



# Evolutionary dynamics of media convergence: Early mobile web and its standardisation at W3C

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## ABSTRACT

This empirically grounded article focuses on the standardisation of the mobile accessible Web by the World Wide Web Consortium (W3C). It demonstrates what were the different points of departure for the institutions of different kinds (telecommunications operators, online service providers, software developers, content providers, etc.) that got engaged in this standardisation process. It discusses how the dialogical relationships among these stakeholders shaped the nascent medium. It demonstrates how these dynamics conditioned on different 'levels' the processes of both the convergence and the divergence between the desktop and mobile webs and shows how these conflicting processes of convergence and divergence were pursued by different industry groupings – 'infrastructure enablers' and content providers.

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## 1. Introduction

This article is about the dialogical dynamics among institutional stakeholders and other communities that could be understood to condition media evolution and with that also the processes of media convergence and divergence. The specific historically-located focus is on the standardisation of the mobile and device-agnostic web together with the associated contingencies and industry struggles. The article investigates the significance of some of the decisions taken to form the mobile web as a new medium, together with its technologies and cultural forms. The analysis is based on research I conducted in 2006–2009 in several European countries and in the United States. The study focused on the dialogic practices informing the many norms and standards for the mobile Web as a nascent media platform. It was based on interviews with the representatives of handset and browser vendors (for instance Nokia, Opera), operators (T-Mobile International), specific technology and service enablers (Segala, dotMobi, Volantis, Sybase 365, W3C) and content providers (BBC, Buongiorno, Deutsche Welle, Microsoft, ProSiebenSat 1., Axel Springer). In this way, I put together a network of actors relevant to the development of the mobile Web and its content forms at the time of my interest. All these institutions were actively engaged in establishing technical and economic characteristics for the mobile web as an emerging media platform. Many of them were involved in standards negotiations at W3C, the standards institution for the World Wide Web. Why did they do this? The predominant reason was the risk of fragmentation of the mobile domain in terms of not only the varying screen sizes or input interfaces of devices but also the mark-up languages, browsers and operating systems in use. The absence of technological continuities that would enable the content and service providers to 'create once and publish everywhere' was one of the main motivations for the drive towards standardisation. The mobile telecommunications industry had been attempting to achieve such continuities when standardising WAP protocol at their own standards body WAP Forum, later renamed Open Mobile Alliance (OMA). However, they could be understood to have failed in that – the hasty un-consensual standardisations

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in the early phases of the WAP's mark-up languages (WML and XHTML MP) had resulted in rather feeble 'output legitimacy' (Werle and 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. It was in this context that many of the mobile industry's heavyweights that were interested in accelerating the convergence of wireless and desktop services started to back W3C in its aim to overcome the risk of fragmentation. This cooperation between mobile and online industries, the joint standardisation effort, was an early example of the subsequent institutional convergence of the mobile and web domains.

The method of this research was semi-structured interviews that were analysed by a discourse analysis relying on the select key principles of cultural semiotics and social systems theory. The aim was to examine the industry discourses of the time that defined the characteristics of the mobile web and its media forms, that set their boundaries, marked their differences and connections and normatively organised the variety of productive cultures and institutional domains that related to mobile media forms according to their autopoietically set functionality and role.

## 2. Theory: Agenda to study dialogic dynamics

When starting to investigate the discursive dynamics constituting the industry and the mobile web as its output, a premise is that this complexity has been conditioned by a diversity of stakeholder institutions that all attempt, in one way or another, to participate in the dialogic processes of designing the medium and organising the domain. And it is via these dialogues that the domain has been shaped. As maintained by Robin Mansell (1996, p. 17), perceptions of what constitutes an advance in technical and institutional systems should be understood as the result of the evolution of socio-economic and technical systems through both discourse and practice. But both of these are changed as a result of dialogic interactions of discursive interchange among institutions and societal sub-systems. Such dialogic interactions do not only facilitate knowledge-exchange and condition-dynamic that takes societies into evolutionary flux, but also enable 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, p. 268).

The research agenda proposed in this quotation provides the guiding principle that this article subscribes to. It is the agenda for the political economy of the new media as suggested by Mansell (2004). However, I want to complement this approach by a select set of concepts and principles derived from evolutionary approaches to change, both in culture (the cultural semiotics of Yuri Lotman and others) and to society's techno-institutional setup (evolutionary economics domain). Similarly to Mansell, in both of these domains, despite their disciplinary distance, it is perceived that dialogues and information-exchange among autonomous domains is the core source of dynamics that effects change and generates innovations. According to Lotman (2009, 1990), in the domain of culture's textual forms it is the dialogic relationships among various genres, arts, ethnic cultures or any other cultural subsystems that, effectively, facilitate 'micro-explosions', i.e. the emergence of innovations. The argument in evolutionary economics is similar – that it is the coordination and occasional synchronisation of autonomously evolving societal sub-systems that facilitates the creative disruption of existing equilibria (Freeman and Louçã, 2001) and could result both in incremental innovations and epoch-making changes of techno-economic paradigms (Perez, 2004). When existing sub-systems end up in a dialogic relationship there is a potential for new systems emerging out of their convergent dynamics. Also the existing systems change due to the dialogical acts among them – these have a potential for disrupting the systems and setting them on different evolutionary paths. However, the dialogic dynamics that drive change tend to be balanced by the phenomenon of recursive auto-communication (Cheney and Christensen, 2001) – i.e., a mechanism by which the 'memory' of systems together with self-reflective discursive practices can effect the relative autonomy of systems and lock them into certain evolutionary trajectories, i.e., affecting their 'path-dependence' (Ibrus, 2008).

What this article suggests is that both of these functionally complementary forms of communication – dialogic communication and auto-communication – could materialise in various modalities. Information exchange between social sub-systems can take place in all forms of sign-systems and the social sub-systems themselves come together as a mesh of texts or discourses of different semiotic modalities that eventually make up a certain auto-communicatively functioning whole. An institutional sub-system of media production could come together as a 'dynamically connected diversity' (Krippendorff, 1995) of semiotic systems – of marketing discourses, pricing systems, technological standards, design guidelines, industry regulations – that are all modeling each other or the whole they make up, and, by doing this, differentiate it from the rest of culture and society. Furthermore, 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, these 'levels' are interdependent in their evolution.

However, such presumed complexity of interdependencies points to a need to assess what the realistic scope for choice available to the producers of media and its technologies has been, and what the degrees of freedom available to them have been to mould the setups of their operational environments. The discontinuities resulting from the shifting tectonic plates of

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