

Chapter 11

Conclusions: Cross-innovations between Audiovisual and Health Sectors

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Abstract

This chapter concludes the section on cross-innovation practices between audiovisual (AV) media industries and the health care sector. It suggests that the main case studies discussed in this section – Estonia in general and Aarhus Region in Denmark – tell of two different trajectories on how the emergence of cross-innovation systems can be facilitated by policies. Local policymakers in Aarhus have worked systematically to raise awareness and facilitate contacts between AV media and other sectors and this has resulted in an active start-up scene at the intersection between the media and the health care industries. Estonia, which is focusing on traditional cultural policymaking, has not recognised similar dynamics. Yet, Estonia may be still better prepared for the (global) platformisation of e-health services with its national e-governance systems, while Denmark's health-related e-services remain fragmented and ripe for platformisation by multinationals, potentially undermining local cross-innovation systems.

Keywords: Cross-innovation; convergence; audiovisual industries; health care sector; platformisation; virtual reality

The Forms

What did we learn from the previous three chapters? First, that the road to current experimentation with new mediated forms of medical care has been evolutionary. Newspapers have always written about health, including giving guidelines for healthy life and self-care. Yet, it was 40 years ago that Crawford



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(1980) recognised the emergence of ‘healthism’ – effectively another expression of the then expanding individualism. As Crawford saw it, the explosive ‘proliferation of popular health magazines, and the appearance with amazing frequency of health themes in newspapers, magazines, and advertisements’ at the time was due to a perception, especially among the middle-class, that growing insecurities in the evolving market capitalism and the general failure of public health policies meant that responsibility for their health needed to lay with them as individuals. And so, it has evolved. In addition to health magazines, television programmes promoting health quickly started to develop (Long, 1978). Yet, while in mass media outlets the health-related content and genres have been growing in prevalence over the decades, this can be considered as mere cooperation between the sectors, since the media have mainly been used for health promotion. While ‘healthism’ may be seen as a form of mediatisation affecting the work of medical institutions, the classic mass media genres did not constitute notable innovations that directly involved both sectors and significantly affected their operational models.

Things gradually started to change with the emergence of telemedicine and social media. Telemedicine could be understood as ‘substitution’ in terms of Schulz’s (2004) forms of mediatisation; mediation, forms, and techniques of media are used to substitute some of the functions of health care. While the early forms of telemedicine were used simply to monitor, diagnose, and counsel care, in the early 2010s, new interactive (mobile) applications started to emerge, gamifying rehabilitation, healthy living, and self-care. These applications could be understood as ‘amalgamation’ in terms of Schulz; media use is woven into the existing practice of health care such that the media’s definition of reality merges with the realities of that practice, creating an entirely new form. With regard to further individualisation and self-care, the quickly advancing phenomenon was ‘Doctor Google’, YouTube, and other video-sharing platforms, which are used for showing, sharing, and looking up self-care solutions. While such searching and sharing practices are socially significant phenomena, they are not the focus of our study. However, they could be seen as being indicative for media and health industries, since more participative and interactive solutions found wider adoption.

At the time of our field research in 2017 and 2018, especially in Aarhus (Chapter 9), nearly all the examples of cross-innovation between audiovisual (AV) media and health care that we encountered had something to do with virtual reality (VR). This new technological platform for media content motivated new kinds of dialogues between the two sectors and created new opportunities. According to Dopfer and Potts (2008), the technology offered a potential for ‘new rules’ to emerge between the AV and health care sectors. As our respondents suggested, VR and augmented reality (AR) were seen as new possibilities, attracting interest from all sides. That these technologies are forming a foundation for new rules is evidenced by the fact that they attracted start-ups only; no established film, media, or video-gaming companies have got involved.

The Dialogues

Due to their nature and their effectiveness, these dialogues enabled the coordination of an emergent cross-innovation system. The two case studies – Estonia and the Aarhus Region in Denmark – which were discussed in Chapter 9, constitute a notable narrative. Denmark is well known internationally for its AV industries (see also the discussion in Chapter 3); the Dogme 95 school has won recognition and been copied internationally. Nordic noir as a television sub-genre (*The Killing* and *The Bridge*) and other television series such as *Borgen* or *Anna Pihl* have earned international fame for Danish television professionals. Denmark is also one of the strongholds for animation. The latter aspect puts Aarhus, the second biggest city in Denmark, on the map. The country's main animation school is in Viborg, a town close to Aarhus. Aarhus itself hosts the country's main journalism school and a college that runs a programme on trans-media storytelling. The city also set up 15 years ago *Filmby Aarhus*, a hub of shooting studios that also includes rental places for AV media companies. *Filmby Aarhus* operates effectively as a set of programmes, incubation, acceleration, and networking initiatives, all aimed at finding new markets and operational models for the local AV industries.

As evidenced in Chapter 9, the policymakers in Aarhus recognised the accumulation of talent in AV storytelling in their region and in Denmark more widely, and facilitated their cooperation with other sectors to support new businesses. The two chosen sectors were tourism and health care. These inter-sector initiatives were preceded with notable local investment in cross-media and trans-media storytelling and via these experiments, an awareness grew of the potential of using storytelling skills, for instance, in health care (see, for a locally developed rehabilitation game, Dithmer et al., 2016). Subsequently, significant effort went into bringing the two sectors together to build mutual awareness and to facilitate learning about the needs, peculiarities and skills of each other. This has been happening via a series of workshops and networking events, and also via seed funding for various start-ups working in these specific cross-innovation areas. In terms of Lundvall (1992), this occurred through various publicly driven initiatives to enhance interactive learning between the sectors. The outcome of this, described in Chapter 9, was the eventual explosion of start-ups that experimented mostly with VR as a platform to offer services mainly related to primary care, rehabilitation, and simulation for use in medical training. These start-ups could be understood as 'true cross-innovations' or 'new rules' in terms of Dopfer and Potts (2008). These emerged as new rules since they were entirely new organisations and not extensions of pre-existing solutions or institutions. Their emergence, effectively as a small regional cross-innovation system, was facilitated by *Filmby Aarhus* and other local policymakers, and, in the initial phase, this has been a notable success for them.

In contrast, the situation in Estonia has been rather different. As a post-socialist country, it has been building up its own film industry since the early 1990s. This development was slow at the beginning but was boosted with the opening of the Baltic Film and Media School, a college of Tallinn

University, 13 years ago. Together with other measures and support institutions that were launched, Estonia's film sector has grown rather quickly in recent years. The relative success has been evidenced with a couple of foreign language Oscar and Golden Globe nominations. The policy focus has been firmly on the professionalisation and strengthening of the local film industry (Ibrus, 2015). For television, the only policy goal relevant here has been to secure funding for the public service broadcaster ERR, which also produces health-related programming and is known for experimenting with cross-media output (Ibrus & Merivee, 2014; Ibrus, Rohn, & Nani, 2018; Nani & Pruulmann-Vengerfeldt, 2017). Additionally, but with very little policy intervention, in the last 5 years there has been visible growth in the production of mobile casual games and the related clustering of their producers, usually small start-ups. However, the focus of the self-organising umbrella organisation IGDA Estonia is mainly on strengthening their bottom line through the production of mainstream, entertaining games.

Yet, unlike Aarhus, in Estonia the cooperation is driven by the health care sector. At least it tries to. In 2015, Estonia's health-tech cluster Connected Health was established. It has systematically looked for cooperation and mutual learning opportunities with the communications and media sector. While the broader communications sector has responded to these calls, the AV industry has not taken notice. As we saw in the interviews with Estonian filmmakers and television professionals, and even with policy-makers from the media and creative industries, the potential for working and innovating with other industries has not been realised. For filmmakers, the main motivator is their next film. In other words, the policy attention has been mostly elsewhere, on the (auto-communicative) codification of distinct creative industries (film, television, and mobile games), which has come at the expense of inter-sector dialogue, interactive learning, and the development of mutual awareness. As a result, there has been no comparable emergence of new start-ups working on finding convergence between the media and the health care sector.

Despite the differences between our case studies, there were also notable similarities and common threads in the inter-sector dialogues. For example, there were difficulties deriving from the distinctive culture of the medical community and its relative lack of openness. The professionals with a background in media or IT had difficulties selling or pitching their products to hospitals, as they did not speak the 'language'. Related was the aspect that was demonstrated in both Chapters 9 and 10: the tight regulation of the health care sector often limits the possibilities for quick interchanges, easy forms of learning, quick prototyping, and instant entry to consumer markets. Convergence in this area is hard and requires effort, as dialogues and co-innovation between these two sectors have had limited precedents and there is a lack of trust and mutual understanding. Thus, our interviews in Aarhus evidenced a new strategy among the new VR health companies: to include a health expert or a cooperation partner at the earliest phase of development.

Plurality and Fluidity of Innovations

As Tidd and Bessant (2009) have demonstrated, the first phase of every new solution or innovation is fluid. This is the time when innovations are motivated by either new technologies or new information (for instance, user needs). Many competing solutions may be entering the market, there is no standardisation and production processes are flexible and ineffective, often experimental. We recognised the same trends in Chapters 9 and 10. Many of the start-ups and their innovations were motivated by VR technology, but also by the possibilities of combining various kinds of expert knowledge. However, there was already a significant amount of competition from Denmark, Finland, and Germany. As all the innovators in this area were start-ups, their production processes were flexible, but also ineffective. There were recurrent significant changes in product features, and in business and operational models. Some enterprises were working on solutions for primary care, others on rehabilitation or medical education. Some aimed at end-user markets, some at hospital markets, and some found alternative business-to-business markets. However, overall, finding feasible business models in highly regulated, but also highly fragmented markets was a challenge. As we learned from Aarhus, all these newly emerging start-ups are competing for the small amount of mostly public seed funding. Clear success is still to be seen. This means that we could not identify forms of auto-communication for these kinds of enterprises. While in Estonia, for instance, a health-tech cluster has been set up, it was a top-down initiative and not much was articulated in their discourse on the necessary knowledge and skills of AV media professionals. A bounded VR health subsystem is still to emerge. However, the clustering of innovations and companies around VR technologies is still notable, suggesting that their affordances are suitable for use in health care and that there is, therefore, a potential for future trajectories.

Social Network Markets?

As was discussed in Chapter 2, in cross-innovation systems, much of the border crossing is expected to be carried out by agents whose belonging or status are unclear. They may be professionals in one or other sector, they may be semi-professionals, or they may be amateurs, users, or fans. What matters is that they form a social network that coordinates all phases of the innovation trajectory – origination, adoption, and retention (in terms of Dopfer & Potts, 2008). Their filtering, reuse, modification, and feedback practices across their networks constitutes a crucial innovation coordination mechanism. However, our study highlights that the nature of this coordination is, in practice, notably different between the origination and adoption phases and both are quite specific for health care. This cross-innovation area is mostly in the fluid origination phase. That is, in terms of end-user markets, only early adopters (mostly those in need and selected patients) are engaged, and most of the users are not operating with at least semi-familiar product or service categories. Therefore, the related social network market (Potts, Cunningham, Hartley, & Ormerod, 2008) is constituted

at this stage mostly of colleagues of innovators and of test patients. The colleagues, however, may have backgrounds in different sectors, as we have seen above. Patient safety is, of course, the ultimate goal in health care and, therefore, user testing is highly emphasised in regulations and was referenced in our interviews. Clearly visible in the early stage projects was the strong articulation of involving users as co-developers. Users were seen as active agents in the shaping of a project.

Such practices suggest that while for the developers in small northern European countries, for instance, the VR technology came as ‘manna from heaven’ – externally from outside the local system – it is now actively adapted and modified for locally relevant use cases. Yet, it remains to be seen if such social networks can be expanded such that they would help to facilitate the wider adoption of particular convergent solutions.

International Growth and Platformisation?

As we discussed above, the coordination of the new cross-innovation system in Aarhus emerged as an exemplary case. Yet, the future potential of the resulting applications and the companies that produced the applications were also questioned in Chapter 9. The doubts were due to the extreme fragmentation of the health care policies between different regions and countries, and also in terms of the heterogeneity of regulations, conventions, and other set-ups in different hospitals and, most importantly, the fragmentation of the IT systems and the data schemas used in these hospitals. This was the case in Aarhus and is the case in most of Scandinavia and other countries. Given such fragmentation, it is hard to build services that are easily scalable and that one could export and offer internationally. As evidenced in our interviews in Chapter 9, this affected the motivation of start-uppers in Denmark as well as that of the local policymakers funding their experiments and prototype development.

In this context, however, Estonia stood out. The country is known for its exceptional e-governance systems and its digitisation of most public services, which include national e-health services. This is what the government website says about these services¹:

Each person in Estonia who has visited a doctor has his/her own online e-Health story that can be tracked. Around 1.6 million people have documents in the central database. Health Information System integrates data from Estonia’s different healthcare providers, creating a common record for each patient (since 2015, over 95% of data generated by hospitals and doctors has been digitised, 97% of hospital discharge letters are sent to the central database). This gives the doctors easy access to the patient’s electronic records (test

¹See further: <https://e-estonia.com/wp-content/uploads/facts-a4-v02-e-health-2.pdf>

results, X-ray images, etc.). Patients have access to their own and to their under-aged children's records, and the records of persons who have given authorisation to them for seeing their medical data. By logging into the patient portal (ID-card/ m-ID), they can review past visits to the doctor, current prescriptions, and receive general health advice.

That is, there is a standardised and secure national data-exchange layer used by citizens and entitled medical institutions. Data are there, comprehensive and detailed, about each patient and ready for aggregation across the whole population. As we learned from the interviews in Chapter 9, all these data and the whole system are ripe for being used by innovative applications, especially for additional monitoring, analytics, and guidance, particularly in primary care and rehabilitation. Yet, as was discussed above, this potential has not been noticed among the makers of digital content, game developers, etc.

This difference between our main case studies – Denmark and Estonia – evokes a discussion on the possible platformisation of e-health services and what would that mean for the related (cross-)innovation systems in small countries. A fragmented system could be ripe for an external and standardised platform to take over patient-related services, providing further personalisation opportunities and interactivity. Moreover, such a platform could collect data on a population and sell it to interested third parties (e.g., consumer retail businesses or insurance companies). However, also the standardised Estonian national data could be used by the existing platforms, as it is simply available and there are no local developers of over-the-top (OTT) services.

Are such scenarios feasible? First, note that while the health care sector in European countries is generally driven by the public sector, the number of various kinds of public–private alliances is increasing. The health sector is chronically underfunded and needs resources for expensive technological and pharmaceutical innovations. Partnering with private partners has often helped to bring in necessary resources and the new promise may be tantalising for the same reasons. Yet, the risks are also apparent. As has been demonstrated by [van Dijck, Poell, and de Waal \(2018, p. 98\)](#), health platforms tend to use a peculiar double-edged logic in arguing for their benefits. On the one hand, they offer personalised data-driven services to their customers; on the other hand, they claim to serve an overarching public interest in medical research, the outcomes of which benefit everyone. What is at stake here is a conflict in the public values claimed: 'The concern for privacy versus the benefit of personalised medicine and the privatisation of data by corporate owners versus the accessibility of health data and knowledge to public research' ([van Dijck et al., 2018, p. 98](#)).

These are difficult conflicts and challenging dilemmas for all contemporary and future policymakers. One can also agree with [van Dijck et al. \(2018, p. 99\)](#) that while issues such as privacy, transparency, and accuracy may have become central in this discussion, they risk eclipsing other important issues, such as who will be able to access the health data and who will set the agenda for future

research. Should we trust the global platforms to guide much of health research in the future? Or, closer to the themes of this book, can we trust them to do the localisation well and can we trust them to contribute usefully to the national and regional innovation systems? As we discussed, based on Lundvall in Chapter 2, such positive contributions would be rather unprecedented. Therefore, while the Estonian-style national data exchange infrastructures are a prerequisite, the broader aim should be to keep health data accessible and reusable, not only for independent public research but also for cross-innovation – by local small and medium-sized enterprises able to contextualise the services in local cultures and able to provide new and relevant experiences. After all, as was also discussed in Chapter 2, the diversity of institutions and the diversity of their objectives and operational rationales are further prerequisites for a healthy innovation system.

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