

Chapter 2

From Innovation Systems to Cross-innovations

Indrek Ibrus

Abstract

This chapter establishes the conceptual and analytic framework for the book. It relates not only to much of the existing work in *evolutionary and institutional economics*, but also to work in *cultural science* and *cultural semiotics* domains as well as in media convergence and transmedia studies. The central concept it first deploys is ‘innovation systems’ as applied in national, regional, international and sectoral contexts. It then builds on the *general theory of economic evolution* by Kurt Dopfer and Jason Potts and reviews the tools this theory provides to carry out a meso-level analysis of industries co-innovating and converging. It then proposes a new concept – ‘cross-innovation’ – to refer to the emergence of new structures and ‘rules’ at the boundaries of existing industries.

Keywords: Cross-innovation; innovation systems; evolutionary economics; interactive learning; media innovation; media industries

Beginnings of Innovation Systems Research

Before we start discussing what to think of ‘innovation systems’, let us first settle how we understand ‘innovation’, the central term in this book. As the main topic here is the convergence of audiovisual (AV) media with other sectors, let us, perhaps unusually, start with a cultural definition – one by Russian-Estonian semiotician Juri Lotman:



© 2019, Indrek Ibrus. Published by Emerald Publishing Limited. This chapter is published under the Creative Commons Attribution (CC BY 4.0) licence. Anyone may reproduce, distribute, translate and create derivative works of this chapter (for both commercial and non-commercial purposes), subject to full attribution to the original publication and authors. The full terms of this licence may be seen at <http://creativecommons.org/licenses/by/4.0/legalcode>

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, p. 137)

That is, innovation in terms of the forms of media and culture is equated with transmissions of texts, new combinations of textual elements and conventions and the resulting emergence of new forms and meanings. Let us take here, as a comparison, another classic, the most original of innovation definitions by the economist Joseph Schumpeter:

Recalling that production in the economic sense is nothing but combining productive services, we may express the same thing by saying that innovation combines factors in a new way, or that it consists in carrying out New Combinations. (Schumpeter, 1939, pp. 87–88).

What we need to recognise is that newness, both as a new cultural form and as a new product to be brought to markets, is always an original combination of what existed before, of representative conventions, of ideas or bodies of knowledge, of institutional settings or of resources. Innovation emerges out of the old, but the combination is new – it may appear as new, may get codified as new, may eventually emancipate as an entirely autonomous system, but it still stays connected with the previous combinations in complex ways, more at the beginning, less after emancipation. Yet, what also needs to be realised is that innovation is not a bounded entity; it is a process of combining. What, therefore, needs to be looked at is how and why the combination happens. As much innovation in contemporary societies is arrived at in different kinds of organisations, we rely here on the articulation by Chaminade, Lundvall, and Haneef (2018, p. 1) that innovation is an interactive process where different kinds of knowledge are combined through communication within and across organisational borders.

And here we arrive at 'innovation systems'. It stands to reason that if innovation is an interactive process involving multi-directional flows of knowledge, it needs a system of institutions constituting this process. Innovation systems theory looks at how to make these interactions between institutions work such that it facilitates growth of knowledge and productivity, which in most instances is a national system of economic production. Hence the common research focus on 'national innovation systems'.

While innovation systems theory is relatively young, its roots are firmly in the nineteenth century. The conceptualisation started with Friedrich List, founder of what is now known as the historical school of economics. He posited in *The National System of Political Economy* (1856 [1841]) that 'the present state of the nations' is a result of the accumulation of all discoveries, improvements,

perfections and exertions of previous generations and that the further productivity of national economies depends on how contemporary generations can build on the existing knowledge. In that, he criticised the classical economists for neglecting the role of science, technology and skills in their theories of the wealth of nations.

The modern concept of national innovation systems emerged in the late 1980s as part of the quick emergence of evolutionary economics – now the prevalent approach to understanding innovation in economy and society. The concept was mentioned first in a paper by Freeman (1982) and soon after by Lundvall (1985), Nelson (1988) and others. On a broad scale, their realisations were not that different from those of List. What all models of national innovation systems share is, first, that the growth and development of economic systems is conditioned by accumulation and growth of knowledge and, second, that growth of knowledge results from interactions between different kinds of institutions and their systems. Chaminade et al. (2018) have, however, divided the approaches into two – the narrow and the broad.

Narrower models (Freeman, 1988; Nelson, 1993) focus in the first place on the interactions between research institutions and firms. The sequence of knowledge investments that in this tradition would bring growth has basic science first, then technical engineering and then markets. In opposition, what could be understood as broader models (Lundvall, 1992, 2010b; Potts, 2011) focus on all kinds of interactions that involve and result in cross-boundary learning and emergence of new constellations. The more recent evolution of these holistic approaches has been notably interdisciplinary, building on the work in structuralist long-term growth theory, institutional and evolutionary economics, behavioural economics, interactionist social psychology, media and culture studies, semiotics and the geography of knowledge and learning.

Holistic Approaches to Innovation Systems

The underlying idea that connects what can be termed as various ‘holistic’ approaches to innovation systems is that new ideas and innovations are also born outside the formal R&D systems, that production of knowledge is a nonlinear social process involving not only interactions between institutions, but also interactions between humans both within as well as across institutional boundaries (Chaminade et al., 2018, p. 8). In this context, the approach developed originally by Lundvall emphasises the concept of learning – that is, knowledge exchange and learning between people with diverse expertise or skills; learning between producers and users and learning by interacting, by using and by doing (Johnson, 2010; Lundvall, 1992). Factoring in learning in this way means, first, that analytic focus becomes divided between large-scale institutional settings and people’s individual interpretative or cognitive capacities. As posited by Dopfer and Potts (2008, p. 8), economic evolution is the co-evolution of general social rules and specific rules of individuals. The analytic framework, then, needs to encompass both – by also including scholarly approaches and methods such as anthropology and cognitive psychology. But, second, including learning in the analysis also

means that educational systems that affect learning capacities are crucial for the evolution of the system; therefore, all organised forms of training need to be included in the analysis, too (Chaminade et al., 2018, p. 8).

Further, what the scholars who have been part of the ‘interactive learning’ approach have also been notably emphasising is the role of culture. Building on Commons’ (1931) articulation of culture as ‘collective control of individual action’ and Veblen’s (1919) writing on ‘habits of use and wont’ and ‘habits of thought’, it has been seen that economic behaviour is shaped by enculturation, that is, that culture conditions all human actions (Johnson, 2010, p. 25). It needs to be recognised, however, that Lundvall, Johnson and others working within this tradition are concerned, in the first place, with national systems of innovation and, therefore, address the challenges producers face owing to differences in national cultures. As Johnson puts it:

Culture makes nations with the same kind of economic system, for example Denmark, Sweden and Germany, different from each other, and cultural systems are governed by the rules and rules about rules, including rules for breaking and changing rules. Many of these rules apply to economic production. Who can decide what? What remunerations are to be expected for different kinds of work? What efforts and what kinds of communications and cooperation will be expected in different situations? Such questions would be impossible to answer and uncertainties would take inhibiting proportions, if production was not heavily supported by different kinds of formal and informal rules. Many of the rules supporting production differ between countries and since communication within common culture is easier than between different cultures, we should expect the differences between national cultures to have considerable staying power. (Johnson, 2010, pp. 40–41)

When reading this passage, we need to recognise that while the likes of Johnson and Lundvall operate with broad categories such as national cultures, for them, ‘culture’ effectively means behavioural codes and norms structuring production processes of all kinds. They do not include into their calculus the role of finer forms of culture – various kinds of more or less temporal sub-cultures or other systems of meaning. And they also ignore the role of cultural or creative industries or non-market production and the use of arts as an important constituent of national innovation systems. This ignores, effectively, the trends described in the previous chapter – the evolution of the service economy, the substantial part of creative industries in this, the related emergence of what is known as the ‘experience economy’ and the mediatisation of all economy. Analyses of these trends have generally suggested not only that the creative industries are contributing usefully to national GDPs and are in a constant process of generating novelties (that is, innovations), but also that these innovations

are shaping and driving much of the technical innovation that scholars of innovation systems and economic growth have generally been focused on to this day. Our suggestion, in other words, is that including the creative and especially media industries is necessary if we are to move towards what is suggested as a holistic approach to innovation systems (Edquist, 2011, p. 17).

This inclusion would mean putting a firm focus on the ‘demand-side of innovation’ (Potts, 2011, p. 107). The argument is that much of growth theory has focused on the supply of innovative physical technologies as drivers of economic evolution. Yet, the role of the media and creative industries is to facilitate wider exchange on ‘possible worlds’, to enable multiplicities of perspectives and of imaginations. As Umberto Eco (1979, pp. 86–87) put it, there are two ways of arriving at new information: through ‘factual judgements’ (scientific discoveries) and through novel metaphors that open up new ways to interpret realities. Arts and creative industries facilitate the emergence of new tropes and, therefore, not only contribute significantly to the growth of knowledge, but also facilitate its pace. By facilitating societal dialogues, they not only enable the meetings of different ideas and motivate their combinations to form entirely new ones, that is, innovative ideas, but as such they also facilitate social and cultural coherence and stability because dialogues carry the potential to bring about understanding and compromises. Improved understanding of others relates to the general growth of knowledge. This was highlighted by Potts and Cunningham (2008) when they argued that the contemporary rapid growth of creative industries may not be owing solely to wealth effects (people having resources to consume cultural services) or the benefits of information and communication technology and globalisation, but may reflect the deeper order in which the creative industries facilitate the emergence of ideas that drive economic evolution. In Potts’ terms (2011, p. 107), they facilitate demand for all kinds of new products and services that the rest of the economy can then provide. Within the framework provided by Mansell (2012), we can also suggest that they have the potential to shape the dominant social imaginaries that then shape the evolution of the broader information society.

This view of the arts and creative industries shaping the rest of the economy in terms of creating demand and facilitating the emergence of innovative ideas and social imaginaries could be, in effect, called an endogenous approach to social and economic change. It is based on an understanding that change does not happen exogenously, through technologies that just arrive as ‘manna from heaven’ to disrupt the markets and shape society. Instead, the endogenous view is that all social and cultural processes need to be included in the analysis, and that technologies and governing systems are conditioned by complex interactions between systems of meaning making and communication. The need for this kind of endogenous view becomes more immediate in the case of creative industries cooperating and converging with other sectors. In the following, we will discuss how to apply innovation systems theory as an endogenous approach to understand the changes on the meso-level of economy – that is, in the case of industries reorganising, converging or developing new ‘rules’ around which to organise themselves. Mediatisation of formerly distinct industries could be exactly the kind of rule change that reorganises all industry structures and operations.

Sectoral Innovation Systems and Their Convergence

When we discuss the co-innovation opportunities and convergence between distinct industries, we should first ask if it is possible to talk about sectoral innovation systems. [Breschi and Malerba \(1997\)](#) thought it is and defined sectoral innovation systems as systems of firms that are active in developing and making the sector's products and in generating and utilising the sector's technologies. Their focus only on firms and not, for instance, on educational or research institutions may be too limiting, especially as their definition emphasises the importance of competition among firms and their role in the selection of technology designs and sectoral rules. Yet, they added that interaction and cooperation in technology development are also of importance in system evolution. Regarding cooperation, while they focused mainly on geographically concentrated sectors, their conclusion was that when it comes to knowledge transmission, the boundaries of sectoral innovation systems are endogenous – they are auto-communicatively created. That is, an industry creates itself and, as [McKelvey \(1997, p. 205\)](#) also proposes, a (sectoral) innovation system emerges when institutions share common characteristics relevant for innovative activities.

Against this backdrop, we want to build further on the work of [Dopfer and Potts \(2008\)](#) and [Potts \(2011\)](#). The 'general theory of economy evolution' of Dopfer and Potts is effectively a generalised and as such abstracted approach to economic evolution. Yet, their articulation of social and economic evolution as a change in generic rules allows them to systematically address the circumstances when rules do change – as when industries converge and establish new combinatory rules. Furthermore, their division of analytic 'levels' into micro, meso and macro is useful for our purposes. Our focus is on the processes of different sectors and their industries starting to co-innovate and converge and this asks for a specific toolset designed for meso-level analysis – to understand how the rules shared by specific auto-communicatively functioning industries may change.

The central element of Dopfer and Potts' theory is the 'rule'. In their terms, a rule is an idea that organises actions or resources into operations. 'Rules' can be languages, discourses, conventions, habits, belief systems, scientific discoveries, standards, laws, agreements, network protocols, computer codes, technologies and so on. As such, rules are the starting points and hotspots for economic evolution in the knowledge economy. Broader economic evolution is a change in socially generated rules that Dopfer and Potts call generic rules (2008, p. 6). These generic rules, then, are divided into subject rules and object rules. The first are the rules for individuals – that they learn, mislearn, modify or generate for guiding their operations. Object rules, on the other hand, are rules organising individual agents as 'rule carriers' into social organisations such as firms, their networks, markets, clusters, civil movements and so on.

The speciality of Dopfer and Potts' approach for our purposes in this book, however, is its proposal for 'evolutionary mesoeconomics'. In neoclassical economics, there is effectively only one rule – the representative rationality of an individual agent – and this is not supposed to change. Compared to this, 'evolutionary micro-economics' recognises that there is a heterogeneity of agents with different

rationalities, sometimes also without rationalities, and that there is, therefore, also plurality of rules that do change. Evolutionary mesoeconomics addresses the rule in relation to its carrier population – the ‘industry’, in our case. For instance, in the videogames industry, the rules relate to the forms of games, or to the ideas or ideologies behind the games, as well as to the production processes and business conducts constituting the industry. The core analytic concept here, however, is the ‘rule trajectory’, which describes how a rule is innovated in one carrier and is then subsequently adopted by many (Dopfer & Potts, 2008, p. 21). Evolutionary mesoeconomics, therefore, studies the evolution of rule carriers and how they make up social organisations such as industries. The analytic unit of meso is a rule and its population – how their pairing emerges and how it evolves further.

We see that for the purposes of this book – to analyse how industries co-innovate and potentially converge – Dopfer and Potts’ framework of mesoeconomics serves well. As Potts (2011, pp. 107–118) has separately explicated, this theory is also useful for understanding the role of creative industries in this process. Yet, their approach needs to be further expanded to interpret especially the convergence issues – how innovations emerge at the boundaries of existing industries and how these innovations then affect the identities and organisation of these industries, to the possible extent of their full convergence. The theory expansion in this book will build, mostly, on the ‘interactive learning’ approach of Lundvall and on the *cultural science* approach that effectively combines evolutionary economics with various forms of cultural theory, especially Juri Lotman’s cultural semiotics (Hartley, 2009, 2015; Hartley & Potts, 2014). We will untangle the combined approach by following Dopfer and Potts’ (2008, pp. 46–50) ‘three-phase meso trajectory’, which tracks, first, the origination of a new rule, second, its adoption into a population and, third, its retention by that population as an established and codified institution.

Origination of a Rule

Dopfer and Potts emphasise (2008, p. 47) that a new idea/innovation/rule when it emerges on the meso-level needs to be able to ‘cross boundaries’ – that is, it will not stay as the unique property of its inventor, but must be attractive for others to adopt. Our argument here, however, is that what also matters for meso-level analysis is the perspective on the endogenous process leading to the origination of the new rule. If innovation is a combination, as Schumpeter put it, we need to ask how the combinations come about. Our proposition, articulated before by Ibrus (2015a, 2016), is that for a combination of different perspectives of knowledge domains to happen, a dialogue is needed – a dialogue across the existing boundaries of social or cultural sub-systems. As in the example described in Chapter 1, a dialogue between the engineers of the Internet and telecommunications industries first happened that enabled T-Mobile in Europe to eventually come up with a solution that would make websites accessible on mobile devices – a solution facilitating the convergence of mobile and desktop webs and as such creating a new ‘rule’ of device-agnostic or multi-platform web.

This example also indicates how the dialogue as such is paradoxically also the first instance of auto-communication – the participants in the dialogue articulate their connection, their shared ‘rules’, that is, then communicate about them, establishing an ‘us-ness’, a joint identity. It has been demonstrated (Ibrus, 2015a, 2016) how media innovations emerging at the meeting points of different industry sectors facilitate their convergence as the social structures that produced them start working auto-communicatively. To explain the concept, *auto-communication* as introduced by Lotman (1990) refers to the situation where the messages produced address the communicating institution itself, its identity, its boundaries and distinctions (see also Christensen (1997, p. 202), Morsing (2006, p. 175) and Broms and Gahmberg (1983)). Therefore, a new rule is not only boundary crossing in terms of combining rules of different domains, but it is also potentially boundary creating – working towards organising new institutional settings around it and creating boundaries between these and what is outside.

As Potts puts it, creative industries are crucial for the origination of new ideas in contemporary societies. They, especially media industries, facilitate their emergence, but they also contribute to their provision. As we saw in our mobile media case study in Chapter 1, it was media and service industries that gave birth to and drove the development of the ‘responsive web’ where different users or audience groups can be serviced with different kinds of content (Ibrus, 2013). Yet, this example also evidences how new combinatory rules are then mediatised – they are affected by all preceding rules, including those of the media. The question is about the extent of mediatisation – here the analytic tools suggested by Schulz (2004), discussed in Chapter 1, become relevant. In the empirical chapters of this book, we track the dialogues that different industries have had, to facilitate co-innovation and convergence. In that, we also look at the processes of interactive learning in terms of Lundvall – how does the learning happen, how does it affect designs or products or services and how does it affect the self-organisation of the industries as well as auto-communicative practices? We also track to what extent the innovation emerging at the borderlines of industries establishes a rule that, indeed, starts to work auto-communicatively and to reorganise its neighbouring industries.

Adoption

In terms of Dopfer and Potts (2008), the second phase of economic evolution is when a population of carriers – both individuals and institutions – starts adopting the novel rule. It is effectively the process covered by multiple existing theoretical frameworks such as the innovation diffusion theory (Rogers, 1995) or the science and technology studies framework (Bijker, Hughes, & Pinch, 1989; Felt, Fouché, Miller, & Smith-Doerr, 2016). When it comes to evolutionary economics, Dopfer and Potts broadly agree with Rogers that, for successful diffusion, an innovation needs to balance providing understandable novel gains for adopters with being compatible with pre-existing systems and easy to learn. What the latter means is that all innovations need, to an extent, to be path-dependent (David,

1995, 2000) – they need either to be compatible with existing technological, economic or social systems or to be comprehensible in the existing cultural context. The latter is especially important for media content products and services as they need to be interpretable – they need to make sense to users/viewers/readers. Yet, the classical problem with the creative industries’ products and services is that their use value is unknown before the act of usage. As put by Potts, Cunningham, Hartley, and Ormerod (2008), they are the domain of new rules. As cultural products are expected to provide at minimum unique experiences, they are also designated to generate new meaning. If the consumer in fact prefers or understands that meaning or the accompanying experience cannot, however, be known beforehand. In this case, consumer choice cannot be rational, as is believed in neoclassical economics. It is instead mainly dependent on the choices of others, on experiences and recommendations that reach consumers via their social networks. It is for this reason that Potts et al. (2008) have proposed re-conceptualising the creative industries as ‘social network markets’ – as markets where production and consumption decisions are based on the actions/signals of other agents in the social network. This definition gives primacy to communicative actions in market dynamics and not to economic signals such as price or future gains. That is, it is the communication between market participants, increasingly organised into networks, that affects the adoption rates of specific new rules.

What Potts (2007) and Potts et al. (2008) then also argue is that such communications across social networks become the main means for innovation system coordination in the contemporary service economy infused with mediatisation. Therefore, Potts (2011, p. 115) suggests, the creative industries in general become a crucial element in contemporary innovation systems as they facilitate social networks, constitute means of communication and are able to reduce the uncertainties associated with consumption. All forms of media and culture can be used to handle and process social information about new ideas, new things, new possibilities and consequences. As, for instance, how contemporary TV series such as *Humans* (2015–2018) or *Westworld* (2016–2020) or films such as *Her* (2013) or *Ex Machina* (2014) have introduced the concept of artificial intelligence to broader audiences. Yet, as Hartley has emphasised (see in Şimşek, 2017), the ways in which the media processes these topics are again dependent on the broader cultural and social structures as well as established imaginaries.

What also needs to be considered here is the structure of creative industries. In Europe, as elsewhere, the creative and media industries are generally characterised by an hourglass structure – the markets are dominated by a few oligopolistic enterprises and a growing number of ever smaller independent companies (according to Eurostat in 2014, an average European creative industries enterprise employed 3.1 persons as compared to 5.1 in total services¹) that generally provide services to those few larger enterprises, but also dynamically organise

¹See further: http://ec.europa.eu/eurostat/statistics-explained/index.php/Culture_statistics_-_cultural_enterprises

and reorganise themselves into complex value-chains where they sometimes compete and sometimes cooperate. That is, these small companies are often each other's customers and most immediate colleagues, and they form social networks and complex, often reciprocal producer–user relationships. Potts et al. (2008) suggest that it is through such user–producer relationships that much contemporary growth of knowledge and emergence of new rules/innovations is facilitated. Also Von Hippel's (2005) work has emphasised the growing role of all kinds of users in the innovation processes of the digital era. Much of such innovations are incremental; they are effectively constant modifications, improvements or variations of emergent rules (products or services). Their accumulation, however, could sometimes take to more radical innovations, as has been the case, for instance, with content production on the YouTube platform – that constitutes by now an autonomous sub-market for AV content, with its own rules, genres, economies and social hierarchies. The social networks of associated producers and users are coordinating the field, its rules and its constant reorganisation not only in terms of production, but also in terms of user feedback, of communicating about their experiences, and of filtering out choices and making recommendations.

What Lundvall has been emphasising about user–producer relationships, first, is that user feedback has also been classically important for innovating enterprises as producers cannot be assumed to know all the possible outcomes of their activities. Lundvall (2010a, p. 54) proposes that the most basic function of the user–producer relationship, in relation to product innovations, is to communicate information about both technological opportunities and user needs. He suggests that to ease such communications, users and producers will gradually develop a common code of communication, a specialised language or discourse that makes the exchange of information within the specific domain more efficient. This new code, however, could be subsequently used for communicating and interpreting distinctions ('us' and 'them') and for coordinating relationships of loyalty and trust. As Lundvall (2010a, p. 54) also points out, it takes time to develop efficient codes and channels of information as well as relationships of trust and common conduct. To leave an established user–producer relationship, therefore, becomes increasingly costly and involves a loss of information capital.

There are many implications from this for the adoption of new rules. First, users and adopters need to have clear gains from the new rules to compensate the loss of existing information capital. Second, adoption means learning into the new codes, rules and, therefore, also new kinds of relationships. It is also in the broader adoption phase that the auto-communicative mechanisms of the new systems gain steam. Development of own codes is an instrument for codification of the new rule. This kind of auto-communication is, however, to a significant extent, about testing and learning of all the implications, possibilities and circumstances of the new rule and the cluster of related emergent rules. The system participants may need to learn about and develop new forms of transactions, new codes of conduct, new kinds of partnerships, new networks, new regulations and so on. As Dopfer and Potts (Dopfer & Potts, 2008, p. 49) discuss, the phase begins with high uncertainty, but, towards the end of the adoption

process, the cumulative effect of the experience will have notably reduced the uncertainty, the new rule will be customised according to majority needs, it will be reasonably codified and knowledge of it will be diffused at least within the immediate system.

In this book, we will trace mostly the early stage of cooperation and co-innovation systems that emerge at the borderlines of industries with the potential to establish a new rule that could motivate further convergence between these industries. Yet, additionally, we look at some of the instances, especially in the area of the videogames industry co-innovating with the education sector, where we find signs of the broader adoption phase. In these instances, we focus specifically on the complex dynamics between different kinds of users and producers and how these affect the adoption of innovative services. We address how existing social networks may function in order to coordinate the evolution of innovative rules and how, in the process, they may first unravel and then rebuild? And what does it take, potentially, to build new networks across industry boundaries and to develop and communicate about new shared codes and sectoral identities? As one of the converging industries is AV media with special codes of conduct for managing audience relationships with new digital media forms, often relying on more active, participatory involvement of users, our work looks specifically at the effects of these kinds of user–producer relationships on the co-innovation processes .

Retention

According to [Dopfer and Potts' \(2008, p. 50\)](#) theory, the third phase of a meso-trajectory is stable retention of the established rule in the population of rule carriers, that is, the particular industry. The rule is then steadily replicated by the population of carriers, be these institutions or individual people; most ways of transaction have been codified; the networks are settled; and the size of the market clarified, too. This also means that transaction costs have dropped, so various forms of associated service niches will be opened up. Forms of expertise have taken shape, as have forms of training. When it comes to general economy, as [Potts \(2011, p. 116\)](#) suggests, similarly to previous phases, the creative industries are crucial in such kinds of 'normalisation' work – they control the communications platforms and are in the business of explaining or familiarising the generic rules to populations. The phenomena we discuss in this book have not yet arrived at the retention phase, but we are keeping an eye on the potential and circumstances our specific co-innovation areas and new rules need to reach the retention phase.

Firms Over the Meso-trajectory

[Dopfer and Potts \(2008\)](#) emphasise the need to analyse micro-strategies in the meso-context – that is, how firms are adapting to generic change that happens in markets and in industry contexts. Firms may have different kinds of expertise

or risk-taking readiness with which to strategically focus on origination, adoption or retention phases of innovations. Startup companies are generally focused on origination phases, but some may instead focus on developing solutions associated with or spinning from other emergent rules. This suggests that, in practice, it is rarely reasonable to talk about single emergent rules, but rather about clusters of rules that may be either more or less strongly connected. As, for instance, in the case of contemporary interrelated emergences of virtual reality, augmented reality and mixed reality solutions and applications. In these areas, a lot of experimentation is taking place that is sometimes overlapping, sometimes interrelated and sometimes distancing, but it most certainly is emerging as a cluster of new rules potentially relevant for several industries, though with media, tourism, health care and education being the most involved. In this area, then, are firms that may be investing in the origination of new solutions, while others focus on picking the more developed solutions already in the wider adoption phase in order to find ways to customise or modify those to develop unique proposals and provide additional value. In the rest of the book, we investigate the circumstances in which small and medium-sized enterprises (SMEs) choose one or the other option across innovation trajectories.

What we also look at is how firms as well as other institutions in the system develop their strategies. *Küng (2008)* has demonstrated that, differently from large global platform providers, smaller media companies cannot afford anymore to build on the rationalist approaches to strategy development. This would be through studies of the competitive environment and then developing multi-year plans for how to pursue set goals in that environment. The presumption for rationalist approaches, part of neoclassical economics, is that markets, even if they are sometimes externally disrupted by unexpected entries of new technologies or other innovations, are able to quickly reach equilibria and, therefore, competitive environments remain generally predictable. Yet, contrary to such beliefs, contemporary media markets are evidently characterised by dynamic change and such long-term plans may have limitations in guiding operations. Alternative ways of strategy building that innovation scholars propose are adaptive/instrumentalist approaches (*Küng, 2017*, pp. 65–70; *Tidd & Bessant, 2009*) as well as interpretative approaches (*Küng, 2017*, pp. 70–72).

An adaptive approach to strategic management means that no long-term plans are devised or held. Instead, strategies emerge through everyday actions as firms react dynamically to changes in their environment. These processes tend to be generally messy; sometimes the goals get formally articulated and codified, but rarely are they systematically acted upon. Strategy development as such is effectively evolutionary, in practice constituted as ‘actions upon actions’ in terms of *Foucault’s (2002, pp. 201–222)* models of governance and power. When we generalise such individual micro-strategies to the broader level of a meso-population and their generation or adoption of new rules/innovations, we need to realise that this is a highly complex process where individual agents make circumstantial decisions based on their strengths and immediate opportunities (or their lack) in their environment. In the later chapters, we address how SMEs

in the Baltic Sea region adapt to their environment as they co-innovate with various partners.

The interpretive school of strategy development (Küng, 2017, pp. 70–72) focuses in the first place on complexity within firms. It acknowledges that people within institutions may be part of multiple epistemic, social or cultural communities, may be connected to the external environment in multiple ways, may use different kinds of channels to acquire information and may, relatedly, also interpret all kinds of messages that reach them in different ways. An interpretive approach, therefore, looks at strategy evolution as resulting from these differences. Both the challenges as well as the opportunities are related to these. The differences may bring about communicative difficulties or disagreements within organisations, but they also constitute methods to bring in alternative viewpoints and new information, to facilitate diversity of options and, therefore, to enlarge the pool of alternative trajectories for the firm. Inspired by this approach, we address this dynamic, too, in the further chapters: first, in terms of how firms as constellations of people with different professional identities use this to connect to different external communities and, second, in terms of how firms handle these differences in addressing their joint positioning or belonging to broader systems such as an ‘industry’.

Diversity

The discussion in the previous section on diversity within institutions introduced the broader question of diversity in innovation systems. As Cohendet and Llerena (1997, p. 227) put it, ‘[d]iversity drives evolution, and evolution generates diversity’. When the economy includes a wide range of specialised knowledge domains, as well as people and institutions with different kinds of expertise and cultural viewpoints, it is more possible that their unique combinations will generate unique innovations. These innovations then facilitate the emergence of highly productive temporary monopolies that also present the economy’s new rules (in terms of Dopfer and Potts) to be widely adopted. That is, inherent diversity is essential for well-functioning innovation systems.

As de Vaan, Vedres, and Stark (2015) have demonstrated in the case of US videogame industries, the larger the ‘cognitive distance’ between included teams, the more radical tend to be the innovations. When there is some tension, some incommensurability and untranslatability between the perceptions of teams that master different styles or techniques, it tends to translate into distinctive output in the market – into innovation. This relates to Lotman’s (2009) proposal, part of his theory of cultural change: the more culturally distant the cultural domains that end up in a dialogue, the bigger will be the cultural ‘explosion’ resulting from it. The most unique and innovative forms of culture are born from a combination of formerly distant ideas, forms or conventions. The paradox is that the mutual untranslatability enforces the invention of a new form, interpretative code or cultural language. As an example, we could think of the birth of film montage, which, according to Sergei Eisenstein’s accounts, was a ‘remix’ of ideas

from Japanese kabuki theatre, Hegelian dialectics, and so on. The then explosive rules of filmic storytelling have, of course, by now created a multi-billion industry operating worldwide.

In terms of Lundvall's approach to innovation systems as systems of interactive learning, all this means that those systems work well when conditions are created for people or institutions with different expertise to learn from each other in a co-innovation process. Therefore, policies need to be in place that enable such mutual learning. For this purpose, various inter-industry networking and awareness-raising events tend to be among the toolset of many policy makers (Tafel-Viia, Viia, Terk, & Lassur, 2014). An important part of this is the instalment of interdisciplinary training programmes, both formal and informal. Equally relevant are interdisciplinary research endeavours. Interdisciplinary dialogues in research and educational institutions can, over time, extend to become inter-industry co-innovation endeavours.

What the inclusion of educational institutions also points to is the question of public institutions in innovation systems. Johnson (2010, p. 39) suggests that diversity in the institutional system is just as important for economic change as diversity in the production structure. Public institutions are ready to invest in coordination activities that produce public value, that is, that are usable by multiple parties, such as basic research or incubators for early stage start-ups, as well as measures of knowledge diffusion such as public libraries. Furthermore, public institutions, with their multiplicity of conflicting goals, bring alternatives to market-based systems (Gregersen, 2010, p. 136) – they enrich the potential range of innovation trajectories. Diversity in the system in terms of both public and private institutions being involved is also important for potential shock absorption – in the eras of dynamic change, the system needs the existence of alternative operational models and objectives to alleviate all risks and develop resilience.

In the area of media, it has been suggested (Ibrus, 2015b) that public service media institutions can operate as important coordinators of culture-oriented innovation systems because they invest in activities that create public value – such as promoting alternative forms of culture, experimenting with new kinds of content formats, popularising science and producing environmental programmes. These are either high risk activities or programme formats without immediate commercial value. Yet, once public service media has developed functional formats, created brand value for new artists and widened awareness of specific research areas, all kinds of other agents, including commercial forms, can build on this.

In this case, what needs to be recognised is that public institutions in innovation systems produce 'public value' (Benington & Moore, 2011) that can then be utilised by a variety of parties, including commercial institutions. The thing about media markets, however, is that the success of private media institutions depends on their production of public value, too. The eventual focus on facilitating public value generation and on diversity and learning of the innovation systems approaches has been controversial for neoliberal policy makers as they undercut their rationales for small government, deregulation and unfettered

operation of all market forces (Cunningham, 2014, p. 8). In effect, innovation systems thinking has provided new rationales enabling government to intervene in and regulate markets.

Relatedly, in the subsequent chapters of this book, we put a special emphasis on addressing the inherent diversities in the systems we analyse and the role of different kinds of public institutions therein. For instance, public service media institutions have played a major role in developing media formats for all three of our sectoral case studies. Educational TV programmes have a long history in most of the world and so have tourist and health programmes. It is not only that the convergence processes we are discussing in this book have long pre-histories, but also that these previous activities are path-dependent – these same public service media institutions still have important roles to play in cooperating with sectors such as education and health care. The same applies to educational institutions that, in many instances, are the first initiators of inter-sector contacts and are also crucial players in the adoption and retention phases because it is their role to systematise and codify rules and to provide future professionals with tested knowledge.

Cross-innovation

It is at this point that we finally arrive at introducing and defining cross-innovation, the concept of this book's title. The term 'cross-innovation' emerged as part of a policy development project between 11 EU cities and was co-funded by the European Union from its Interreg programme.² Interreg is an EU instrument for financing regional development projects. The particular project used 'cross-innovation' in its title, which it defined briefly as 'collaborative and user-driven innovation that happens across sectoral, organisational, technological and geographic boundaries'. The project also produced a manifesto written by Luca de Biase and Patrick van der Duin.³ The manifesto relates to some of the conceptualisations that we have discussed above. It addresses dynamic change in innovation 'eco-systems' and addresses innovation systems as systems of learning – in line with Lundvall's approach. Generally, however, while we find the term 'cross-innovation' good in terms of its illustrative and explanatory power, we find that the conceptual work that resulted from the particular EU Interreg project needs further development (already conducted above and to be continued in the subsequent pages). Let us here, however, justify why we decided to reuse the cross-innovation term and how we understand it.

In Chapter 1, we established how cross-media strategies as a specific form of media convergence can be understood as a fluid Phase 1 of broader convergence processes enabled by digitisation and the emergence of the service economy. The existing cross- and transmedia studies also indicate the potential natures of that

²See further: <http://www.cross-innovation.eu/>

³See further: <http://www.cross-innovation.eu/practices/manifesto/>

we expect to be characteristic of other cross-innovation processes. We are talking about emergent dialogues across industry boundaries, heterogeneous flows of knowledge and expertise across these boundaries. These dialogues are expected to result in new combinatory solutions as innovations brought to markets. In these markets they are then expected to establish new rules, potentially reorganising the markets and industries or creating a ground for new ones to emerge. This also means the emergence of new kinds of firms and other institutions, new forms of expertise, of professionals and identities.

Cross-innovation, as we understand it, is not a singular event. Once facilitated by digitisation and the development of network infrastructures and digital media technologies, cross-boundary dialogues between different service economy sectors become a constant. As such, they are also strongly underlined by the broader mediatisation trend. It is for this reason that the study of cross-innovation processes between AV media and three other sectors is of importance – it explores explicitly the character and effects of mediatisation, but in ways that try to understand the economic rationales and dynamics behind it. But the fact that cross-innovations are rarely singular events also means that dialogues across boundaries are numerous, that, especially in the early stage, they take to a penumbra of alternative solutions. It is, therefore, justified to talk about cross-innovations as multi-linear clustered processes. It is expected that some of the solutions or clusters may then gain wider adoption and facilitate auto-communication and self-codification processes that will coordinate the further development of the cluster and the emergence of a new market or industry around it.

What the learning from cross-media (or transmedia, as these phenomena are functionally similar) studies should be is that the emergence of a new form or innovative media phenomenon does not mean that the parallel or previous phenomena or institutional setting may disappear. This refers, on the one hand, to the ‘convergence paradox’ (Ibrus, 2016; Liestøl, 2007) that it results in divergence – emergence of a new form next to others, a process that results in the pluralisation of cultural forms. On the other hand, it means that media forms stay related and that media industries, to neuter the risk of audience fragmentation, develop complex strategies to meaningfully connect them. Similarly to cross-media strategies, mediatised cross-innovation strategies, therefore, involve strategic connecting of different products and services, of institutions and of industries and markets. As in the case of cross-media strategies, full convergence between the connected entities is not even the objective. Vice versa, it is important to sustain their meaningful distinctions in order to provide users with alternative functional options, but still keep them engaged and connected. The question, therefore, for instance in the case of cross-innovation processes between media and health care services is that even if a certain sub-industry of mediatised health services emerges, how are these services interconnected with both the existing other health care as well as media content services and industries?

Another learning from cross-media studies is that rarely are single, even larger media companies able or ready to manage all the composite services of a

strategy. Cross-media strategy means interacting with different firms and other institutions, commissioning services and licensing out rights. The value networks that emerge in these processes create opportunities for small companies to provide specialised innovative services and so strengthen the adoption of the new rule. The management of cross-innovation processes is, at the same time, challenged by difficulties of interactions between such often very different companies.

Last, perhaps most importantly, the learning from cross-media studies is that these value networks no longer consist only of institutional participants; they now feature individual users – people. According to Potts et al. (2008), these people then constitute ‘social network markets’ while many of their activities may, in fact, be non-market activities. These people may be professionals, but often they are not. These activities may consist of recommendation making, of filtering, of making modifications, of crowd funding or of other forms of assistance. Many of the crossings of boundaries that make cross-innovation processes are carried out by such individual users. Managing mediated cross-innovation processes, therefore, also involves managing networked users and non-market collaborators.

On the other hand, cross-innovation in the contemporary era also means that while crossings are still mostly executed by users or small companies they are doing it in the environment where most communications channels and platforms are provided by very large platforms. These platforms, increasingly too, are aiming to compete in these emerging markets termed by them as e-health, e-learning and digital tourism. The study of cross-innovations thus needs to include the classical questions of global oligopolistic service markets and the degrees of freedom that smaller players may have in these for innovation.

Cross-innovation Systems and Space

What characterises the case countries of this book – the EU countries around the Baltic Sea – is that these are, mostly, small countries. With Germany and Poland the exceptions, all are small or very small. Furthermore, many of these economies are structurally characterised by the prevalence of SMEs. In this context, we should remind ourselves that innovation systems theory first emerged and is mostly still used to analyse ‘national innovation systems’. When Lundvall developed his concept of systems of interactive learning, he used this to make sense of the Danish economy, which consists mostly of SMEs that mainly work on incremental innovations and achieve these by learning from each other – by copying, imitating and modifying. Such interactive learning as a practice is enabled by pre-existing trust relationships, strong social networks and stable exchange relationships. And it is via such interactions that those incremental innovations then diffuse. The feature of such networks and relationships is that they work best if they are, generally, local; if they are bounded in space, that is, they are constitutive, especially in small economies or bounded regions. Furthermore, as suggested in the pages above, cross-innovation systems that incorporate media and creative industries are effectively social network

markets – consisting, to a significant extent, of SMEs and individuals that constitute complex and dynamically changing exchange relationships underpinned by mutual trust and familiarity. ‘Interactive learning’ is the core knowledge transfer mechanism in such markets and what matters for its effectiveness is relative proximity, along with encounters and embeddedness in real space. It is for this reason that, when addressing the nature of cross-innovation, we also need to address the role of spatial relationships and locality in these processes.

The two concepts and related research traditions that have addressed these issues are, first, ‘regional innovation systems’ and, second, spatial clustering of industries. The two are closely interrelated, but are not the same. A ‘cluster’ refers to an agglomeration of ‘interdependent’ firms within the same or adjacent industrial sectors in a small geographic area (Isaksen & Hauge, 2002, p. 14). Next to it, a ‘regional innovation system’ has been suggested to refer to ‘interacting knowledge generation and exploitation sub-systems linked to global, national and other regional systems’ (Cooke, 2004, p. 3). This means that, while local, regional innovation systems stretch across several sectors and include not only local firms, but also public authorities, knowledge institutions and so on (Asheim & Coenen, 2005, p. 1174). Clusters and regional innovation systems can co-exist, but the policy of the latter is to enforce inter-sector dialogues and knowledge transfer upon the former. Both, however, matter for the analysis in this book, because, despite globalisation, most businesses are still local. Also, much innovation governance and many innovation support systems are local. The operations of universities and other knowledge institutions are generally local, too – as are networking and, therefore, also many ‘interactive learning’ processes. Thus, knowledge and processes of its generation tend to be territorially ‘sticky’ and embedded in bounded spaces. As Hartley (2015) has been demonstrating, it is in the bounded urban territories where heterogeneity of ideas and, therefore, also moments of cognitive dissonance can exist, resulting in learning and the emergence of novelty.

There is much related evidence of SMEs from creative industries clustering in urban spaces (Davis, Creutzberg, & Arthurs, 2009; Evans, 2009; Pratt, 2004; Roodhouse, 2006) – a phenomenon increasingly facilitated by policy means (Virta & Lowe, 2017). The situation is different, of course, with the three other sectors – health care, tourism and education. While private health industries do tend to cluster around university clinics or other larger public hospitals, the education and tourism sectors do not evidence a similar kind of agglomeration. In our study, however, we aim to understand the mutual effects of regional innovation policies and local clustering on cross-innovation processes, as, for instance, in the case of clustering of AV media and digital technology firms in the Aarhus region in Denmark or the clustering of both media and educational technology industries in the Skåne region in Sweden.

International Cross-innovation Systems

The paradox of contemporary mediatised cross-innovation systems is that the strength and specifics of the local systems are only one side of the coin.

The other side of it is globalisation and the evolving division of labour in global service markets. The digital service economy is, indeed, increasingly globalised. Media markets have been classically shaped by economies of scale and, because digital networks make cross-border service exports easier, the related cross-innovation systems are expected to operate across national boundaries.

Lundvall, when he wrote about national innovation systems almost 10 years ago (Lundvall, 2010a, pp. 67–69), addressed the issue of multi-national firms dominating international commodity flows and suggested that, as user feedback and relations are difficult to manage from one exporting country, multi-national firms are effectively the ‘solution’ to this problem. In his view, while multinationals may be better at localising interactive learning, resulting in localisation of services or product design, their relative inflexibility in the markets in which they are present may, at the same time, undermine the functioning of local innovation systems. Lundvall then proposed that technical standardisation is needed in order to overcome transaction and interactive learning costs:

Especially when international institutional differences are involved, technical standardisation becomes crucial for the pattern of international user–producer relationships. Standardisation between countries in terms of business procedures, technology and product quality reduces the uncertainty of foreign users, and limits the room for opportunities on the producer side. Standardisation reduces transaction costs and in some cases it might stimulate international interactive learning. (Lundvall, 2010a, p. 68)

The question about appropriate strategies when it comes to either localisation or global standardisation of media services is a heavily studied topic in media studies (see Rohn, 2010). To put it simply, there are different ways to achieve scale in international markets, some of which may involve licensing out formats for measured localisation (examples), some of which may involve developing ‘culturally odourless’ universal formats expected to travel internationally as they stand (examples), some of which may involve establishing local subsidiaries doing the local adaptation work (examples) and so on. To summarise, the ‘media logic’ that presumes being easily relatable by audiences means that standardisation is not the only mode for approaching internationalisation whenever media is involved in cross-innovation processes. Therein, exporting media industries have developed a variety of ways of addressing local interactive learning processes. Yet, with the development of further technical standardisation and the parallel evolution of global online platforms such as Facebook, Amazon and Google, we have arrived at a new situation, perhaps similar to what Lundvall was asking for. The platforms have effectively standardised many of the technical solutions and simplified business procedures when it comes to international online service provision. As such, they have also reduced uncertainties for international users – and, as evidenced, they have, in the process, also limited the opportunities and autonomy of independent media content service providers.

Finally, being effective at collecting user data, they may be good at enabling international interactive learning, in Lundvall's terms.

When it comes to this last aspect, however, they are often not good at sharing these data with media content or service providers, which, again, presents a problem for local and regional innovation systems. Without comprehensive access to user data and audience contacts, it may be difficult to achieve close relationships with audiences and develop various participatory services or service development programmes – that is, it may be difficult to pursue interactive learning processes. Furthermore, these platforms may, instead, use these data to provide themselves services related to health care, tourism or online training. Think here of Google Maps and all its sub-applications enabling informed travelling and tourism. In 2018, there was news about Amazon entering the health care business by relying, among other inputs, on data both from its online store as well as from its digital home assistant Alexa in order to predict and assess health risks and ways of their prevention as well as manage rehabilitation and disease control efforts. What we have, in these instances, is platforms as intermediaries competing themselves in specific cross-innovation areas, limiting opportunities for smaller national or regional firms.

Despite these challenges, the specifics of small markets are that domestic returns and growth opportunities are limited and, therefore, orientation to servicing international markets is commonplace in online service innovation. This has already been evidenced in studies of Nordic AV and cross-media entrepreneurs (Ibrus, 2016). As will be seen in the subsequent chapters, this is again the case with firms working on cross-innovation projects in smaller countries. They see export as a must and use a variety of means – either the existing platforms or their own built applications or channels. For companies in the European Union, this also means using the opportunities provided by the EU Digital Single Market Strategy, as well as taking into account its risks associated with the evolution of European-wide service oligopolies (Ibrus & Rohn, 2016). In terms of the analysis in this book, it means addressing the evolution of international cross-innovation systems where participants are not only the enterprises coordinated by social network markets in the terms of Potts et al. (2008), but also, to a significant extent, by the enterprises running the social networking solutions – that is, by platforms. In terms of van Dijck, Poell, and de Waal (2018) thesis on platformisation – it is increasingly the globally dominant platforms that are actively coordinating these emergent markets.

When it comes to the evolution of international cross-innovation systems, what is also of interest in our study is how the local clustering and evolution of national innovation systems affects the evolution of international value-chains and the division of labour. In the area of AV media production, such divisions and the evolution of local strengths have been evolving for decades. Scandinavian countries have been strong in videogame development, Ireland in special effects production, the UK and the Netherlands in TV format development, Denmark in TV drama series production, Finland and Estonia in mobile games, Norway, Sweden and Finland in learning games and so on. While these local clusters evolve in a path-dependent way that relies on the nature of local

policies and other conditioning factors, they also evolve in interaction with each other – in terms of either cooperation or competition. Contemporary film, TV and videogame industries are notably international in their operations. Therefore, in terms of cross-innovation, it needs to be realised that while the social networks and operations of AV industries are increasingly international, those of other sectors may not be – tourism, in general, is about competition between countries; education is, in principle, national (except higher education); and so is most of health care. International cross-innovation systems are, hence, expected to be coordinated by the international operations of AV media industries and the domestic operations of other industries. The subsequent chapters will shed light on the balances of these orientations and how they shape cross-innovation processes and industry convergence. Regarding the international dimension of cross-innovation processes, this book aims to understand how the evolving international value-chains and the ongoing platformisation and globalisation of the service economy are affecting opportunities for and the roles of small players in small countries.

References

- Asheim, B. T., & Coenen, L. (2005). Knowledge bases and regional innovation systems: Comparing Nordic clusters. *Research Policy*, 34, 1173–1190.
- Benington, J., & Moore, M. H. (Eds.). (2011). *Public value: Theory and practice*. London: Palgrave Macmillan.
- Bijker, W. E., Hughes, T. P., & Pinch, T. J. (Eds.). (1989). *The social construction of technological systems: New directions in the sociology and history of technology*. Cambridge, MA: MIT Press.
- Breschi, S., & Malerba, F. (1997). Sectoral innovation systems: Technological regimes, Schumpeterian dynamics, and spatial boundaries. In C. Edquist (Ed.), *Systems of innovation: Technologies, institutions and organizations*. Abingdon: Routledge.
- Broms, H., & Gahmberg, H. (1983). Communication to self in organizations and cultures. *Administrative Science Quarterly*, 28(3), 482–495.
- Chaminade, C., Lundvall, B. Å., & Haneef, S. (2018). *Advanced introduction to national innovation systems*. Cheltenham: Edward Elgar.
- Christensen, L. T. (1997). Marketing as auto-communication. *Consumption, Markets and Culture*, 1(3), 197–227.
- Cohendet, P., & Llerena, P. (1997). Learning, technical change, and public policy: How to create and exploit diversity. In C. Edquist (Ed.), *Systems of innovation: Technologies, institutions and organizations*. Abingdon: Routledge.
- Commons, J. R. (1931). Institutional economics. *American Economic Review*, 21, 648–657.
- Cooke, P. (2004). Evolution of regional innovation systems: Emergence, theory, challenge for action. In P. Cooke, M. Heidenreich, & H.-J. Braczyk (Eds.), *Regional innovation systems* (2nd ed., pp. 1–18). London: Routledge.
- Cunningham, S. (2014). *Hidden innovation: Policy, industry and the creative sector*. Lanham, MD: Lexington Books.

- David, P. A. (1995). Standardization policies for network technologies: The flux between freedom and order revisited. *Standards, innovation and competitiveness: The politics and economics of standards in natural and technical environments* (pp. 15–35). Maastricht: Merit.
- David, P. A. (2000). Path dependence, its critics and the quest for ‘historical economics’. In P. Garrouste & S. Ioannides (Eds.), *Evolution and path dependence in economic ideas: Past and present* (pp. 15–39). Cheltenham: Edward Elgar.
- Davis, C. H., Creutzberg, T., & Arthurs, D. (2009). Applying an innovation cluster framework to a creative industry: The case of screen-based media in Ontario. *Innovation: Management, Policy & Practice*, 11, 201–2014.
- de Vaan, M., Vedres, B., & Stark, D. (2015). Game changer: The topology of creativity. *American Journal of Sociology*, 120(4), 1144–1194.
- Dopfer, K., & Potts, J. (2008). *The general theory of economic evolution*. New York, NY: Routledge.
- Eco, U. (1979). *The role of the reader: Explorations in the semiotics of texts*. Bloomington: Indiana University Press.
- Edquist, C. (2011). *Systems of innovation approaches – Their emergence and characteristics systems of innovation: Technologies, institutions and organizations*. Abingdon: Routledge.
- Evans, G. (2009). Creative cities, creative spaces and urban policy. *Urban Studies*, 46(5/6), 1003–1040.
- Felt, U., Fouché, R., Miller, C. A., & Smith-Doerr, L. (2016). *The handbook of science and technology studies* (4th ed.). Cambridge, MA: MIT Press.
- Foucault, M. (2002). *Power: The essential works of Foucault 1954–1984*. London: Penguin.
- Freeman, C. (1982). Innovation as an engine of economic growth. In H. Giersch (Ed.), *Emerging technologies: Consequences for economic growth, structural change and employment* (pp. 1–27). Tübingen: J.C.B. Mohr.
- Freeman, C. (1988). Technology gaps, international trade and the problems of smaller and less developed economies. In C. Freeman & B. Å. Lundvall (Eds.), *Small countries facing the technological revolution*. London: Pinter.
- Gregersen, B. (2010). The public sector as a pacer in national systems of innovation. In B. Å. Lundvall (Ed.), *National systems of innovation: Toward a theory of innovation and interactive learning* (pp. 133–150). London: Anthem Press.
- Hartley, J. (2009). From cultural studies to cultural science. *Cultural Science*, 2(1), 1–16.
- Hartley, J. (2015). Urban semiosis: Creative industries and the clash of systems. *International Journal of Cultural Studies*, 18(1), 79–101.
- Hartley, J., & Potts, J. (2014). *Cultural science: A natural history of stories, demes, knowledge and innovation*. London: Bloomsbury Academic.
- Ibrus, I. (2013). Evolutionary dynamics of media convergence: Early mobile web and its standardisation at W3C. *Telematics and Informatics*, 30(2), 66–73. doi:10.1016/j.tele.2012.04.004
- Ibrus, I. (2015a). Dialogic control: Power in media evolution. *International Journal of Cultural Studies*, 18(1), 43–59. doi:10.1177/1367877914528117
- Ibrus, I. (2015b). The replacement of media policies with (media) entrepreneurship policies: A view from Europe’s periphery. *International Journal of Digital Television*, 6(3), 311–318. doi:10.1386/jdtv.6.3.311_1

- Ibrus, I. (2016). Micro-studios meet convergence culture: Crossmedia, clustering, dialogues, auto-communication. In A. Lugmayr & C. Dal Zotto (Eds.), *Media convergence handbook – Vol. 2: Firms and user perspectives* (pp. 155–173). Berlin: Springer.
- Ibrus, I., & Rohn, U. (2016). Sharing killed the AVMSD star: The impossibility of European audiovisual media regulation in the era of the sharing economy. *Internet Policy Review*, 5(2), 1–16. doi:10.14763/2016.2.419
- Isaksen, A., & Hauge, E. (2002). *Regional clusters in Europe*. Observatory of European SMEs Report 2002 No. 3. Luxembourg: European Communities.
- Johnson, B. (2010). Institutional learning. In B. Å. Lundvall (Ed.), *National systems of Innovation: Toward a theory of innovation and interactive learning*. London: Anthem Press.
- Küng, L. (2008). *Strategic management in the media: From theory to practice*. London: Sage.
- Küng, L. (2017). *Strategic management in the media: Theory to practice* (2nd ed.). London: Sage.
- Liestøl, G. (2007). The dynamics of convergence & divergence in digital domains. In T. Storsul & D. Stuedahl (Eds.), *Ambivalence towards convergence: Digitalization and media change* (pp. 165–177). Göteborg: Nordicom.
- List, F. (1856 [1841]). *The national system of political economy* (G. A. Matile, Trans.). Philadelphia, PA: J. B. Lippincott & Co.
- Lotman, J. (2009). *Culture and explosion*. Berlin: Mouton De Gruyter.
- Lotman, Y. (1990). *Universe of the mind: A semiotic theory of culture*. Bloomington, IN: Indiana University Press.
- Lundvall, B. Å. (1985). *Product innovation and user-producer interaction*. Aalborg: Aalborg University Press.
- Lundvall, B. Å. (1992). *National innovation systems: Towards a theory of innovation and interactive learning*. London: Pinter.
- Lundvall, B. Å. (2010a). User-producer relationships, national systems of innovation and internationalisation. In B. Å. Lundvall (Ed.), *National systems of innovation: Toward a theory of innovation and interactive learning*. London: Anthem Press.
- Lundvall, B. Å. (Ed.). (2010b). *National systems of innovation: Toward a theory of innovation and interactive learning*. London: Anthem Press.
- Mansell, R. (2012). *Imagining the internet: Communication, innovation, and governance*. Oxford: Oxford University Press.
- McKelvey, M. (1997). Using evolutionary theory to define systems of innovation. In C. Edquist (Ed.), *Systems of innovation: Technologies, institutions and organizations*. Abingdon: Routledge.
- Morsing, M. (2006). Corporate social responsibility as strategic auto-communication: On the role of external stakeholders for member identification. *Business Ethics: A European Review*, 15(2), 171–182.
- Nelson, R. R. (1988). Institutions supporting technical change in the United States. In G. Dosi, C. Freeman, R. R. Nelson, G. Silverberg, & L. Soete (Eds.), *Technical change and economic theory*. London: Pinter.
- Nelson, R. R. (Ed.). (1993). *National innovation systems: A comparative analysis*. New York, NY: Oxford University Press.
- Potts, J. (2007). Art & innovation: An evolutionary economic view of the creative industries. *UNESCO Observatory e-Journal*, 1(1), 1–17.

- Potts, J. (2011). *Creative industries and economic evolution*. Cheltenham: Edward Elgar.
- Potts, J., & Cunningham, S. (2008). Four models of the creative industries. *International Journal of Cultural Policy*, 14(3), 233–247.
- Potts, J., Cunningham, S., Hartley, J., & Ormerod, P. (2008). Social network markets: A new definition of the creative industries. *Journal of Cultural Economy*, 32, 167–185.
- Pratt, A. (2004). Creative clusters: towards the governance of the creative industries production system? *Media International Australia*, 112, 50–66.
- Rogers, E. M. (1995). *Diffusion of innovations*. New York, NY: Free Press.
- Rohn, U. (2010). *Cultural barriers to the success of foreign media content: Western media in China, India, and Japan*. Frankfurt: Peter Lang.
- Roodhouse, S. (2006). *Cultural quarters: Principles and practice*. Bristol: Intellect.
- Schulz, W. (2004). Reconstructing mediatisation as an analytical concept. *European Journal of Communication*, 1(19), 87–101.
- Schumpeter, J. (1939). *Business cycles: A theoretical, historical and statistical analysis of the capitalist process*. New York, NY: McGraw-Hill.
- Şimşek, B. (2017). On humans, fiction and cultural science: An interview with John Hartley. *Moment: Journal of Cultural Studies, Faculty of Communication*, 4(2), 310–318. doi:10.17572/mj2017.2.310318
- Tafel-Viia, K., Viia, A., Terk, E., & Lassur, S. (2014). Urban policies for the creative industries: A European comparison. *European Planning Studies*, 22(4), 796–815.
- Tidd, J., & Bessant, J. (2009). *Managing innovation: Integrating technological, market and organizational change*. Chichester: John Wiley & Sons.
- van Dijck, J., Poell, T., & de Waal, M. (2018). *The platform society: Public values in a connective world*. New York, NY: Oxford University Press.
- Veblen, T. (1919). *The place of science in modern civilisation*. New York, NY: B. W. Huebsch.
- Virta, S., & Lowe, G. F. (2017). Integrating media clusters and value networks: Insights for management theory and research from a case study of Mediapolis in Finland. *Journal of Management & Organization*, 23(1), 2–21.
- Von Hippel, E. (2005). *Democratizing innovation*. Cambridge, MA: MIT Press.