the designs for the lowest common denominator and hence very limited and low key designs of websites and services
determ>hardw>interf_design	Discourse on hardware determining the representational conventions of interface design
determ>hardw>media_forms	Hardware is argued to determine the forms media is taking
determ>IPR>media_forms	How the intellectual property rights are seen to be determining the evolution of media forms
determ>policy>split	How the politics or policies of different kinds determine the split taking place or not
determ>search>split	Split will depend on how search engines will start sorting the results – either depending on the access device or not
determ>tech_differences>split	Statements that differences in hardware (networks, handsets, bandwith, etc.) bring about the split
discontin	Discourse on discontinuities between different domains
discontin>betw_desktop_and_mobile_economics	Talk about differences between desktop and mobile economics
discontin>betw_WAP_and_OMW	Articulations of discontinuities between WAP and the open mobile Web
discontin>design_conv>2webs	Discourse on discontinuities between the design conventions of the desktop Web and mobile Web
discontin>in_legacies>mobile_econ	Statements on disruptions in mobile industry enterprises
dotmobi	.mobi related discourse
dotmobi>address_issues	Address-related issues of .mobi – if people know it, does it help them recognising mobile optimised content or not
dotmobi>aim_defined	The purpose of dotMobi being defined
dotmobi>dangers	Dangers associated with .mobi
dotmobi>diff_content	DotMobi TLD is being argued to be the basis for differentiating content – for different devices, etc.
dotmobi>history	History of dotMobi being discussed (motivations for it, related power struggles, etc.)
dotmobi>ignoring	Statements that interviewees' institutions are ignoring dotMobi initiative or that their activities don't relate to it
dotmobi>negative	Statements that dotMobi has negative impact to the mobile Web
dotmobi>posit_impact	.mobi having a positive impact to the development of the mobile Web environment
dotmobi>raise_awareness	dotMobi's main purpose is that they raise awareness about mobile Internet among developers, etc.
dotmobi>stand_authority	dotMobi being referred to as an authority that defines the standards, promotes them, controls their impact, etc.
end_users	Discourse on end users
end_users>awareness	End users' awareness on the mobile Web being discussed
end_users>awareness>increasing	Discussions on around how the users' awareness on mobile Web is growing
end_users>behavr	Discourse on end users' behaviour
end_users>behavr>assumed_interests	What is referred to as assumed interests of end users – what are they looking for in the mobile Web, etc.
end_users>behavr>awareness	Awareness on users' behaviour or needs being discussed
end_users>behavr>changing	Talk about how user behaviour was said to be changing (or not) at the time of the interview
end_users>behavr>contin_betw_2wrbs	Discussion about how there is continuity between the usage of the two Webs (continuity both historically but also parallel use of both)
end_users>behavr>infl_by_cost	The behaviour of end users is argued to be influenced by the cost of browsing
end_users>behavr>legacies>desktop	The legacies of desktop experience in the behaviour of the end users
end_users>behavr>legacies>on_off_portal	Talk on the continuities in user behaviour concerning them either sticking to operator's portals or being afraid of off-portal or vice versa

end_users>behavr>legacies>WAP	References to WAP as a legacy that influences the user behaviour
end_users>behavr>n_aware	Discourse on end users' behaviour – interviewee admitting that not aware
end_users>behavr>new_demands	Mobile users will demand new kinds of content
end_users>behavr>want_OMW	Arguments that users want open mobile Web – flat fee, opened gardens, etc.
end_users>dialogue>evol_feedback	Developer's knowledge on users is based on the process where they first produce the product and launch and then gradually learn about the user's behaviour in the long-term process of feedback
end_users>HOE>desktop	Desktop Web experience as being part of users' horizon of expectations is being discussed
end_users>interpr_capab	Discourse on end users and their interpretative capabilities
end_users>prod_into_HOE	Production into users' horizon of expectations
Engaging_motivs	What is referred to as motives for institutions (especially content providers) to get engaged in the mobile domain and to start providing either content or services
Engaging_motivs>audience	Motives for engaging for institutions are argued to be the large audience numbers
Engaging_motivs>continuity	Business legacies and continuities being argued to be motives for engaging with mobile Web
Engaging_motivs>earn_income	Engagement motive for the interviewee's institution is to make money
Engaging_restrictions	Talk about what are the restrictions for different companies to get involved with the mobile Web
Engaging_restrictions>bad_usab	Bad usability referred to as being restriction for engagement (either in the past of present)
Engaging_restrictions>cost_of_browsing	Cost of browsing is argued to be the reason that restricts institutions to engage with the mobile Web
Engaging_restrictions>econ	Restrictions of engaging with mobile Web were of economic kind
Engaging_restrictions>fragm	Fragmentation of different standards and hardware and software forms are referred to as one of the restrictions for engaging in mobile Web
Engaging_restrictions>hardware	References to hardware issues being restrictive to companies in order to get engaged in the mobile Web domain
Engaging_restrictions>IPR	Intellectual property rights seen as a problem for engaging in the mobile market
Engaging_restrictions>small_market	Among the restrictions why interviewees do not engage with the mobile Web is the small market size
Engaging_restrictions>walled_gardens	Operators' walled gardens are referred as restrictions for engaging in the mobile Web
Flat_fee	All talk about flat fee pricing models
Flat_fee>causes_growth	Statements that flat fee causes growth in the mobile Web
Flat_fee>evolution	Descriptions or analyses of the evolution of flat fee offerings in different markets
fragm	General talk about fragmentation in the mobile domain
fragm>browsers	Fragmentation – browsers
fragm>handsets>problem	About fragmentation. Focus on handsets. Statements that it is a problem for the general development of the mobile media domain
fragm>need_stand	Fragmentation causes the need for a standard
fragm>operators_networks	Fragmentation in operators' networks being talked about
fragm>OSs	Fragmentation in operating systems
fragm>software	Talk about software fragmentation
fragm>will_stay	Interviewee implies that the current fragmentation in mobile domain will last for a long time
generic_examples>cutting_edge	Examples interviewees bring that are referred to as the cutting-edge products that are taken as examples to follow – that are supposed to drive the development of mobile Web
generic_examples>lead_use_cases	What is referred to as lead use cases that are argued to drive the mobile Web
global>knowl_transf	Discussions on the practices of global knowledge transfer on mobile issues
hardw_evol	Discourse related to hardware evolution

hardw_evol>future	Discussions on the future of the hardware evolution
hardw_evol>iPhone_effect	Statements on iPhone effect to the hardware evolution
hardw_evol>legacies>WAP	How the legacy of the WAP is influencing the current evolution
hardw_evol>towrds_tech_cont	Hardware-related evolution towards increasing continuities between different technologies
hist_parallels	Interviewers are bringing historic parallels
hist_parallels>desk_web_evol	Interviewee compares current phase and developments of mobile Web to the desktop Web. Brings parallels and justifies this way the current developments
hist_parallels>MMS	MMS referred to as an historical parallel
hist_parallels>WAP	Interviewees are bringing historic parallels – WAP
HSDPA	HSDPA – talk about it coming
IMS	Statements about IMS
ind_dialogues	Discourses about industry dialogues
ind_dialogues>achiev_compatib	References to industry dialogues that were aimed at achieving greater compatibility between different technologies, services and protocols. All this being connected to convergence and decreasing entropy when it comes to the design of technologies, content or services
ind_dialogues>emerg>design_norms	How the design norms of various kinds are emerging via the industry dialogues
ind_dialogues>emerg>MW_domain_def	Interviewees discuss how through industry dialogues definitions and boundaries for the mobile Web domain emerge
ind_dialogues>emerg>power_rel	Statements how via industry dialogues new power relations are emerging
ind_dialogues>emerg>role_divison	How the roles of different kinds of players in the mobile domain are sorted out
ind_dialogues>emerg>tech_stand	How through industry dialogues different technical standards for mobile Web are emerging
ind_dialogues>engag_hist	Interviewee tells his or her institution's history of being engaged in the industry dialogues
ind_dialogues>engag_ways	The ways an institution is engaged in industry dynamics and dialogues
ind_dialogues>following_others	Whose activities does the interviewee's institution follow, in what ways and how? And also why? Who observes who?
ind_dialogues>knol_transf	References to how through industry dialogues knowledge transfer from one sub-system to another takes place
ind_dialogues>knol_transf>betw_ind_players	How knowledge transfer between industry players is taking place via industry dialogues – talk about that
ind_dialogues>knol_transf>betw_profs	How people of different professions who meet in mobile domains, etc. – how they are in dialogues, etc.
ind_dialogues>particip_passion	Interviewee participates in industry dialogues just out of personal passion
ind_dialogues>power_struggl	Power struggles in industry dialogues
ind_dialogues>power_struggl>auth_addrssd	Authorities are addressed when referring to power struggles and industry dialogues
ind_dialogues>power_struggl>auth_addrssd>design	Authorities are addressed when referring to power struggles and industry dialogues – specifically related to design issues
ind_dialogues>power_struggl>defi_domain	Power struggles in industry dialogues about who can define the nature and boundaries of the mobile Web domain
ind_dialogues>power_struggl>over_design_norms	Discourse on power struggles over who can define the design norms for the mobile Web
ind_dialogues>power_struggl>over_share	Power struggles over the market share
ind_dialogues>power_struggl>over_tech_stand	Power struggles in the industry over the many technical standards
ind_dialogues>power_struggl>trade_rules	Power struggles over the order of trade being referred to
ind_dialogues>users_input	Discussed is users' input into industry discourse about design and regulation of services and media
Legacies	Discourse how different legacies are influencing the current development
Legacies>desk_web	Desktop Web's legacies working on the mobile domain
Legacies>iMode	General talk about i-mode and its legacies
Legacies>WAP	WAP legacy in work
Legacies>WAP>tech_standard	The legacy of WAP as a technical standard is being

	discussed
mater_depend_betw_2webs	Talk about material dependence between the two Webs – that they often share same code, databases, etc. And how this determines that they are connected and interdependent in their evolution
media_forms	Discourse about media forms – the ones that are evolving in the mobile Web – or the forms that define the mobile Web
media_forms>banner_ads	Discourse about the future of the forms of advertising in the mobile Web
media_forms>column>no	Column is not going be the defining form of the mobile Web
media_forms>column>yes	Statements that column tends to be the generic form of the mobile Web at the moment
media_forms>cont_categories	Interviews are telling what taxonomies do they have for content in the mobile Web domain
media_forms>conventnlstn>early_days	Statements that when it comes to conventionalisation of new media forms it is still very early days
media_forms>conventnlstn>ongoing	Talk about ongoing conventionalisation of media forms
media_forms>convergence	Convergence in new media forms being discussed
media_forms>defins>new_mob_forms	Definitions of the characteristics of the new forms for the mobile Web
media_forms>differ>betw_2webs	How media forms will (or already) differentiate between the two Webs
media_forms>evolution_described	Interviewee describes the evolution of the existing mobile forms
media_forms>gener_examples	What interviewees bring as generic examples of (exemplary) mobile media forms
media_forms>intertext_rel_with_other_forms	Intertextual relationships (dependencies, etc.) of mobile media with other forms in the past and present being addressed
media_forms>remediation	How media forms are remediating each other and evolving through this
media_forms>who_def_norms	Discussion about who defines the various norms for the media forms in the open mobile Web
non_flat_fee>negative	Cost as a restriction for using mobile Web. Non-flat fee as being negative from the perspective of the interviewee
OMW	General discourse on open mobile Web
OMW>Autom_norm_control	Talk about different means of automated norm control
OMW>convergence_effects	The effects of many traditional industries converging being discussed
OMW>critical_issues	Critical issues defined that are seen as crucial for the future of the mobile Web
OMW>defins	Discussions about how to define the mobile Web
OMW>defins>by_whom	Accounts on who defined or is defining the nature of the mobile Web
OMW>defins>function	Interviewee explains the functionality of the mobile Web content and services (as opposed to desktop Web usually)
OMW>descrip_evol	Descriptions of how the ongoing opening up to the Web is taking place
OMW>disruptions	Disruptions that are taking place in the OMW (open mobile web) domain being referred
OMW>doesnt_emancipate	Statements that mobile Web and its forms are not very emancipated at the moment
OMW>early_era	It is still early era for the mobile Web
OMW>emancipates	Discussion about how mobile Web and its forms are emancipating
OMW>emerg>busnss_models	References to emerging new business models for operating in the mobile Web
OMW>emerg>order_of_domain	Emerging order (technological solutions, economic relations, etc.) in the mobile Web domain
OMW>engagement_ways	How the interviewee and his or her institution are engaged in providing mobile content and mobile Web in general
OMW>entropy	Relatively general talk about the entropy in the mobile domain
OMW>entropy>decreasing	Claims that entropy is decreasing in the mobile Web domain
OMW>entropy>growing	Statements that there will be lot of convergence and less heterogeneity in terms of inherent boundaries in the system

	– more compatibility and convergence
OMW>entropy>needed	Interviewee argues that more entropy is needed in the mobile Web
OMW>future_predict>forms	Predictions about the new media forms in the future
OMW>future_predict>global_market	Discussions about the global market for mobile Web in the future
OMW>future_predict>market_growth	Predictions how the open mobile market will evolve and grow
OMW>future_predict>one_web	Prediction is that there is going to be one Web only
OMW>growing	Arguments how the open mobile web is growing at the time of the interview
OMW>innovation>causes_differ	How the innovation brings along new disruptions in the domain, new differentiations, effects entropy to decrease
OMW>innovation>driv_by_browsrs	Browser innovations are driving the mobile Web
OMW>innovation>driv_by_contnt_prov	Discourse on products or ways how content providers are driving innovation in the mobile Web domain
OMW>innovation>driv_by_econ	The development of the mobile Web is driven by the economic motives or economic decisions
OMW>innovation>driv_by_marketing	Innovation in mobile Web is implied to be driven by marketers
OMW>innovation>driv_by_operators	Operators are referred to drive the future developments
OMW>innovation>driv_by_search	Opening of the mobile Web has been driven by search applications
OMW>innovation>driv_by_services	Innovation in the mobile Web is especially driven by new services
OMW>innovation>driv_by_small_comp	Arguments that it is small companies that are driving the innovation in the mobile domain
OMW>innovation>driv_by_tech	Arguments that innovation in the mobile Web area is driven by technological solutions and engineers
OMW>innovation>driv_by_users	Innovation in the mobile Web is driven by users
OMW>innovation>driv_by_Web20	Innovation in mobile Web is argued to be driven by Web 2.0 phenomenon
OMW>innovation>future_predict	What are the predictions for the future developments
OMW>innovation>future_predict>design	Future predictions about design innovations
OMW>innovation>future_predict>hopes	What are the hopes of interviewees on what the future of the mobile Web will bring?
OMW>innovation>future_predict>location	Talk about location information related uses of the mobile Web in the future – services expected, content forms predicted
OMW>innovation>future_predict>tech_leads_dev	The prediction is that technology will lead the development and the current problems will be resolved
OMW>metalang_generation	Discussion about how meta-languages for the mobile Web forms are generated
OMW>opertrs_earn_traffic	Operators will earn their income from data traffic
OMW>problem_for_opertrs	Opening up to the Web being problematic for the operators according to the interviewee
OMW>reasons_for_opening	Talk about reasons behind the opening process of the mobile Web
OMW>sceptical	Interviewee is sceptical of the potential of the open Web in the mobile domain
OMW>security_and_trust	Talk about the issues of security and trust in relation to the mobile Web
OMW>server_adapt_solution	Server-based adaptation of content for different devices being discussed as a potential solution
OMW>server_adapt_solution>justification	Justifications for content adaptation as a solution
OMW>should_emancipate	Statements that the mobile Web should emancipate and become a new medium, not just part of the existing Web
OMW>should_not_emancipate	Arguments that mobile Web should not emancipate as something different from the general Web
OMW>walled_portals	Statements about walled gardens
OMW>walled_portals>future	About the future of the walled gardens
OMW_powers_develprs	Statements that open mobile web (flat fee, unrestricted Web browsing, etc.) powers content developers
One_Web	Discourse on One Web idea
One_Web>no	No to One Web idea
One_Web>no>design	Interviewee does not support One Web imperative and justifies it with arguments that design-wise it is not possible

One_Web>no>econ	Argument that it is the economy that conditions that One Web cannot happen
One_Web>yes	Interviewee supports the One Web vision
One_Web>yes>but_many_forms	Arguments that Web is going to be technically one environment, but media forms are going to adapted to access devices
One_Web>yes>driv_by_econ_aims	The movement towards One Web is driven by the various economic motivations of institutions of different kinds
particip_industry_dialogues	Participation in industry dialogues. How the interviewee participates in the wider discussions of the industry or is in dialogues with other significant players, etc.
prof_back	Professional background
prof_back>comp_eng	Professional background – computer engineer or similar
prof_back>design	Professional background – design
prof_back>econ	Professional background – economics
prof_back>marketing	Professional background of the interviewee is marketing
prof_back>media	Professional background is media in general or journalism
separ_cont_from_pres	Discussions on separation of content from its presentation – associated technologies, hopes and plans for the future
separ_cont_from_pres>CSS	Discussions on separation content from its presentation – talk on CSS as an associated technology
separ_cont_from_pres>Device_Ind_solutions	Device independence solutions being discussed as methods to separate content from its presentation and optimise it for different access devices
split	Split into two or more Webs – discourse about this
split>compatib_between	Interviewee emphasises the difference between the two domains, but also stresses the need and aim to achieve some compatibility between them
split>no	Interviewee argues for no split to take place
stand	About standardisation in general
stand>access_keys	Talk about the standardisation of access keys, etc.
stand>aim_to_stick	Interviewee says that his or her institution aims to stick to standards, etc.
stand>CSS	Talk about CSS
stand>CSS>problems	Interviewee has problems with the current CSS standard
stand>dotMobi>follows	Interviewees' institution follows the dotMobi guidelines or tries to be in general compliant
stand>dotMobi>follows_not	Interviewee does not follow dotmobi activities
stand>early_stage	Interviewee finds that the ongoing standardisation phase is still early phase
stand>emerg>de_facto	Discussions on how standards are emerging in real life via everyday activities and development as *de facto* standards
stand>emerg>via_competit	Standards emerging via industry competition
stand>enables_growth	Talk how standardisation enables growth and development of the mobile Web
stand>engag_history	History of engagement in standardisation activities of the interviewee
stand>engag_ways	Ways that the interviewee's institution is engaged in standardisation activities
stand>existing_situation_w_OMW_standards	Talk about the existing situation with open mobile web standards
stand>for_protecting_minors	Discussion on standardisation that is aimed at protecting minors – categorisation of sites into adult and not, etc.
stand>global_proc	References to the global nature of the standardisation processes of mobile Web
stand>mot_particip	Motivations to participate in standardisation processes are discussed
stand>not_aware	About standardisation. Interviewee is not aware of the current standardisation work and of standards. Hence does not also specifically follow these
stand>not_interested	Interviewee is stating that his or her institution is not interested in standards for different reasons
stand>OMA	Statements related to standardisation in OMA
stand>open>good	Interviewee argues that they support open standards for these being perceived as 'good' in some ways
stand>proprietary>bad	Statements that proprietary standards are bad
stand>sceptical	Interviewee is for various reasons sceptical of ongoing

	standardisation work or established or suggested standards
stand>W3C>aim_defined	The aim of W3C MWI defined
stand>W3C>awareness_of	Awareness of W3C MWI being referred to
stand>W3C>BP>follows	Interviewee follows W3C MWBP
stand>W3C>BP>follows_not	Interviewee and his institution do not follow the W3C MWBP
stand>W3C>formal_process_explained	Standardisation process in W3C explained
stand>W3C>hist_told	Interviewees tell the history of the W3C MWI
stand>W3C>MobileOK	Talk about MobileOK trustmark
stand>W3C>mot_particip	Interviewees or his or her institution's motivations for participating in W3C
stand>W3C>need_entrop	Institutions imply that they joined W3C in need for greater entropy
stand>W3C>plans_and_prospects	Plans and prospects for the W3C MWI being discussed
stand>W3C>power_struggles	Talk about the power struggles that are taking or have been taking place in the W3C MWI standardisation process
stand>W3C>rels_w_other_bodies	W3C relations with other regulative bodies
stand>W3C>sceptical	Interviewee is sceptical about the W3C MWI and its standards
stand>WURFL	Talk about WURFL
stand>WURFL>follows	Interviewee follows WURFL
stand>WURFL>history	Talk about WURFL history
stand>WURFL>role	Talk about WURFL and its role
tech_constraint>earlier	Interviewee addresses something that he or she point out to be a technical constraint that used to hinder the development of mobile Web as a domain
tech_constraint>existing	Existing technological constrains for the development of the mobile Web are discussed
training	Training
training>comp_sci	Training of an interviewee is in computer science
training>design	Training – design
training>media	Training in media or journalism
training>mocha	Training – economics or business administration
training>social_sci	Training of the interviewee is within the area of social sciences
transcoding	About transcoding
transcoding>justification	About transcoding – interviewee justifies the need for it
transcoding>urgent_problem	Transcoding seen as an urgent problem
transcoding>urgent_problem>not	Transcoding is not seen as an urgent problem by the interviewee
w3c>MobileOK	Talk about the MobileOK trustmark
widgets	Talk about widgets – their role in the future
wnw_aim	What is argued to be the aim of the Web'n'Walk
wnw_aim>defins_specifics_of_offer	Definitions or explanations for the speciality of the Web'n'Walk offer
wnw_aim>differentiation	One of the aims of Web'n'Walk is argued to be the differentiation from the competitors
wnw_aim>econ_of_scale	The aim of the Web'n'Walk proposal is to achieve the economies of scale – the interviewees are discussing the ways to achieve this
wnw_evaluation	Discourse around Web'n'Walk evaluation
wnw_evaluation>flat_fee>positive	About Web'n'Walk – focus on flat fee as part of the concept – interviewee explaining its positive impacts
wnw_evaluation>good	Web'n'Walk evaluation – Good
wnw_evaluation>marketing	Talk about Web'n'Walk marketing
wnw_evaluation>marktng_fail	Web'n'Walk is addressed as a marketing failure
wnw_evaluation>new_busnss_oport	Interviewee addresses the Web'n'Walk and talks about the new business opportunities this and other similar flat fee and open Web approaches from operators bring for content and service developers
wnw_evaluation>not_original	Argument that Web'n'Walk was not totally original for its approach
wnw_evaluation>personal_experience	Personal experiences with using Web'n'Walk, evaluations
wnw_evaluation>real_internet_offer	Talk around the 'real Internet' offer of the Web'n'Walk
wnw_evaluation>sceptical	Interviewee is somewhat sceptical on the possibilities of the Web'n'Walk or similar approaches

wnw_evaluation>showing_way	WNW is argued to show the way to other operators
wnw_evaluation>success>decrip_of_effects	Talk about the success of Web'n'Walk – the descriptions of its concrete effects
wnw_evaluation>success>people_want_it	Statements that people find Web'n'Walk useful and want it
wnw_future	Talk about the future of Web'n'Walk service
wnw_hist	Web'n'Walk history being told by interviewees
wnw_hist>dynmics_of_defing_nature	Dynamics (knowledge transfer, different professional perspectives and understandings, etc.) behind deciding the norms and character of the Web'n'Walk service and its approach
wnw_hist>knowl_transf	Talk about the knowledge transfer between different domains and professions when developing the service