Convergence, co-evolution and complexity in European communications policy

Michael Latzer

Working Paper of the Media Change & Innovation Division <mediachange.ch>
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Introduction

Convergence is not only a widely used buzzword in the communications sector, but also a helpful analytical concept. It represents a central developmental trend, comparable to liberalization and globalization that shapes the course and transformation of European communications policy. At the same time, the analysis of European communications policy informs the understanding of convergence and its implications, in particular regarding an emerging common governance pattern for convergent markets. Moreover, embedded in a combined framework of co-evolution and complexity perspectives, the convergence concept also makes it possible to draw some general basic guidelines regarding future policies in convergent and increasingly complex communication environments. Such an analytical framework compensates for deficits in the convergence concept, which is strong in the analysis of the "old" converging parts but weak in the explanation of the emerging "new" forms triggered by the convergence process.

For centuries, concepts of convergence have been used in various disciplines in natural and social sciences to depict manifold processes of change (Latzer, 2013a). Even within communications, the central meaning of convergence varies, ranging from the trend towards uniformity between public and private TV programmes to the tendency for national media systems to become increasingly similar over time (Kleinsteuber, 2008). In the context of European communications policy it proves to be most helpful to understand convergence narrowly as blurring lines between traditional communication modes (Pool, 1983), and blurring boundaries between their respective sub-sectors telecommunications and broadcasting, which is also referred to as media convergence. Widening the definition of convergence would increase its ambiguity and narrow its merit as an analytical concept.

Further, it should be noted that not only does the meaning of the term convergence vary but so does its use, purpose and function. It is used in communications research, by policy-makers and the industry with different goals, interests, definitions and accentuations. For the industry, convergence is predominantly a *strategic objective* for opening up new markets. For policymakers it is a *policy challenge*, triggered by changing market realities that no longer fit existing governance structures, and it also might be a *policy goal*. In research, it is mainly an *analytical concept* for understanding and explaining recent media change in general, and numerous detailed developments in communications policy in particular. Industry, politics and research together contributed to convergence becoming a widely used buzzword in the

communications field and beyond in the 1990s – alongside and often combined with digitalization, liberalization and globalization. Convergence has acquired even greater attention since the start of the 21st century, with the rapid expansion of web 2.0, social media, digital TV and wireless communication.

Altogether, convergence is a fuzzy, multipurpose term that fulfils different functions (Latzer, 2013a). As an *analytical bracket*, it bridges and integrates both different disciplinary discourses on media change and conflicting detailed processes of convergence and divergence as two sides of the same trend. As a *metaphor* it reduces the complexity of media change, and as a "*rhetorical tool*" (Fagerjord & Storsul, 2007, p. 29) it might be used to convince stakeholders of certain reforms. With these specific characteristics, which can be interpreted as success factors for its popularity, convergence shows structural similarities to other widely used, transdisciplinary concepts, most notably with governance (Schuppert, 2006; Schneider, 2012).

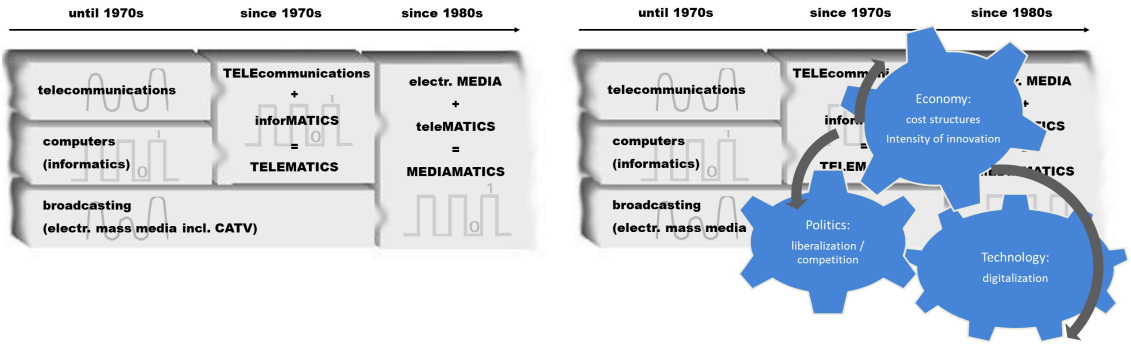
This chapter starts with a combined co-evolution and complexity perspective on convergence, which makes it possible to integrate the role of technological change on an equal footing with political, economic and cultural factors. It then outlines how convergence triggered a second phase of EU telecommunications and media policy. In this phase the EU acts as a role model and driving force for an emerging common governance pattern for convergent communications sectors. Finally, this chapter points out the consequences of a combined co-evolution and complexity perspective for the perception of the predictability and controllability of developments in communications policy, and it derives some basic policy guidelines from such an approach.

Co-evolution and complexity of blurring sub-sectoral boundaries

Seen historically, the electronic communications sector emerged subdivided into telecommunications and broadcasting, with distinct differences in technical and communications structures, societal functions and the political management of communications systems. For decades, this subdivision was reflected in largely separate telecommunications and broadcasting (media) policies, regulatory bodies and governance models at the national as well as on the supranational level in Europe. However, at the end of the 20th century, convergence in the communications sector challenged this core feature of political regimes, and it started to crumble.

Analytically, the convergence trend, understood as a blurring of boundaries between telecommunications and broadcasting (Pool, 1983), can be subdivided into two stages (see figure 1). The convergence of telecommunications with computers (informatics), which has been coined as telematics (Nora & Minc, 1978), and the convergence of electronic mass media (broadcasting) with telematics toward an integrated societal communications system called mediamatics (Latzer, 1997, 1998). The computer sector, where digital technology was established first, served as a connector between the formerly separate sub-sectors of communications. The convergence debate in research and politics focuses on the second convergence step toward mediamatics, which is alternatively called multimedia, TIME (telecommunications, information technologies, media, entertainment) or cross-media, stressing the media-overlapping character.

Figure 1: Co-evolutionary convergence steps in electronic communications



Note: The impact of convergence in communications is not limited to the electronic sub-sectors shown in figure 1, but, for example, also affects the press sector.

Convergence happens at four levels, which are closely interrelated (Latzer, 2013a): *Technological convergence* plays a leading role and basically stands for a universal digital code across the convergent communications sector. It is also discussed as network and terminal convergence (Storsul & Fagerjord, 2008). Combined with technological change there is *economic convergence* (Wirth, 2006), including market convergence on the meso- and macro-level, and corporate convergence on the micro-level. Thirdly, *political convergence* is discussed as policy and regulatory convergence, leading towards integrated regulatory agencies, models and laws for the mediamatics sector. Finally, there is *socio-cultural convergence*, also discussed as socio-functional, rhetorical and receptional convergence (Storsul & Stuedahl, 2007) and as convergence culture (Jenkins, 2006). This includes the implications of the convergence process for genres across media, for media-usage and reception patterns and for popular culture.

A proposed co-evolutionary perspective has several advantages for a coherent analysis of these different levels of convergence (Latzer, 2013b). It takes the reciprocal interplay of the different levels of change into account. In particular, it allows the integration of technological change on an equal footing with economic, political and cultural driving forces, it deals adequately with the complexity of the convergence phenomenon, and overcomes fierce controversies about technological and social determinism in the interpretation of media change. Altogether, media change in general and convergence in particular are conceptualized as innovation-driven, co-evolutionary processes in complex environments.

Parts of the co-evolutionary mechanism of convergence (illustrated in figure 1), the reciprocal interplay of technical, economic and political change, can – in a very simplified manner – be sketched as follows: For the recent cycle of co-evolution, the technological side starts in the 1970s with analogue telephone technology while at the political-economic side there is a state-owned monopoly. Technological innovation then led to the digitalization of telecommunications, resulting in the first stage of convergence toward telematics. This created new economic conditions, particularly as regards cost structures, weakening the economic case for (natural) monopoly regulation of the telecommunications sector. At the political level this was followed by liberalization – an opening up of telecommunications markets, which in Europe was promoted by the European Union in a harmonized way. The resulting intensified economic competition increased the intensity of technological innovation. In this way, the co-evolutionary process was fuelled and boosted changes in the media.

Innovations in telematics merged with those in digitalized broadcasting to help bring about the formation of the mediamatics system in a co-evolutionary way (Latzer, 1997). The transformation of this societal communication system is punctuated by the growing use of the Internet and mobile communication as general-purpose technologies (Bresnahan, 2010), producing a non-linear, complex development with society-wide implications.

Altogether, three aspects should be kept in mind however: First, that this is not an example of predictability but a retrospective reconstruction of developments. Second, that there are several other influential factors that are not included in this simplified illustration. Third, that co-evolutionary developments are characterized by contingency, meaning the exclusion of necessity and impossibility.

Co-evolutionary approaches are particularly applicable to the analysis of complex systems, with non-linear developments, emergence and feedback loops (Mitchell, 2009), for example, to analyze the telecommunications sector and its policy-making as co-evolving complex adaptive systems (Cherry, 2007). Co-evolution, also described as co-construction or confluence (Benkler, 2006), means simultaneously designing and being designed, which is true for the interlinked changes at the various different levels of convergence, and is characterized by adaptive, non-linear systems behaviour. Thus convergence is driven by mutual selective pressure and adaptation and also involves coincidences. Mediamatics, as a convergent communications system, is also characterized by increasing complexity. It can be seen as an emergent phenomenon that cannot be understood simply in terms of its parts, the traditional sub-sectors. Complexity approaches, which can be understood as an umbrella term (Cherry, 2007) or as a modernized evolutionary theory (Schneider, 2012), provide a deep understanding of the emergence of order and self-organization in society. They can thus be instructive for institutional governance theories. They provide qualitative and quantitative, mathematically modelled support, with concepts of the central properties of complex systems such as non-linearity, emergence, adaptation and networks.

The second phase of EU communications policy

Media and telecommunications policy at the European level started comparatively late. Its *first* paradigmatic phase in the 1980s was marked by harmonization efforts to liberalize the European telecommunications sectors, which were triggered by the first co-evolutionary developments towards telematics in the 1970s. In the 1980s, in the course of telecom-liberalization, EU telecommunications policy, widely separated from a much less active and influential European media policy, became the single most prominent strategy in European telecommunications, with many non-EU countries following its strategy closely. With a successfully harmonized step-by-step strategy, it took the EU telecommunications policy more than a decade to reach full liberalization in Europe. Liberalization of the broadcasting sector happened at the same time in Europe, but with much less influence and coordination by the EU. Because of a lack of political competencies, EU media policy concentrated on public - interest issues and the free circulation of services on the principle of subsidiarity, with the goal of a common audiovisual market (European Commission, 1984), and the 1989 directive *Television without Frontiers* (European Commission, 1987) as its central instrument.

In the 1990s, convergence triggered a *second* paradigmatic phase of EU telecommunications and media policy, marked by activities and reforms towards more integrated policies and the formation of an integrated EU communications policy. At the end of 1997, with the publication of the "Green paper on the convergence of the telecommunications, media and information technology sectors, and the implications for regulation" (European Commission, 1997, p.1) the European Commission put the convergence topic at the top of the EU communications policy agenda. Convergence was defined as network, service and terminal convergence, i.e. "the ability of different network platforms to carry similar kinds of services, or coming together of consumer devices such as telephone, television and personal computer" (European Commission, 1997, p.1). Three basic options for regulatory reforms were cautiously raised for discussion: (i) to maintain the status quo and build on current vertical structures, (ii) to develop a separate regulatory model for new activities, which were to coexist with telecom and broadcasting regulation, and (iii) to progressively introduce a new regulatory model to cover the whole range of services. A Europe-wide consultation process was launched on the appropriate regulation of the convergent communications sector, which led to a strong response from the Member States. The green paper also acted as input for the review of the EU telecommunication policy in 1999.

According to the traditional communications policy regime, the Green Paper had been jointly proposed by commissioner Bangeman (DG XIII) and commissioner Oreja (DG X), but the telecommunications side, DG XIII, took the strategic lead for reforms. DG X, responsible for media, was rather reserved and more prone to maintain the status quo of separation (Latzer, 1998). These different attitudes of the telecommunications and the media side mirrored the convergence debate in the industry, where media representatives were more reticent, equating convergence with commercialization and deregulation, analogous with a hostile take-over of the media sector by telecommunications (Latzer, 2013a).

The modified common governance pattern

The convergence challenge to European communication policy turned out to be even more complicated than liberalization had been, as it necessarily blurs long-established and respected borderlines between European and national telecommunications and media policies, with separated regulatory models, agencies, norms and cultures (Latzer, 1998). For decades, this governance pattern was widely the same in nearly all democratic countries worldwide, and also the supranational regime of the EU was no exception. Convergence challenged and finally corroded the traditional common pattern of governance. After a decade of step-by-step reforms the dust settled and major constituent components of a modified common governance pattern for convergent communication sectors became visible (Latzer, 2009b). These common features can be derived from the analyses of recent developments and reforms by national and transnational players. The European Union acts as a kind of role model and driving force for this emerging governance design in Europe, as a quick look at its major common developmental lines reveals (Latzer, 2009b).

Integrated strategy – the integration of political competences

Convergence suggests a transformation from separate telecommunications and media policies towards an integrated communications policy, which overcomes the traditional but outdated telecommunications / mass media dichotomy in policy-making (Cuilenberg & Slaa, 1993; Latzer, 1998; van Cuilenburg & McQuail, 2003). At the European level, a development towards integrated strategies is being pursued organizationally as well as at the level of policy documents.

The European Commission is a good example of the realization of political-strategic integration. In 1997, the convergence strategy of the EU was launched under the old regime by the two commissioners responsible for telecommunications and the media. In reaction to this initiative, the competences that previously belonged to the Directorates General XIII (telecommunications) and X (media) were united in the Directorate General of the Information Society and Media in 2004, which in 2010 was renamed as the Directorate General for Communications Networks, Content and Technology (DG Connect).

In the comprehensive *Strategy i2010: European Information Society 2010* (European Commission, 2005), convergence was a key theme. Accordingly, the strategy aimed, among other things, to establish a convergence between policy-making and technology. The proclaimed intention was to modernize and utilize all of the EU's policy-making instruments in order to further the digital economy. In the new underlying strategy *Digital Agenda for Europe 2010-2020* (European Commission, 2010), convergence is a recognized underlying feature of current and future media development to which regulation must align itself.

Integrated control structures – horizontal convergence regulators

A second trend in the reforms in response to convergence is changes of the control structures, from vertically separated regulators to horizontally integrated control structures. The traditional regulatory regimes before the convergence trend began were characterized by vertically separate regulatory agencies and different regulatory models for telecommunications and the media. There were frequently further divisions for organizational reasons, such as broadcasting regulation being subdivided into control agencies for networks, spectrum and content. In the past decade, convergence has led to reforms intended to establish organizationally integrated convergence regulators (see OECD, 2005; Wu, 2004). The underlying rationale for this is to realize synergy effects and reduce transaction costs. There are concerns about the concentration of power of integrated regulators, although these could be counteracted by transparency guidelines as institutional precautions (Latzer, 2009b).

The idea of establishing a supranational European Communications Regulator was long discussed. EU Telecommunications Commissioner Bangeman, for example, was already arguing in 1997 that a single European regulatory authority for communications might one day prove necessary (Latzer, 1998, p. 463). However, a supranational communications regulator never even came close to being realized, because of massive power-political struggles associated with it. Instead, in 2002 an advisory body called the European Regulators Group was established (European Commission, 2002), made up of members from the national telecommunications

regulatory agencies. In 2009, this group was replaced by the *Body of European Regulators for Electronic Communication* (BEREC), in which every national regulator is represented. The representatives mostly come from telecommunications, but media experts are called in if media-related issues are discussed. The major advisory tasks of BEREC concern the implementation of a single market for electronic communications networks and services in Europe.

While the political competencies of the European Commission for media (content) policy are very limited, European competition law is applicable both for telecommunications and broadcasting, albeit with exceptions if the competition rules obstruct the fulfilment of special public tasks assigned to them (TFEU, 2008, Article 106, Section 2). Hence, to a certain extent, it could be argued that the Directorate General of Competition acts as a de facto European regulator both for telecommunications and the mass media (Streel, 2008). An example of growing activities and interference in European media policies through the 'backdoor' of competition policy is its involvement in the national public value debates via European State aid rules (Just & Latzer, 2011; for more information on competition policy see chapters Ungerer, Donders & Moe, Van Rompuy, and Iosifidis).

Integrated legal framework and laws, and technology-neutral, functional taxonomies

Alongside a tendency towards integrated strategies and integrated regulators, two further developmental lines toward a common governance pattern for the convergent communications sector are observable: the growing integration of legal frameworks and laws governing telecommunications, broadcasting and online communications; and a new taxonomy that moves away from the previous subdivision on the basis of the technology used or the industrial group involved. The disconnection of technology and networks from content and services, which results from convergence, is driving this transformation.

The EU serves as a good example for both these trends. Its legal framework for electronic communications was put into effect in 2003 and was subject to review until 2009. It intended to be technology neutral, which led to the integration and standardization of infrastructure regulations for electronic communications on different technological platforms. The EU's legal framework for infrastructure regulation, set up in 2002 as a first regulatory convergence step, led to a substantial reduction in the number of harmonization and liberalization directives. The provision of broadcasting, telecommunications and online services thus came under an integrated regulation. This was revised in 2009 with another telecoms reform package focusing on consumer rights, privacy issues and encouraging competition in electronic markets (see European Commission, 2009). In a second stage, the Television without Frontiers Directive, followed by the *Audiovisual Media Services Directive*, adapted content regulation to the convergence trend. The audiovisual directive was published as a discussion draft at the end of 2005, politically agreed by the European Parliament and Council in mid 2007 and finally codified in 2010 (see AVMS, 2010). As its name implies, it goes beyond television alone and is expected to set European standards for content regulation that is appropriate to convergence. The Audiovisual Media Services Directive makes a new differentiation between linear and non-linear services, aiming to cover new services such as web-TV, live streaming and video-on-demand.

In general, it is apparent that there is a sub-division into carriage regulation and content regulation, into economic and social/cultural regulation. However, a strict separation is impossible, because decisions on transmission have not only economic but also social and cultural effects – changing the gatekeeper, for example, can affect content. In the new model, carriage regulation of the various technological platforms is technologically neutral and uniform, whereas, depending on the expected effects, no uniform regulation is applicable for content regulation.

Alternative modes of regulation: from government to governance

Understood as the establishment of norms, their implementation and sanctioning, regulation does not take place solely through national laws and other forms of centralized state control. Convergence is pushing the vertical and horizontal extension of classic government towards governance. Vertically, it is increasingly resulting in multilevel governance in the mediamatics sector. Horizontally, it is leading to the reinforced integration of private actors in the regulatory process. With the increasing use of self- and co-regulation (alternative regulatory forms), at least some of the regulatory process is being handed over to private actors. In comparison to the traditional model, the role of the State is changing. The conditions produced by convergence – such as the cross-border characteristics of services, rapid technological change and an increased number of players – mean that the advantages of self- and co-regulation as opposed to classic State regulation can be well utilized. Alternative, and sometimes innovative regulatory forms are increasingly being used in all segments, especially for Internet-based services, with the spectrum ranging from standardization to consumer protection, domain-name administration and youth protection in the media (Latzer et al., 2006; Latzer & Saurwein, 2007; Schulz & Held, 2004).

At the European level, industry self- and co-regulation has similarly regularly been encouraged for many years, among other things, also on illegal and harmful content, e-commerce or universal service (Just & Latzer, 2004). Increasing *user-generated-content* and the rapid growth of *social network services* have been accompanied by self-organization and self-regulation as well. In 2009, the European Commission initiated the Safer Social Networking Principles for the EU. Further, the Audiovisual Media Services Directive explicitly promotes industry self-regulation and co-regulation. This is also continued in the Digital Agenda 2010-2020, for instance concerning the protection of minors (EC, 2011, p. 8).

Consequences of a co-evolutionary perspective

The analysis of media change and convergence as innovation-driven, co-evolutionary processes in a complex ecosystem points to additional and, compared to other theories, different findings. It results (1) in a changing perspective of basic framework conditions for communications policy, predominantly regarding the predictability and controllability of developments, and consequently (2) in changing general guidelines for policy-makers as will be outlined in the following (Latzer, 2013b).

Changing perception of framework conditions

From a combined co-evolution and complexity perspective, the framework conditions for communications policy imply that there is a very limited predictability and controllability of developments, leading to different conclusions regarding the role of the State. Two decades ago, nobody predicted what the Internet looks like today. Even the retrospective explanation of its development is difficult and contentious (Whitt & Schultze, 2009). This is not a new situation in media development. Mobile telephony, another central driver of current media change, was also wrongly predicted, in this case seriously underestimated. In general, the history of media can be seen as a history of false or mistaken predictions. At the same time, all these failed prognoses are indicators of the limitations on efforts to guide change, because at no time has there been any lack of attempts to control developments. The hope that this time it will work better is ever present. Nevertheless, with a long history of wrong predictions in communications, there is increasing scepticism towards theoretical approaches that focus exclusively on rational behaviour, perfect information and transparent markets.

Evolutionary and complexity approaches then immediately raise the question of whether governments have any role at all. However, analyses suggest that their role is not endangered but changing. The history of a complex, adaptive system such as the Internet serves as an example (Post, 2009; Whitt & Schultze, 2009). The State provided major support for the Internet over a long period of time, playing a central role in its development. It took three decades from invention to a successful market introduction. So it is a remarkable product of the interaction of market and non-market forces. The final product was neither politically intended, nor predicted – it is the result of a co-evolution of technology, politics and the markets.

This example shows that in general political action is essential. But what does it say about the specific role of politics as one of many agents, about its possibilities and strategies in complex evolutionary systems? First, it has to be taken into account that media change does not follow a biological evolutionary model, and that neo-Darwinism overlooks the possibility of anticipating future selections. This perspective does not take account of the fact that expected developments and implications – for example the assumption that liberalization increases diversity and decreases prices – already influence future policies. Anticipation is important, and governance research and political consulting make an essential contribution to this (Voss & Bauknecht, 2007). In contrast to biological evolution, there are consciously selected design and control attempts, attempts to tame the selection that is driven by market forces – although it has to be borne in mind that these attempts frequently lead to unintended results. Co-evolutionary processes cannot be controlled in one specific direction, existing patterns are reproduced, and new rules emerge (Nelson & Winter, 1977).

Seen as a complex, evolutionary process, media change is neither precisely predictable nor purely incidental. Complexity comes between perfect order and complete disorder (McGlade & Garnsey, 2006). In co-evolutionary terms, techno-economic media innovation and governance innovations are interdependent. But not all governance innovations (for example self- and co-regulation) are equally suited to guarantee a well-functioning media technology. There is therefore selection, depending on the specific socio-technical structures, for example through the specific

structure of mediamatics as the emerging convergent communications system. A co-evolutionary perspective recognizes that technology is not just an output but also an essential input to the economy, and technology can be effective as a structure, actor or institution. Architecture is politics, code is law (Lessig, 2006).

There are no all-knowing agents, either in government or research. It is a fundamental principle of complex, adaptive systems that no one agent can successfully pick winners or losers. Efforts in this direction are impeded by unintended consequences and coincidences, both of which are characteristics of complex systems. It is a design without central designer. At best, developments can be encouraged in a certain direction. Precise predictability is impossible, but nonetheless the process is not purely coincidental either.

Changing policy guidelines

From a co-evolution and complexity perspective these specific framework features lead to different general strategic guidelines for communications policy, for the convergent mediamatics policy in general and for Internet politics in particular (Cherry & Bauer, 2004; Cherry, 2007; Longstaff, 2002; Latzer, 2009b). Several of these guidelines are reflected in EU communications policy.

Owing to their very limited predictability, communications policies seek to dictate developments less than they did for several decades in communications (e.g. digitization, videotext, broadband). In addition, politics rather avoids attempting to pick winners from technological alternatives and different business models in the way it often did previously. Instead, communications policy aims more to enable and foster co-evolutionary processes by the creation of a favourable framework.

Another strategic approach is to develop more adaptive policies (Cherry & Bauer, 2004), for example by including feedback-loops in the governance process as for example by the Digital Agenda Governance Cycle (European Commission, 2010, 35). A further reaction would be to increase periodic reviews and revisions of laws, something that is already incorporated in the EU regulatory framework for electronic communication, which provides for periodic reviews with a view to modification in light of technological and market developments. An example from EU communication policy would be the roaming directives, which are revised in very short cycles of approximately five years due to new technological developments and economic demands (e.g. the last one from 2012 focused on data roaming).

The new focus is to support the networking of actors, to support their access to knowledge, to support research and development activities, and, in general, to enable feedback mechanisms of co-evolutionary processes. Such strategic elements are, for example, highlighted in the concluding part of the first annual progress report of the digital agenda (EC, 2011, p. 18f), as well as in the exploitation of modern interconnecting technologies for mainstreaming the discussion and enforcing participation of diverse stakeholders, as for example through the online discussion forums of the Digital Agenda Assembly.

Since only general statements can be made concerning the future of systems, because politics cannot determine the ‘best’ course of development, the thinking and proposals

describe scenarios and possible developments. Generally, a trial-and-error method seems to be appropriate, as winners cannot be recognized at an early stage. The development is away from single strategies towards a portfolio of experiments used to strengthen particular successes (Beinhocker, 2006).

Innovation theories also provide innovation typologies with differing social and economic effects, which can offer orientation and strategic support for communications and innovation policies. For example, research into innovation typologies suggests that public support programmes should target so-called radical and disruptive rather than incremental and sustaining innovations (Latzer, 2009a). The high risk of failure in the development of radical innovations involves calls for special measures. Public support programmes are taking increasing account of findings on the combination of technological and organizational innovations that drive the evolution of industries (Dosi & Nelson, 2010) and of the importance of social innovations. In addition, policies should adapt to an upcoming web innovation paradigm with special features of web-services, such as bottom-up and user-driven developments, growing cooperation and peer-production, and short time-to-market periods and life-cycles. These deserve special attention in innovation policies, for example with light and rapid funding schemes within EU research and innovation policies (European Commission, 2011), which offer small grants for short project times for only loosely defined research domains (Osimo, 2012).

Conclusions

Convergence is a multidisciplinary term and has various meanings and functions. In the context of European communications policy, it can be best understood as a blurring of sub-sectoral boundaries in the communications sector, as an innovation-driven, co-evolutionary process in a complex communications environment. The appropriate theoretical approach therefore includes a combination of co-evolution and complexity perspectives, which offer helpful concepts on complexity features such as nonlinearity, emergence and adaptation for governance.

In the late 1990s, convergence led the EU into its second paradigmatic phase of communications policy. Compared to its first phase, which strictly speaking was not a communications policy but separate telecommunications and media policies, some differences are obvious. While the first phase focused heavily on a harmonized liberalization of the telecommunications sector and the creation of a single European audiovisual market, the second phase marks the start of an integrated supranational communications policy. With institutional and organizational reforms, the EU is at the forefront of governance adaptations to convergence towards a transformed common governance model for convergent mediamatics markets. It acts as a role model at the supranational level, with organizational reforms and comprehensive plans towards an increasingly integrated strategy for communications, with the integration of legal, technology-neutral frameworks and the promotion of alternative modes of regulation. Further, it is widening its scope of activities to online-services and increasing its influence and intervention in (traditional) media policy issues. This is happening not only by extensive support measures for the media industries but also through the controversially discussed ‘backdoor’ of European competition policy via State aid rules in the case of online activities of national public broadcasters.

A combined co-evolution and complexity approach in communications is a step towards a scientific foundation, which is appropriate for the specific features of the research subject. It leads to different results regarding the governance framework within which communications policy takes place, in particular regarding the predictability and controllability of developments. In consequence, this suggests modified general strategic guidelines, characterized by a more cautious approach regarding a centralized governance of development. Several of these adaptations are reflected in recent EU communications policies, including a tendency towards more adaptive policies and frameworks, e.g. with institutionalized periodic review processes and the strengthening of cooperation and networking. Alongside regulatory and organizational measures, EU research and innovation policies increasingly recognize co-evolutionary and complexity features in strategy papers such as the action plan 2020 and the Innovation Union (European Commission, 2010), in the context of the forthcoming EU framework programme Horizon 2014-2020, which integrates the funding of research and innovation initiatives. Co-evolution and complexity approaches not necessarily overthrow findings of other theories (Schneider & Bauer, 2007) but one of the challenges for future research will be to systematically combine them with current mainstream approaches, in particular with institutional governance theories.

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References

AVMS (2010): Directive 2010/13/EU of the European Parliament and of the Council of 10 March 2010 on the coordination of certain provisions laid down by law, regulation or administrative action in Member States concerning the provision of audiovisual media services (Audiovisual Media Services Directive). codified version. L 95/1. Retrieved from http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:095:0001:0024:EN:PDF

Beinhocker, E. D. (2006). *The Origin of Wealth*. London: Random House.Benkler, Y. (2006). *The Wealth of Networks*. New Haven: Yale Univ. Press.

Bresnahan, T. (2010). General Purpose Technologies. In B. H. Hall & N. Rosenberg (Eds.), Handbook of the Economics of Innovation (pp.761-791). Oxford: Elsevier.

COM – European Commission (1984): Television without Frontiers. Green Paper on the Establishment of the Common Market for Broadcasting, especially by satellite and cable. COM (84)300. Retrieved from http://ec.europa.eu/green-papers/pdf/tv_without_frontiers_green_paper_table_com_84_300.pdf

COM – European Commission (1987): Green Paper on the Development of the Common Market for Telecommunications Services and Equipment. COM (87) 290. Retrieved from http://aei.pitt.edu/1159/1/telecom_services_gp_COM_87_290.pdf

COM – European Commission (1997): Green Paper on the Convergence of the Telecommunications, Media and Information Technology Sectors, and the Implications for Regulation. Com (97) 623. Retrieved from http://ec.europa.eu/avpolicy/docs/library/legal/com/greenp_97_623_en.pdf

COM – European Commission (2002): Commission Decision of 29 July 2002 establishing the European Regulators Group for Electronic Communications Networks and Services. 2002/627/EC. Retrieved from http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:200:0038:0038:EN:PDF

COM – European Commission (2005): Communication from the Commission to the Council, the European Parliament, the European Economic and Social Council and the Committee of the Regions: "i2010 – A European Information Society for growth and employment"). COM(2005) 229. Retrieved from http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2005:0229:FIN:EN:PDF

COM – European Commission (2010): Communication from the Commission to the Council, the European Parliament, the European Economic and Social Council and the Committee of the Regions: "A Digital Agenda for Europe". COM (2010) 245. Retrieved from http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:0245:FIN:EN:PDF

Cherry, B. A., & Bauer, J. M. (2004). Adaptive Regulation. Contours of a Policy Model for the Internet. Paper presented at the 15th Biennial Conference of the International Telecommunications Society. Retrieved from http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.137.1240

Cherry, B. A. (2007). The Telecommunications Economy and Regulation as Coevolving Complex Adaptive Systems: Implications for Federalism. *Federal Communications Law Journal, 59*(2), 369-402.

Dosi, G. & Nelson, R.R. (2010). Technical change and industrial dynamics as evolutionary processes(pp. 51-127). In B.H. Hall & N. Rosenberg (Eds), *Handbook of the Economics of Innovation*. Oxford: Elsevier

EC – European Council (2009): Directive 2009/140/EC of the European Parliament and the Council of 25 November 2009 amending Directives 2002/21/EC on a common regulatory framework for electronic communications networks and services, 2002/19/EC on access to, and interconnection of, electronic communications networks and associated facilities, and 2002/20/EC on the authorisation of electronic communications networks and services. 2009/140/EC. Retrieved from http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:337:0037:0069:EN:PDF

EC (2011): Digital Agenda for Europe. Annual Progress Report 2011. Retrieved from http://ec.europa.eu/information_society/digital-agenda/documents/dae_annual_report_2011.pdf

Fagerjord, A. & Storsul, T. (2007). Questioning Convergence. In T. Storsul & D. Stuedahl (Eds.), *Ambivalence Towards Convergence. Digitalization and Media Change* (pp.19-31). Göteborg: Nordicom.

Jenkins, H. (2006). *Convergence Culture. Where old and new media collide.* New York & London: New York University Press.

Just, N. & Latzer, M. (2004). Self- and Co-Regulation in the Mediamatics Sector. European Community (EC) Strategies and Contributions towards a Transformed Statehood. *Knowledge, Technology and Policy, 17* (2), 2004, 38-62.

Kleinsteuber, H. J. (2008). Convergence of Media Systems. The International Encyclopedia of Communication. In W. Donsbach (Ed), *Blackwell Reference Online*. available at http://www.communicationencyclopedia.com/subscriber/tocnode?id=g9781405131995_yr2012_chunk_g97814051319959_ss39-1 (accessed 20 July 2012).

Latzer, M. (1997). *Mediamatik. Die Konvergenz von Telekommunikation, Computer und Rundfunk*. Wiesbaden: Westdeutscher Verlag
Latzer, M. (1998). European Mediamatics Policies. Coping with Convergence and Globalization. *Telecommunications Policy, 22*(6), 457-466.

Latzer, M. (2009a). ICT Innovations: Radical & Disruptive? *New Media & Society, 11*(4), 599-619.

Latzer, M. (2009b). Convergence Revisited. *Convergence, 15*(4), 411-426.

Latzer, M., Just, N., Saurwein, F. & Slominski, P. (2006) 'Institutional Variety in Communications Regulation Classification scheme and empirical evidence from Austria' *Telecommunications Policy 30*(3-4): 152-170.

Latzer, M. (2013a). Media Convergence. In R. Towse & C. Handke (Eds.), *Handbook of the Digital Creative Economy*. Cheltenham: Edward Elgar, forthcoming.

Latzer, M. (2013b). Towards an Innovation-Co-evolution-Complexity Perspective on Communications Policy. In M. Löblich & S. Pfaff (Eds.), Communication and Media Policy in the Era of Digitization and the Internet (working title). Baden-Baden: Nomos, forthcoming.

Latzer, M., & Saurwein, F. (2007). Vertrauen in die Industrie – Vertrauen in die Nutzer: Selbstregulierung und Selbsthilfe bei digitalen Medieninhalten in der EU, Bericht für die Expertenkonferenz zur europäischen Medienpolitik: Mehr Vertrauen in Inhalte – das Potential von Ko- und Selbstregulierung in den digitalen Medien, Mai 2007, Leipzig.

Lessig, L. (2006). *Code and other laws of Cyberspace, Version 2.0*. New York: Basic Books.

McGlade, J., & Garnsey, E. (Eds.) (2006). *Complexity and Co-evolution*. Cheltenham: Edward Elgar.

Longstaff, P. (2002). *The Communications Toolkit*. Boston: MIT Press.

MEMO (2012): Digital Agenda. Commission adopts first report on the application of the Audiovisual Media Services Directive. MEMO/12/306. Retrieved from http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/12/306&format=HTML&aged=0&language=EN&guiLanguage=en 29.08.2012

Mitchell, M. (2009). *Complexity. A Guided Tour.* Oxford (a.o.): Oxford University PressNelson, R. R., & Winter, S.G. (1982). *An Evolutionary Theory of Economic Change*. Cambridge: Belknap Press.

Nora, S., & Minc, A. (1978). *L'informatisation de la société*. Paris: La Documentation Française.

OECD (2005). *Telecommunication Regulatory Institutional Structures and Responsibilities: Report to the Working Party on Telecommunication and Information Services Policies*. Paris: OECD.

Osimo, D. (2012). "Light and fast" funding for innovation. Making EU innovation policies fit for the web. Conference Paper presented at the 27th European Communications Policy Research Conference, 25-27 March 2012 Ghent, Belgium.

Pool, I. de S. (1983). *Technologies of Freedom*. Cambridge: Harvard Univ. Press.

Post, D. G. (2009). *In Search of Jefferson's Moose*. Oxford: Oxford Univ. Press.

Schulz, W., & Held, T. (2004). *Regulated Self-Regulation as a Form of Modern Government*. Luton: University of Luton Press.

Schneider, V. (2012). Governance and Complexity. In D. Levi-Faur (Ed.), *Oxford Handbook of Governance* (pp. 129-142), Oxford: Oxford University Press.

Schneider, V., & Bauer, J., (2007). Governance Prospects of Complexity Theory in Revisiting System Theory. Paper prepared for the Annual meeting of the Midwest Political Science Association. Chicago, April 2007.

Schuppert, G. F. (Ed.) (2006). *Governance-Forschung. Vergewisserung über Stand und Entwicklungslinien*. Baden-Baden: Nomos.

Storsul, T., & Fagerjord, A. (2008). Digitization and Media Convergence. The International Encyclopedia of Communication. In W. Donsbach (Ed). *Blackwell Reference Online*. Retrieved from http://www.communicationencyclopedia.com/subscriber/tocnode?id=g9781405131995_yr2012_chunk_g97814051319959_ss39-1 (accessed 20 July 2012).

Storsul, T., & Stuedahl, D. (Eds.) (2007). *Ambivalence Towards Convergence. Digitalization and Media Change*. Göteborg: Nordicom.

Streel, Alexandre de (2008). Current and future European regulation of electronic communications. A critical assessment. *Telecommunications Policy, 32*(11), 722-734

TFEU (2008): Consolidated Version of the Treaty on the Functioning of the European Union. C 115/47. Refrieved from http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2008:115:0047:0199:en:PDF

Voss, J.-P., & Bauknecht, D. (2007). Der Einfluss von Technik auf Governance-Innovationen. In U. Dolata & R. Werle (Eds.), *Gesellschaft und die Macht der Technik* (pp. 109-131). Frankfurt: Campus.

van Cuilenberg, J., & Slaa, P. (1993). From media policy towards a national communications policy. *European Journal of Communication, 8* (2), 149-176.

van Cuilenburg, J. & McQuail, D. (2003). Media Policy Paradigm Shifts. Towards a New Communications Policy Paradigm. *European Journal of Communication, 18*(2), 181-207

Whitt, R. & Schultze, S. (2009). The New „Emergence Economics" of Innovation and Growth, And What It Means for Communications Policy. *Journal on Telecommunications and High Technology Law, 7*(2), 217-316.

Wirth, M. O. (2006). Issues in media Convergence. In A. B. Albarran, S. Chan-Olmsted & M. O. Wirth (Eds.), *Handbook of Media Management and Economics* (pp.445-462). Mahwah NJ: Lawrence Erlbaum Association.

Wu, I. (2004). Canada, South Korea, Netherlands and Sweden: Regulatory Implications of the Convergence of Telecommunications, Broadcasting and Internet Services. *Telecommunications Policy 28*(1): 79-96.