



Editors Raphael Giesecke, Stina Immonen, Esa Sirkkunen, Katri Grenman,
Asta Bäck, Merja Helle, Olli Nurmi, Seppo Leminen, Petri Vuorimaa,
Jukka Häkkinen

Authors 38 experts – see page 3

Version 2. Public

Helsinki, 4 October 2010

Editors

Raphael Giesecke, Aalto University School of Science and Technology

Stina Immonen, Aalto University School of Science and Technology

Esa Sirkkunen, Tampere University

Katri Grenman, VTT Technical Research Centre of Finland

Asta Bäck, VTT Technical Research Centre of Finland

Merja Helle, Aalto University School of Art and Design

Olli Nurmi, VTT Technical Research Centre of Finland

Petri Vuorimaa, Aalto University School of Science and Technology

Seppo Leminen, Aalto University School of Economics

Jukka Häkkinen, Aalto University School of Science and Technology

Acknowledgements

The editors would like to thank both Tekes – the Finnish Funding Agency for Technology and Innovation, as well as TIVIT – the Strategic Centre for Science, Technology and Innovation in the Field of ICT for their funding and their trust in and encouragement of innovative, risk taking, research.

Special thanks we dedicate to all the authors of this document. Without you, this document would not exist!

Reproduction authorised for research purposes provided the source is acknowledged.

Title photo by Willy Boeykens

Authors (see annex for articles)

Hannele Antikainen, VTT Technical Research Centre of Finland
Walter Bender, MIT; Visiting professor University of Tampere; Executive director Sugar Labs
Leon Cruickshank, Lancaster University UK
Cinzia Dal Zotto, University of Neuchâtel, Switzerland
Jörgen Eriksson, Helsinki Metropolia University of Applied Sciences
Raphael Giesecke, Aalto University School of Science and Technology
Phil Goodman, Genergraphics, Inc.
Jouni Heikniemi, Sininen Meteoriitti Oy
Juha Herkman, University of Helsinki
Stina Immonen, Aalto University School of Science and Technology
Sam Inkinen, Media scholar, writer, futures researcher
Tim Jones, Future Agenda
Sirpa Kirjonen, Sanomalehtiien Liitto – Finnish Newspapers Association
Johannes Koponen, Aalto University School of Science and Technology
Kai Kuikkaniemi, HIIT
Ismo Laukkanen, AAC Global Oy
Man-Sze Li, IC Focus, UK
Ulf Lindqvist, VTT Technical Research Centre of Finland
Ryan Nadel, Centre for Digital Media
Kaarle Nordenstreng, University of Tampere
Mats Nylund, Arcada – University of Applied Science
Pirkko Oittinen, Aalto University School of Science and Technology
Maria Pienaar, Pienaar Consulting
Mika Rautiainen, University of Oulu
Janne Saarela, Profium Oy
Kirsti Sintonen, Acatiimi-lehti
Esa Sirkkunen, Tampere University
Ilkka Tiainen, Oppifi
Perttu Tolvanen, Sininen Meteoriitti Oy
Josef Trappel, Universität Salzburg
Turo Uskali, University of Jyväskylä
Katja Valaskivi, University of Tampere
Seppo Valli, VTT Technical Research Centre of Finland
Kimmo Valtonen, M-Brain Oy
Manfred Werfel, WAN-IFRA
Bettina von Stamm, Innovation Leadership Forum, UK
Jari Väliverronen, University of Tampere
Heli Väättäjä, Tampere University of Technology

Vision workshops participants (see chapter 4)

Industry

Ville Eloranta	Alkuvoima Oy
Mikko-Pekka Hanski	Idean
Markus Illukka	Sanoma Corporation
Helene Juhola	Viestinnän Keskusliitto
Satu Kalliokulju	Nokia
Sirpa Kirjonen	Sanomalehtien Liitto
Ani Korpela	Ilta-Sanomat
Ville Miettinen	Lots Ltd
Minna Nissinen	Alma Media
Teemu Oksanen	Silencio Oy
Aki Parviainen	Arena Partners Oy
Eskoensio Pipatti	Sanoma Entertainment
Mika Ruokonen	Sanoma Learning & Literature
Janne Saarela	Profium
Harri Taskinen	Anygraaf
Marja-Leena Tuomola	Sanoma News Oy
Olli Tuuri	YLE
Katriina Uljas-Ahl	Dagmar

Academia

Asta Bäck	VTT Technical Research Centre of Finland
Raphael Giesecke	Aalto University School of Science and Technology
Päivi Helanto	Laurea University of Applied Sciences
Merja Helle	Aalto University School of Art and Design
Stina Immonen	Aalto University School of Science and Technology
Jan Kallenbach	Aalto University School of Science and Technology
Sirkku Kivisaari	VTT Technical Research Centre of Finland
Johanna Kohl	VTT Technical Research Centre of Finland
Raija Koivisto	VTT Technical Research Centre of Finland
Kai Kuikkaniemi	HIIT
Seppo Leminen	Aalto University School of Economy
Olli Nurmi	VTT Technical Research Centre of Finland
Pia Ojanen	Aalto University School of Science and Technology
Eero Palomäki	Aalto University School of Science and Technology
Teemu Ropponen	Aalto University School of Science and Technology
Mikko Ruohonen	Tampere University
Esa Sirkkunen	Tampere University
Eric Stigzelius	Aalto University School of Science and Technology
Petri Vuorimaa	Aalto University School of Science and Technology

Executive Summary

In this first Next Media programme deliverable we identify innovation and business drivers with impact on the media sector in the year 2020 and beyond. Furthermore, we outline a range of scenarios describing the media sector in 2020. Both drivers and scenarios form the basis for the next step, vision development, which will be documented in a separate deliverable.

In a world wide crowd sourcing approach 38 authors have contributed individual articles containing possible scenarios, from both industrial and academic viewpoints. In order to achieve holistic views of the future the authors were encouraged to ignore borders between media sectors and between media research areas.

The resulting 42 articles have been clustered into nine dimensions by nine expert editors with the goal to create concrete outlooks beyond the current trends in the media sector.

The first dimension, Social Values, addresses the social and societal effects of the combination of knowledge society on the one hand and the new socio-technological systems. A new phenomenon is being outlined, taking cocktail identities, “gamification” and the increasing use of humanoids into account.

In the second dimension, Social Media, the empathy is on developments towards real-time use. Two further dimensions deal with users and audiences in 2020: at first, their behaviour is analysed, then the interfaces which they use, and through which the media industry interacts with them. Interfaces and navigation will “learn” much from gaming, whereas (3D) TV will still have a co-existence next to a ubiquity of other, mainly digital media interfaces.

The first two dimensions together with User and Audience Behaviour and Interfaces are re-evaluated from a Media Content point of view in dimension five. Added to that in dimension six, Professional Journalism is investigated, with the conclusion that today’s professional quality journalists may become a rare species by 2020.

In Gaming, dimension seven, we strongly emphasize two converging trends: “gamification” of the real world as well as games going “real” which will lead to a Google Earth follow-up usable for immersive reality experiences on an intertwined social-real-game level.

Dimension eight, Media Companies and Their Features, clearly forecasts smaller professional units, focussed on editorial publishing and knowledge service provision, complemented by freelancers and citizen journalists. New roles for professionals will emerge, but views diverge on their nature.

The last dimension, Technology, gathers technologies and tools not yet addressed in the first dimensions. Here, we highlight ubiquitous broadband wireless “real world” web access, e-devices turning from readers to informers and a whole gamut of automated tools for planning and editing. Last not least the printing press “goes magazine”.

The nine dimensions are complemented and re-analysed in the Business Concepts chapter, emphasising the system approach, and complemented with innovation drivers for research until 2020. The key message is that advertisers in 2020 will insist on better value (i.e. measurable ad performance), which threatens traditional media concepts serving too large, unspecified audience segments.

In the final chapter, we suggest worst and best case scenarios and the example scenario of the Finnish industry, “Human Media”. These scenarios have been used for SWOT analyses and for a media sector vision 2020.

Table of contents

1	Introduction.....	7
1.1	Brief Summary of the State of the Art	7
1.2	Scope.....	8
1.3	Objectives	8
1.4	Approach	8
2	Media Scenario Dimensions 2020	10
2.1	Social Values	10
2.2	Social Media	15
2.3	User and Audience Behaviour	19
2.4	User and Audience Interfaces.....	23
2.5	Media Content.....	26
2.6	Professional Journalism.....	28
2.7	Gaming	30
2.8	Media Companies and Their Features.....	33
2.9	Media Technology.....	35
3	Business Concepts.....	38
3.1	Context	38
3.2	Key Business Drivers.....	39
4	Key Innovation Drivers per Media Genre.....	42
5	Integrated Scenarios	49
5.1	Deriving Integrated Scenarios.....	49
5.2	Worst Case Scenario	49
5.3	Best Case Scenario	50
5.4	Scenario “Human Media”	51
6	Conclusions	52
6.1	Findings	52
6.2	Next Steps	53
	Literature	54
	References	55
	Appendices.....	57

1 Introduction

Worldwide, the media sector is looking for new business opportunities as its current business models are more and more infringed by new market participants, such as Facebook, Twitter or eBay. In the Finnish media sector a new large scale media research programme named Next Media has been launched to establish a concerted research effort from 2010 to 2013. While research for the first year has been defined, a coherent research vision for the next three years is missing, in spite of earlier efforts (Finnmedia 2009 and Various Authors 2009).

The Next Media task *Visio2020* aims to define a vision from which *long term* objectives for research can be derived. The vision is both aimed to provide industrial guidance as well as to adjust the Media related research, starting 2011 and later, including new Next Media projects.

1.1 Brief Summary of the State of the Art

The media sector in Finland carried out a massive strategic work lead by Finnmedia (Viestinnän Keskusliitto) in 2009. The results of the work are reported in the report “Viestintäalasta voittaja” (in English: “Making the media sector a winner”, Finnmedia 2009). It condenses the future challenges of the media sector into three action points: 1. media companies should deepen understanding of customers; 2. the media sector should be the pace setter of product and service development; and 3. a dynamic and agile business partner. In addition, the report lists essential change factors relating to user behaviour, radical change in advertising and in business environment and to the urgent need to networking and innovation.

The Helsingin Sanomat Foundation and the Päivälehti Museum in 2009 asked expert visions for newspapers until 2050. Questions and visions along with other similar material has been utilised in this task as background material.

On EU level, *NEM* (2009), the European Technology Platform on Networked and Electronic Media is an ongoing EU initiative. Its main research topics resemble those of the Next Media programme: content creation, distribution, content presentation, metadata, underlying technologies, media applications and business models. However, NEM is restricted to digital media while Next Media covers digital and conventional media, as well as further genres, and emphasises also journalistic, creative and organisational issues.

As we recognize the information and knowledge society with its broad use of social media in all forms as main innovation driver of the media sector it is also worth looking into the development of the Internet at large:

On EU level there are several new reports available addressing the future internet (EIFFEL Think Tank 2009), ICT (National ICT Research Directors Working Group on Future Internet 2009 and European Commission 2009) and the information society (EU Information Society Technologies Advisory Group - ISTAG 2009). Currently, the closest media related research objective is “Networked Media and 3D Internet” (Objective 1.5 of the FP7 ICT Work Programme 2009-2010).

See chapter Literature for more articles, books and further studies on relevant issues.

1.2 Scope

This document is targeted at executives, managers, media professionals and researchers who are interested in a long term view of the Finnish media sector.

Its content concerns (Finnish) media industry and media research in the broadest sense.

1.3 Objectives

As a first step, the future innovation drivers of the media sector need to be identified. Concurrently, scenarios are to be outlined, describing the media situation in the year 2020.

For both drivers and scenarios, the detailed objectives are

- as many as possible viewpoints need to be gathered and taken into account, also and especially addressing developments on the fringes of the media sector. Both academia and industry shall contribute
- holistic views of the future shall not be limited by borders within media sectors and by borders of media research areas
- drivers and scenarios need to be future oriented. They must not be short or mid term extrapolations (trends) of what we know for sure.

The next objective is to identify innovation drivers that can be used for technological breakthroughs combined with radically new meanings.

Last not least the content of this deliverable needs to prepare the Next Media community to develop – in a later task step – a media research vision 2020 and a roadmaps necessary to achieve the vision.

1.4 Approach

The underlying methodology for identifying the most significant drivers is based on qualitative, interpretive research (Remenyi, Williams, Money & Swartz 1998; Matthyssens & Vandenbempt 2003).

First, in a researchers' workshop we identified nine 'dimensions', into which we could classify possible innovation drivers and scenarios. They are presented in chapter 2.

The next step was to create future scenarios as such. In the second researchers' workshop we created trigger questions (see appendix 1) to stimulate our contributors. As we wanted to explore as many viewpoints as possible, a crowd sourcing approach was chosen. About 300 possible contributors from both academia and industry worldwide were invited via e-mail to submit their input.

Within six weeks 38 volunteers, 31 from within the media sector and seven from adjacent areas, such as ICT, futures research, design and humanities, developed 42 possible views. These typically consist of one or two A4 pages.

We, a team of nine editors, used content analysis to integrate these contributions, defining converging and diverging views per dimension. A saturation point per dimension was reached after a certain amount of inputs. Saturation means that new contributions do not deviate from the envelope of the existing contributions. The focus on the analysis was on the long term future (2020). Scenarios were not meant to be short or mid term extrapolations (trends) of what we already know for certain. If possible, a narrative has been constructed per dimension.

The version 1.0 of this deliverable, containing the nine dimensions and a further one, Markets and Media Landscape was published internally as an input for the first vision workshop with the Finnish media industry.

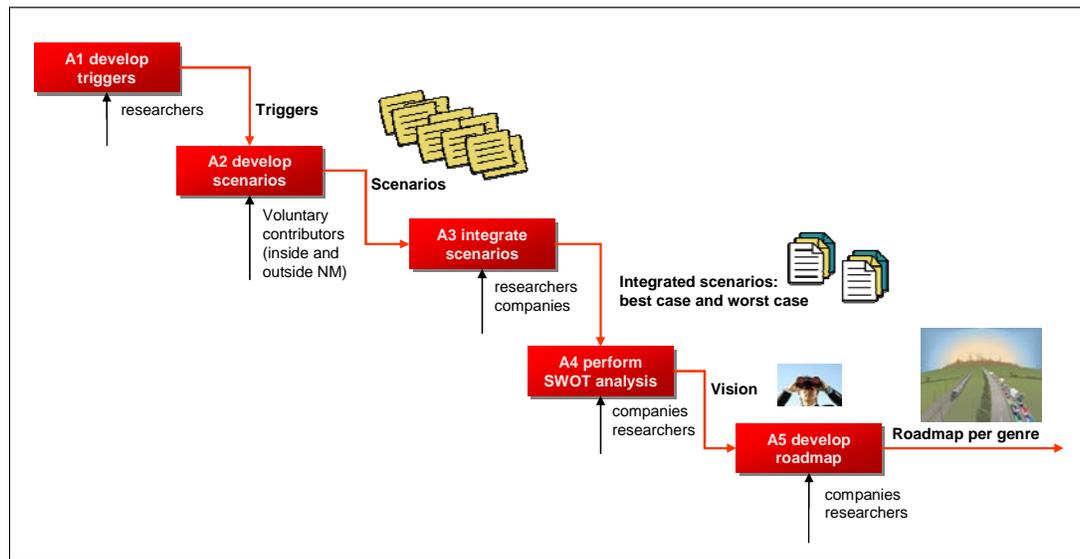


Figure 1. Research process

Version 2 of this deliverable has been updated with the following:

The nine dimensions are complemented and re-analysed in the Business Concepts chapter 3, integrating a research paper by Giesecke and Immonen (2010).

Key innovation drivers per dimension have been identified as following:

First by prioritising through a questionnaire distributed to Finnish media industry members. Complementary, in a separate workshop with academia, we have identified the most important research drivers until 2020, clustered by media genre. Finally, in the concluding vision workshop (Finnish media and academia) the drivers have been prioritised by e-voting again. The chapter 4 documents this final result.

In the final chapter 5, we document the outcome of the first vision workshop with the Finnish media industry. Worst and best case scenarios and one example of a desirable scenario of the industry, “Human Media”, were created in this workshop. These scenarios are to be used for SWOT analyses and for a Finnish media sector vision 2020.

2 Media Scenario Dimensions 2020

The following nine dimensions are the basis for the next chapters 3, 4 and 5. In all the three chapters the dimensions are used to create and illustrate integrated views: on business concepts, innovation drivers and integrated scenarios.

For each dimension the editors have gathered key drivers and their explanations and a list of individual key scenario authors, whose articles we recommend to read along with the dimension.

2.1 Social Values

By Raphael Giesecke

Key innovation drivers	Key scenarios by
<ol style="list-style-type: none"> 1. Cognisance – mastering the information overflow 2. Togetherness – belonging to ‘trusted’, influential networks 3. Acknowledged virtual human relations – managing ICT-mediated identities in social interaction 	Giesecke Jones Li Nordenstreng Pienaar Trappel Valaskivi

This section provides the general context for the eight more specific dimensions. We recommend to read as well the complementary article on the future domination of generation Y and Millennials (*Goodman*) in section 2.3 User and Audience Behaviour.

2.1.1 Knowledge Strongest Key to Power and Success

By 2020 an expected two Billion humans and a similar amount of sensors of things (in the IoT – Internet of Things) will produce digital data (some as information) at least once a day. Already today there are plenty of initiatives to aggregate information to knowledge, mainly by putting information into relevant context. There are claims that the *knowledge society* has been achieved already in Europe, soon accompanied by an *Internet of knowledge* (EIFFEL 2009).

Our data indicates that in 2020 knowledge as such is regarded as one of the most important professional assets and social values of an individual. Thus competition for the ‘true’ sources of knowledge will be intense (*Li*). Due to the sheer volume of new information people rely more on their personal networks (personal socio-graphs) and on recommendations within shared socio-graphs (friends of friends) to find *relevant* information. Thus, similar to intellectual *property*, there will be a change in intellectual *capital* which includes not only human capital, but also structural capital (bridging people inside with people outside) and relational capital (the extended network or ecosystem) (Bontis 1998; Nahapiet & Ghoshal 1998).

Still, much information retrieval will be based on search (*Pienaar*), and consequently the public will want free access to news sites (*Koponen*). The EU has already put forward the notion of ‘free movement of knowledge’ (available to all, no matter where it is situated) as a fifth freedom (*FInES 2010*). Digital literacy and broadband access have been declared essential to successful living in Europe and the US (*Nadel*). One author (*Jones*) even does no longer see a role for IP as knowledge itself has been commoditised.

The business perspective on knowledge is that in 2020, competition will be about who is most effective at sharing content with the audience that matters most (*Jones*).

Knowledge?

Know-how (*taito* in Finnish) is a skill or competence, an ability to act.

Knowledge (*tietämys/tieto*) is meaningful, “embodied” (person, culture or organisation) or encoded information put in context, dependent on time and space.

Information (*tieto/informaatio*) covers a range of concepts from interpreted signals to knowledge artefacts. Information has value if it is unique and useful to someone.

Nonaka et al. (2000) also distinguish between **explicit** and **tacit knowledge** and describe **knowledge conversion** processes.

Knowledge processes **in media** have been described by Kivinen, Immonen, Giesecke (2010).



2.1.2 Networks and Networking as Intrinsic Values

Both in 2010 and in 2020 people connect based on shared mindsets, lifestyles and business interests (*Pienaar*). However, the dynamics in the networks will grow exponentially. What in 2010 is referred to as ‘status update’, will be – partially automated – become in 2020 a more and more dynamic (ultimately real-time) stream of information, including information per person in the network, about the location (real or virtual), others present (real or virtual), subject of activity, expected duration, and finally, the reasoning: *why are you at that place, for what purpose?* Additionally, all available recommendation systems will be interlinked to this, as to provide dynamic recommendations.

The reason behind this is simply that people trust and learn more from their socio-graphs (*Pienaar*). *Tolvanen* even assumes that people cultivate personal networks as a hobby, and that the importance of something is defined by trusted peers. Moreover people actively store their memories (micro-histories) for their network (*Tiainen*).

In a culminated scenario, beyond 2020, people indeed identify themselves less by nationality, profession or class status and more by their position in networks. Social success is measured by the size and the quality of personal networks, as well as the ‘value’ (recommendations, updates, ‘competences’ etc.) that individuals add to the respective network. These networks will cover activities in professional, private, real, virtual and public life, respectively.

If this scenario (most likely for younger generations) will materialise, it will certainly create counter movements (at least ‘anti real-time’, ‘anti big-brother’ initiatives), based on traditional values of human relations (*Tolvanen, Giesecke*).

2.1.3 More Sharing, Participation and Collaboration

As networks as such are a highly regarded social value by 2020, people will be even more motivated to use them. Sharing, participation and collaboration has started already. Community building and – as a consequence of the preference of ‘sharing’ versus ‘owning’ – communal ownership will increase (*Cruickshank*).

Regarding sharing, privacy will remain the biggest issue: privacy is still a very important (social) value in 2020, however views on publicity vs. privacy may differ between generations. People want to control how they interact and remain in control of publicity vs. privacy of the content they generate. This continues to pose challenges to those who own personal content. People will remain strict about private information not being mixed up. Still, more personalisation and control of media content are welcome (*Pienaar*).

Regarding collaboration, some people may even become citizen editors and publishers (*Valtonen*). In a business context, we see increasingly ‘flat’ social interactions and structures. This implies new forms of ICT-enabled collaboration outside hierarchical structures and controlled media, of which *open innovation*, *collective intelligence* and *agile organisations* are examples. The social culture in 2020 is more participative as well as more collaborative (*FInES 2010*). Community building increases, as people are looking for more collective perspectives to the world (*Valaskivi*).

2.1.4 Amalgamation of Physical and Digital

By 2020 portable *cocktail identities* allow and facilitate the expression of multi-faceted (virtual) personalities (*Jones*).

Multi tasking as practiced by the younger generations already merges concurrently the real (home, work, phone call) and virtual (web, TV). People who are used to multi tasking will not likely get rid of this habit.

Boundless surfing blurs physical and digital borders between sites, (virtual) places, groups and communities (*Kirjonen*).

Better immersion narrows the gap between physical and digital: information is presented in real-time modus in a way in which real persons, real places and real news play important roles. The users will interact with this information in the same way as they interact today in a multi-player online role play game.

Knowledge sharing and other serious activities will be facilitated by game-like interaction (see figure 2, Gaming dimension and *Kuikkaniemi*).



Figure 2. “The wall”, courtesy GP wiki

Care robots (developed as solutions for the diminishing population and problems of an ageing society) are the first evidence for human-like behaving things. This will change our perceptions of what is ‘human’ and what is not (*Valaskivi*).

Due to lack of better wording and as hyper-real is already associated with Baudrillard, we label this amalgamation phenomenon between physical and digital (*Cruickshank*) *Über-Reality*.

Two authors are cautious about such phenomena: *Nadel* emphasizes that humans are affected to artefacts and their monetary value and *Pienaar* indicates that people’s values, mindsets and lifestyles may not change much due to the increasingly connected digital media world. Additionally, she points to the difference between [perceived, real, suggested...] needs and mindset.

However *Rautiainen* takes an integrative view, noting that [amalgamation phenomenon between physical and digital] does not replace the behavioural needs and patterns in the real world. He emphasizes the opportunities for intermediary technology helping people to enrich interactions also in the real world, e.g. by direct interpersonal (i.e. with people co-located) computing.

In the end the question remains, whether the technologically possible is actually desirable from a social value point of view? (*von Stamm*)

2.1.5 Politics, Globalisation, Crises and Beliefs

Regarding politics, In the most positive 2020 scenario, on EU level, social cohesion and inclusion is being fostered and unemployment tackled. Openness to new ideas and solutions, based on knowledge and powered by intellectual capital has been achieved (*FInES 2010*).

Herkman integrates this partially in his statement that the power of international alliances, such as EU, NATO and WTO keeps growing. Then, however, he locates growing power also to [global] business corporations. This causes new nationalist

movements against cultural globalisation. Thus national cultures and languages will still affect remarkably on media content and consumption. In a final, pessimistic view, *Herkman* assumes that official politics will recede from individual citizens and political decisions are made by small political elites.

As a client-side counterpart there are new ways for customers to be organized and accumulating better negotiation power, see, e.g., <http://carrotmob.org> (*FInES 2010*)

However, the challenges of unequal distribution of wealth, education, access to media, [water], nutrition and freedom of expression around the globe remain (*Valaskivi*). That means that many (local) crises will have emerged by 2020. More disruptive change is rooted in social processes (such as terrorism), (nature) disasters and large scale failures (e.g. financial market collapse) (*Trappel*)

In a crisis situation, people use their favourite channels also for sharing their feelings and information (*Väätäjä*). Complementary, crisis situations support quality journalism: people in a crisis have a compelling need for reliable information on economy, environment and society. Individuals feel [and behave] as human beings and social animals with existential needs – not as citizens fulfilling grand designs of democracy (*Nordenstreng*). Last not least crises cause escapism as well: people just want to flee their misery, at least for a couple of hours. Thus media needs to offer alternative (interactive) worlds also and even increasingly so in times of crises.

Whereas *Pienaar* assumes that people will interact and search for content that fits their lifestyle, *Valaskivi* indicates that the importance and visibility of religions will without doubt grow because of the new questions about human collectivism and relationship with machines. Media has in many ways replaced various functions of religion (starting in the 19th century) and will even more act as a place and space of religious acts and rituals.

An interesting approach is *Li*'s “walled garden” 2020 scenario. The walled garden contains the mainstream of beliefs and “content”. People align themselves with a “package” of beliefs which fits their social values [or “lifestyle”] and seems suitable. Within this package, there is an assumed freedom of life, making the question about control (e.g. of content and narratives) superfluous. As – within one package – there is no belief in alternative narratives, all the abundance of self organisation and interest groups, social networks and communities is limited to the individuals' reality defined by the content of the very same package.

2.2 Social Media

By Asta Bäck, Katri Grenman and Esa Sirkkunen

Key innovation drivers	Key scenarios by
<ol style="list-style-type: none"> 1. Semantic knowledge in semantic profiles 2. Identity management through profiling oneself toward different audiences 3. Expressing social activity and interest through internet <p>Other key drivers are mentioned in the social values dimension above.</p>	<p>Cruickshank Heikniemi Inkinen, Jones Kirjonen, Li Pienaar Rautiainen Saarela Sirkkunen Tolvanen Trappel Valtonen</p>

Social media has been a hype term for many years already. According to the authors, this is not a trend that will blow over; on the contrary, in the future all media will be even more social.

Social life will be penetrated by communication technologies, which will be better integrated in day-to-day procedures. When these technologies occasionally fail, they will paralyze public life considerably. On the other hand, personal computers have traditionally distracted people from face-to-face interaction. The next phenomenon that will attract users in is the devices, applications and services that allow humans to enhance their face-to-face social interaction much better than the traditional devices. Device interaction will be designed to minimize any distractions during interpersonal contact. (*Trappel, Rautiainen*)

One scenario includes a “second world” where people are connected everywhere and all the time. All media is also in that world, but there are no limits that necessitate the separation of one media from another. Almost the only need you will have to satisfy in the physical world will be eating, since the virtual world will cater for your needs and enable you to e.g. travel, feel and spend time with your friends at your computer or any other connected device. (*Kirjonen*)

Tools will accommodate for the new social experience. Web clients will have native support for social annotations. Feeds will become more visible in everyday life through integration with entertainment devices and home appliances. Social media will not remain tied to the computer; it will penetrate everyday life in general [i.e. people will not particularly associate it to computers anymore]. (*Heikniemi*)

There has been a social or communicative element in the internet early on with discussion forums and bulletin boards. What we refer to as social media distinguishes itself from the earlier applications in several ways. The most important new features are visible, permanent profiles and networks between users, sharing various kinds of media and content and collaborative creative activities. Most social media applications have all these three elements, but they have varying emphasis on these different aspects.

In order to envision the future development opportunities, it is important to look at these three areas in detail and separately from each others.

2.2.1 Profiles and networks

Profiles and networks are increasingly important in 2020. The profile may also contain information of personal interests, and can be used for personalisation if the user wants it to be used like that (*Valtonen, Saarela, Sirkkunen*).

Who owns users' profiles and networks and who may benefit financially from them will have to be solved by 2020. Giving users control over their profiles and how and where they are used can be the basis for business models. But also, views are expressed that privacy is not so much of importance in the future (*Li*).

Several different alternatives can be seen relating to profiles. Instead of a single profile linked to one's real identity, we can foresee many alternative identities or personae that a person may have and the user may select the most suitable one for any particular case (*Jones*).

The advances in semantic web technologies are important in relation to profiles. If and when the profile is semantic and with more semantic knowledge, knowledge bases and media resources available, it will be possible to help users in finding relevant information. Combining the opportunities of semantic web technologies and social networks give opportunities to building highly relevant, personal services (*Tolvanen, Pienaar, Heikniemi*).

A practical aspect of identity management is being able to log into different services with one user account. Linking profiles and single access in an easy and user controllable way will be the key. (*Heikniemi*)

The networking opportunities will have significant impact on the society as a whole. Also, competition for attention will be fierce for all who want attention, be they individuals, causes, companies or media producers,

2.2.2 Sharing and commenting

Sharing benefits from users' networks. Information overflow is the key challenge. The task for the future developers is to create new tools to browse, collect and manage all shared and available content.

Users have already become accustomed to expressing their opinions by commenting or in a shorter format by rating, tagging or just indicating that they like what they share. These kinds of interaction opportunities are becoming the norm everywhere. In the future, it will be difficult to say, which applications are social media applications and which are not, because these interaction opportunities are utilised everywhere, and people can link their activities to their web presence in social media applications.

Micro actions have potential for wider applications than what we currently see. Indicating trust, agreement and disagreement could be expressed easily with micro actions, and this gives potential to add more semantics and understanding to what is presented on the web (*Heikniemi*).

2.2.3 Co-creation

The third characteristic feature of social media is to enable self-organising, creative activities. The motivation to participate in this kind of activities is driven by reward opportunities – interesting work and objectives, care for community, fun, recognition, connection, improvement, competition, incentives, knowledge exchange, influence and collaboration (see <http://www.doyouknowco.nl>).

Co-creation is not only used in social media but will be one of the ways through which media companies will produce content in the future.

2.2.4 Real-time social media

The ease of use and interaction has led to what is called real-time web (*Inkinen*). Instead of sharing past experiences, people tell what they are doing or thinking at the moment, or even what they are planning to do. Developing applications that let people express themselves in issues that are of interest to the service provider, or to develop analysis methods to understand the communication in certain topics are opportunities for future development work.

This ubiquitous sharing and connection leads to the expectation of being continuously able to be aware of people and things that matter. As the amount of available information is so huge, there is no way people can process this by personally going through all content and data sources. Rather, we'll see various applications that shift through all the data and analyse it in order to draw each user's attention to the issues that matter to him or her most at any particular time. (*Valtonen, Cruickshank*)

During the last years, there have been many expectations attached to location related services, including social media services with location information. Location information has even more privacy issues than web-based information, so the expectation is that successful location related applications will be very much in user control. Also, the number of people that users will be willing to share they location with will be smaller than in their online communication networks. Popular location based services have mixed elements from games to sharing location data. Also, looking at tweets with location information, even on real location with the help of augmented reality applications are examples of how mixing different kind of applications and technologies create new, appealing services.

2.2.5 Potential success factors in developing social media applications

Opportunities in developing successful social media services lie in giving users control over their data, but privacy remains a challenge even when sites want to support it. Successful business models may be found in respecting users and letting them be in control of their own data by paying for control and privacy.

Another key area is helping users to manage data and content overflow, offering awareness services that help in staying aware of personally important issues with minimal effort and aggregating and visualising views of the world from different perspectives. Users should also be helped in creating and maintaining contacts and communicating – these are basic human needs and there is always interest in services supporting this. Creating personalised advertising services that provide people with

useful information and help in one's personal life in non-intrusive ways is also important.

Building real-time social media applications to enhance concurrent experiences either in one location or over distance are also crucial for the success. Equally important is adding the social aspect to media consumption even though people may consume media at different times and channels – seeing which of your friends have seen a particular show/film and/or making recommendations based on friends' opinions. Recommending in different kind of applications be they of professional or private nature is one of the key features of successful social media applications.

In 2020, it will be difficult to say, what is a social media application and what is not, because users will be visibly present in most media applications, and the “social aspect” has become an element of real-life, location based applications as well.

2.3 User and Audience Behaviour

By Merja Helle

Key innovation drivers	Key scenarios by
<ol style="list-style-type: none"> 1. While the baby boomers are still significant in numbers, generation Y and millennials dominate the cutting edge media field and will not likely return to any earlier, narrower, meanings of media 2. Quality media will be demanded as much as today but users co-create more content than today 3. Users engage automatic search robots and knowledge curators, but also allow packaged, 'walled garden' media 	<p>Goodman Jones Koponen Kuikkaniemi Li Nylund Pienaar</p>

In 2020 audiences has become an old fashioned term associated with previous marketing based research on targeting specific demographic groups for advertising. Therefore in this section I prefer to use the term *media users*. This does not mean that understanding audiences is not important any more. On the contrary understanding the media use of people, their needs, preferences and everyday practices in engaging with different kinds of media is central for the media field and industry. This is agreed upon by all the commentators touching the issue.

Media users in 2020 are not passive recipients of mass media messages but media users also participate in production of media content and influence it with their active media choices.

Understanding the identities and everyday practices of media users has become crucial and old mass media based media companies are in trouble. Media users do not consist of persons with one stable identity or demographic groups based on fixed income or a place of living. People have control over their media choices and media use and also turn towards their personal interests and trusted friends or sources of information, entertainment or social networking.

People now have cocktail identities – an amalgam of different faces to the world that they effortlessly slip in and out of during the day as they travel their 'youniverse'.

People's cocktail identities consequentially means the end of focused targeting of products and services and a switch to providing a palette of options through which consumer can proactively navigate as they wish, driven by whichever identity (and personality) they fancied adopting. (*Jones*)

2.3.1 Fragmented media use

Media use is fragmented and user preferences can be almost contradictory as media users control their media use and choose what media to use and whom to trust. The idea of freedom of choose for media consumers is seen as a positive thing by many but there is also a darker side as some of the people drop off the cultural and social mainstream because they cannot afford or know how to use digital devices and content.

Understanding different kinds of media users and user groups and networks has become the core of any successful business model and the information is also kept secret inside media companies.

There are different groups of users, no group fits one model. According to *Nylund* in 2020 an emerging set of new values for media use are emerging. This subculture is described by Paul H. Ray and Sherry Ruth Andersson who see it as one of three dominating consumer groups in U.S. They are called the Cultural Creatives. 26 percent of the adults in the U.S. – 50 million people – subscribed to these values some years ago. The cultural creatives reject conventional western lifestyle. They are disenchanted with “owning more stuff”, materialism, greed, me-firstism, status display, glaring social inequalities. They are critical of almost every big institution in modern society, including media, corporations and government. They reject narrow analysis and are sick of fragmentary and superficial glosses in the media that don’t depict what they see, or explain what they know from their own direct experiences. (*Nylund*)

Instead, they value authenticity and direct personal experience. They like whole process learning, rather than narrow intellectual approaches. They are concerned about the condition of our global ecology and the well-being of our planet. Both men and women among cultural creatives embrace what are usually designated “women’s issues” and “women’s values”. (*Nylund*)

According to *Nylund* cultural creatives are a big challenge for the media industry because they want services that are based on the same critical and analytic word view that they are sharing.

One of the central issues and also of most diverging viewpoints regarding year 2020 concerns the motivation and freedom of choice of media users. A less rosy picture of freedom of media choice is presented by Li with her concept of “walled gardens” in which global conglomerates and national governments offer media content packages most suitable for people’s values and preferences. These media packages are predetermined although and illusion of choice may exist.

The gatekeepers – those who control the interfaces – will have near-absolute authority over the content that is available. What is available is also what people rely upon to go about with their daily life and what organizations rely upon to go about with their daily operation. “Walled gardens” will become so pervasive and so vast that they constitute the full reality for almost everyone in the “civilized world”. Trust and privacy issues at the beginning of the 21st century have become quaint relics of the past. “

Certainly, there will be pockets of contents and activities outside the walled gardens, perpetrated by self-styled revolutionaries, dissenters, social dropouts and the like. These will be tolerated so long as they pose no risk to the legitimacy of the mainstream”, claims Li

2.3.2 From demographic factors to generational mindsets

The authors’ focus in predicting future media use and user behaviour seems to be on digital gadgets and content. However it seems that magazines have survived best the onslaught of digital reading as they have had a close and friendly relationship with the readers and their interests and life worlds.

There is however a remarkable lack of comments and methods about how media users could be researched and their media practices understood in a detailed way, entwined within their everyday life worlds.

The criticism against using only marketing research based methods that rely on detailed demographic data of media users is widely accepted. Demographic factors based on present marketing research will not explain user behaviours or determine who the audiences and users are. Instead the media should focus on generational mindsets writes *Goodman* (and *Pienaar*), especially when dealing with use of social media.

According to *Goodman* a generation' mindset is created by the social circumstances they were raised within their youth. This mindset never changes throughout their adult life. Each generation brings its own technology with them throughout their life cycle. Technology of one generation does not change the mindset of another. In 2020 there will be two generations - Generation - Y and Millennials - whose media habits are dominating the media field.

Generation-Y uses text messaging as their mainstream communication, giving cell phones and PDA's a new dimension. Texting is used for personal communication and business. This generation does not use much email, just text. In 2020 Generation-Y will be 26 - 43 years old. Millennials are fully engaged in texting, Twitter and SMS, as is Generation-Y. They are fully integrated and comfortable with touch screens, mobile media and entertainment. This generation has the least direct personal contact with people when compared to other generations. By 2020 Millennials will be 11-25 years old and they will have worldwide impact on society.

It is very important to understand the mindset of each generation. Thus media needs to speak to them in their respective own generational language. It is not meaningful to appeal to a demographic age group. (*Goodman*)

Kuikkaniemi states that in 2020 general media consumption statistics do not serve any more advertisement measurement purpose (advertisement impact is calculated case by case) and for this reason media companies do not share their knowledge about media behaviour and penetration. We will have less and less general information about how people consume media, and what is popular or not. Making general statements is hard. Continuous research on media consumption is important.

Measuring media use experience is important since it is not only the quantity of media consumption that is important, but the quality becomes more and more important parameter for content producers and for business operators. Primary way of measuring the behaviour is system metrics. We will have several companies profiling users based on system metrics. There might be also companies that do integration of profiling based on different systems. User data analysis expertise will be important issue. This is a major privacy issue, emphasizes *Kuikkaniemi*.

2.3.3 How people choose and consume content

The big question of how people will choose their media content is still on the table in 2020. Automatic retrieval of content via search robots fulfils some needs, some people turn to knowledge curators who choose and forward information, many are satisfied with "walled garden" content packages that fit and confirm the user's life system, many turn to friends and other trusted informants for interesting and trustworthy information.

Recommendations, contextuality, personal profiles, aggregators and activators are all utilized by media companies and media users to find relevant content for people's divergent interests.

Media users consume and demand different types of content. 24/7 news flow is just one part and interests a minority of media users, unless in time of crisis or global accidents. Local news is avidly consumed and discussed as well as content shared with friends and families, There is also interest in what *Koponen* calls slow content and slow platform media content. This means content used for identity creation and pleasure, more analytical and in- depth stories.

Media is used via different types of gadgets and also radio, TV, books and magazines still prevail as media channels. Text, sound, photographs and video complement each other on different platforms and more and more media content is consumed via mobile tools - smart phones, tablets or netbooks although there is a trend of smaller and smarter all-in-one media gadgets.

It still remains to be seen how much media users and especially which media users spend time in or with real-time/virtual/augmented media environments. The hype about new media technologies and their content taking a central place in people's lives has diminished and technological innovations have become a part of everyday life in some sense. The economic and political realities of our societies and the ways they influence our lives and media behaviour is of more concern to media researchers and media producers.

For example *Pienaar* wonders whether people really change their consumption and sharing of media based on technologies, platforms and services available at the time. There is more and more evidence that our social values, and not our demographics are the main contributor to how we consume media and socialize - whether in the physical, or virtual worlds. Our "social make-up" matters more than what most marketers and technologists seem to think.

For *Pienaar* it is clear that an in-depth understanding of the mindset or psychology of the users will become key to drive the most successful services. There is a difference between needs vs. mindset.

2.4 User and Audience Interfaces

By Raphael Giesecke, Ulf Lindqvist and Asta Bäck

Key innovation drivers	Key scenarios by
<ol style="list-style-type: none"> 1. Better sensing leads to much higher situational awareness of (portable) devices. Their gadgets are aware of anything the user wants to stay up-to-date with 2. Awareness leads to more adaptive interfaces with, e.g., augmented reality in common use in mobile devices 3. Situational- and user adaptation leads to less intrusion, even if media interfaces are ubiquitous and media surrounds and accompanies people everywhere 4. The interface experience is much more seamless than today. E.g., navigation/surfing is more image based, more intuitive and less dependent on language and keywords 	<p>Eriksson Kuikkaniemi Lindqvist Saarela</p>

2.4.1 Ubiquity of Aware and Adaptive Media Interfaces

Always On and Connected: in 2020 media will surround and accompany people everywhere. There is more outdoor media, as well as home and decoration media (up to interactive wallpapers), as well as various mobile gadgets and sensors that can be used to connect and stay connected. These gadgets will be aware of anything the user finds important to stay up-to-date with (*Kuikkaniemi, Cruickshank, Eriksson*).

Other sensors (e.g. measuring the user's bio-data) and real-time information about the local environment will lead to much higher situational awareness of (portable) devices and their interfaces.

In 2030 the main media interface may be a sort of advanced mobile iPOD (*Eriksson*) with high resolution and colour rendering which is easily connectable to other high-tech devices for multi-audiences. However a whole gamut of other devices will be available alongside (*Kuikkaniemi*).

The more these devices are aware of the user's situation, the more non-intrusive they will 'behave'. They will learning from past user behaviour and will reckon the needs for 'silence' vs. 'action'.

According to *Kuikkaniemi*, in 2020 digital billboards are a commodity. Some of these public displays are adaptive and interactive (indoors, walking areas), however especially large displays for drivers remain mostly passive and with static images due to safety reasons. Each display is a unique web-channel with real time web component and this way the advertisement is completely location aware. The link between public displays and the web can happen either with image recognition, geo-location links or just simple URI codes (*Kuikkaniemi*).

2.4.2 User Interface Experience



The main goal will be to make the user interface experience much more seamless than today. For instance navigation/surfing by 2020 is more image based, more intuitive and less dependent on language and keywords. The subject can be found by, e.g., a subject on the screen or by shooting a digital photo of a key component (*Lindqvist*). However the image based interface will not replace text completely (*Kuikkaniemi*).

Figure 3. Nokia user interface "flat"



Game interfaces range from advanced sensors, voice and gesture recognition to the classic joystick. Stereoscopic interfaces are natural and an easily adopted option if needed but not a necessity (*Kuikkaniemi*). Many of these are used in non-game environments as well.

Figure 4. Nokia user interface "wrist"

Augmented reality technologies will find their way to the media products where information from the virtual world is to be combined with the visual information of the real world. This technology is already in use in some mobile handsets (*Valli*).

2.4.3 Specific Interfaces

B2B and Professionals' Interfaces: companies will rely on broadband internet, with most communication being handled on advanced mobile devices, which can be connected wirelessly to wide screens and printers etc.

Hybrid Interfaces: media in 2020 is primarily a service consumed through a device which might be completely integrated to the content. Even "passive media" has always an interactive channel available (*Kuikkaniemi*). See also *Cruickshank* on "digital paper".

Libraries: a successful library in 2020 is at least an information integration and sharing centre (*Laukkanen*) and, following *Pienaar*, may even offer "personal virtual librarians". They could answer questions such as "which person (profession) has found which book, and which article in the book, helpful, when addressing these (specified) research questions, in which context?" including an individualised bibliometric report.

2.4.4 Audiovisual Entertainment Interfaces

TV/Video

A general view among the authors is that already by 2015 we will have a mix of LD, HD and 3D televisions, but there will not be an all-over conversion to HD and neither 3D (*Cruickshank*). The difference between broadcast and streaming will disappear when some channels turn into department stores of brands (*Eriksson*). RSS feeds will be there, but also many other streaming technologies.

There will be a multitude of standards and modalities used in parallel. S3D is an addition, significant in high quality immersive video, gaming and data intensive collaboration (*Kuikkaniemi*).

There are different opinions among the authors regarding the convergence between television and net. While some experts (e.g. *Cruickshank*) expect everyone to consume TV by browsing and virtual interfaces, others expect the consumer to have 10-100 separate devices for media consumption, from advanced mobile pads with extremely high resolution and colour rendering and high-fidelity sound to large 3D home theatres with all modern reproduction features.

Programmes are still distributed both by public service companies and commercial channels in 2020. Many programmes are available via peer-to-peer (P2P) containing a lot of local and hyper-local content produced by amateurs, local companies and organisations.

Tolvanen's 2020's TV set will integrate ratings and recommendations from the network into the EPG view, based on recommendation engines, adding comments, ratings and related information.

Giving the control to the user might be analogous to selling intelligent 'remote controls' to a TV with a multitude of channels. Some users do not invest the energy to browse through channels to find interesting content. Thus the future 'remote control' vendors could provide the "tool" itself (e.g. software with a right to use license) or the "tool as a service" (right to use and access channels with personalized menu) (*Saarela*).

Audio

There are some analogue radios still in 2020 because people like them, but overall music and audio consumption will be spread. Download and streaming are both popular, along with mobile and car systems. Event audio streaming is common and discussion channels will be more popular than currently.

2.5 Media Content

By Katri Grenman

Key innovation drivers	Key scenarios by
<ol style="list-style-type: none"> 1. Segmentation plays a key role and consequently the role of general, mass media is less significant by 2020. 2. In parallel, there will be a clear division between freely accessible standardized news information and paid for, high quality information services. 3. More services based on publicly available data, including maps and statistics of all kinds, appear. 	Antikainen Bender Heikniemi Kuikkaniemi Lindqvist Sirkkunen Väliverronen

2.5.1 The Marketplace of Contents

According to some authors, the future will see gatekeepers to content, business and consumer markets, and these gatekeepers who control the interfaces will have near-absolute authority over the content that is available. Big hybrid companies will dominate the global commercial media industry. On the other hand, some views see that publishers, radio and TV companies and other players have an even smaller possibility to influence what gets shared through more open channels.

Universal connectivity, open source movements and pervasive free access could result in there being no role for IP in 2020. Competition would not base on owning content but rather on sharing it most effectively with the most important audience. *(Li, Jones, Sirkkunen)*

2.5.2 News and Newspapers

The year 2020 will see a clear-cut division between freely accessible standardized information and paid-for high quality informational services. This is not dependent on the medium that is used to transport this information. *(Trappel, Uskali)*

Most likely we will see a combination of professionals and amateurs delivering the news, with pro-am models used in content production and amateur journalists and photographers competing with professionals. The news content could be even 75% based on reader input. *(Lindqvist, Bender, Sirkkunen, Valtonen)*

The next change is what newspapers and news are all about. Newspapers may focus more on human interest stories and more on local than international or national news. Important stories are these that are not easily available elsewhere. People will pay for local content, and most of media will be localized for “deeper” reach and better integration of advertisements. *(Kuikkaniemi, Antikainen, Väliverronen)*

Content filtering will be a key issue. There is a need for methods for selecting, filtering, packaging and organizing the exponentially increasing amount of data that the next generation of mobile devices, interacting with their environment, will produce. The emergence of methods for selecting the information one wants or needs from the

overwhelming stream of content is going to be a rapidly growing business sector. In addition to filtering, personal media assistance could be offered as a service. Media houses could charge both for the service and for their premium content. (Li, Heikniemi, Antikainen)



2.5.3 Text

In 2020, text will not be completely replaced by visuals. However, the ways of consuming textual media will change. Media reading devices will be small, easy to carry and much easier to use than they are today. There will still be physical books, even in 2040, but they will be works of art for bibliophiles rather than material for mass consumption or communication. (Kuikkaniemi, Cruickshank, Väliverronen)

Magazines will still remain a strong media, but variety will increase. They will be available as different versions; print, online and mobile. Electronic publishing will diminish the overall consumption of printed newspapers, magazines and books. Most printing is done on demand, which will eliminate the need for large warehouses for printed material. (Antikainen, Lindqvist)

2.6 Professional Journalism

By Esa Sirkkunen

Key innovation drivers	Key scenarios by
<ol style="list-style-type: none"> 1. Permanent journalist job positions will decrease while work opportunities as, e.g. independent “journalpreneurs” and within marketing and PR increase. 2. The pace of news work will increase, still. 3. Journalists will act as producers and facilitators, working in various professional-amateur constellations, mastering co-creation and crowd sourcing processes and supporting the audience in their knowledge processing and learning. 4. We will see more collaboratively made, iteratively built and open-ended story forms tailored for various media formats and displays. 	<p>Bender Cruickshank Dal Zotto Herkman Kuikkaniemi Nordenstreng Trappel Uskali Väliveronen</p>

By the year 2020 professional journalism will not be vanishing away. One expert is even predicting that we’ll be witnessing a renaissance in the near future - a turn from emotions and escapism back to quality journalism (*Nordenstreng*). On the other hand some others predict that the legacy of professional journalism is vanishing and that opinion and persuasion are making their way back to journalism (*Väliveronen*).

All in all we are going to still have professional journalists in 2020 but the number of them may be decreasing, even a lot (*Uskali*). The writers seem to agree that the economical problems of conventional media houses will continue and will lead to smaller organizations, smaller budgets, less steady jobs and more free lancers and amateur journalists taking part in the content production. The network environment emphasize the reputation building possibilities of individual journalists (*Cruickshank*) so there will be new possibilities to build a journalistic career outside the media companies and their steady pay cheques (see for example Aitamurto 2009).

The professional work process will change although journalists will still make, gather and publish the news. There are also various new tasks for journalists to master: they should manager the information flow, analyze it fast (*Cruickshank, Uskali*), tutor or guide the citizen journalists, develop the work in different professional-amateur constellations, initiate user generated content and crowdsourcing campaigns (*Kuikkaniemi*). On the other hand there is less time to concentrate on building single news stories. As a consolation journalists will have automated tools which will ease their work in information seeking and analyzing it (*Uskali, Väliveronen*). Journalism will lose its position as the main definer of what is newsworthy because there are so many other rivals in media sphere (*Väliveronen*). In order to keep up with the other forms fast evolving social media the co-operation with user-producers, knowing your audience more thoroughly is essential.

It is also evident that citizen journalism or any user generated content genre will not replace professional journalism as such (*Dal Zotto, Trappel*). But the differentiation process that has been going on for last few decades continues because the audience

segmented, specialized media formats are gaining more and more popularity (*Herkman*).

Covering local or hyperlocal issues are areas in which professional journalism can still have a major role. In European countries there is still need for journalism that is made in national languages (see OECD 2010).

Although there are pressures to concentrate on entertaining visual material our writers seem to think that the central position of text will endure (*Dal Zotto, Väliverronen*) as a core of professional, so called quality journalism. But we will see a wide variety of new journalistic genres in the future. First of all the collaborative or co-creative forms of media production will partially transform the ways stories are told in journalism - we

will see more collaboratively made, iteratively built and open-ended story forms tailored for mobile devices, audio, web, print or public displays. For example live blogging (see Beckett 2010) is one of these new genres.

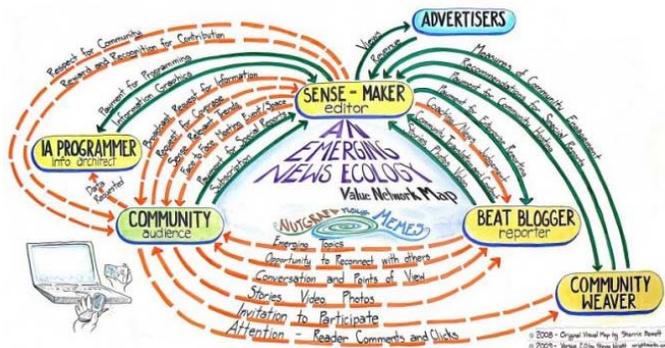


Figure 5. Value network map. Source: Holman 2009

In live blogging the crowd-sourced material is mixed with quotes from journalists, governments and NGO's so that the reader/viewer has a stream of live narrative combined with access to non-linear data and commentary. Live blogging allows the reader to control the flow of news in a much more proactive way.

People are already now using their social networks and social networking technology to filter, assess, and react to news (Pew Internet 2010). One can foresee that journalists are becoming more like facilitators who are helping the audience in their active knowledge building process offering tools for collecting and contextualizing the given information. Journalistic services will develop towards learning environments in which the users can process and contextualize the information according their needs. Journalist will learn to use the full possibilities of hypertextuality by giving also source material to the user-readers in the spirit of open code (*Bender*).

There are also gloomy visions about the fate of journalism as we know it. The growing amount of different content resembling journalism - produced by bloggers, corporations, NGO's, advertising companies to name a few - expand the range of journalism so that the whole concept is in the danger of fading away.

2.7 Gaming

By Raphael Giesecke, Petri Vuorimaa and Jukka Häkkinen

Key innovation drivers	Key scenarios by
<ol style="list-style-type: none"> 1. New gaming platforms and crowd sourcing enable faster development cycles and allow less risky revenue models 2. The Real World Takes On Games Logic <ul style="list-style-type: none"> • game style interaction and game style user interfaces are in use in education and work • interfaces recognize voice and gestures, new sensors enable biofeedback 3. Games Discover The Real World <ul style="list-style-type: none"> • virtual & mirror worlds and augmented reality merge • games take the reality as such as their “playground” • people wear game devices in real life, casually • “e-Earth” serves as federated, digital game platform 	<p>Kuikkaniemi Laukkanen</p>

2.7.1 New Gaming Platforms Shake The Industry

While game development has been focused on game consoles and PCs, recently smart mobile devices have become ubiquitous. At the same time social media, especially Facebook, has become a widely available software platform for games. Consequently a viral market for (massively) multiplayer online (role-playing) games has emerged.

Traditionally, game development has taken months or even years and the development costs for console games have been enormous. Since only few games are successful, the risk for investment loss has been very high. In contrast, the new platforms have enabled much faster development cycles: small game houses can develop so called indie (i.e. independent) games crowd sourced and market the games themselves using viral marketing. End users play the games either using web browsers or mobile applications.

Kojima (2010), the creator of the Metal Gear Solid game series, has predicted that game consoles will become obsolete in the future. This is still speculation, but in 2020 games will definitely use the cloud approach, both for development and platform. The user interfaces will still use web technology and games will be most often played on mobile phones. And generation Y and Millennials favour anyway digital, online content instead of visiting retail shops to purchase their media.

According to Chang (2010) the main advantage of what he calls *Gaming 2.0* is that it makes games frictionless, ubiquitous, social, and service-oriented.

The revenue models consequently shift from “pay for game” or even “pay for console” to “pay for resources/reward points”. All Zynga games (Farmville, MafiaWars etc.) are based on this. The model is well researched and successfully applied outside the games world within most customer loyalty programmes (shops, airlines, hotels etc.): one can always (slowly) earn points but often it is more convenient to buy them. Note also that there are generally no entry fees, and invitations by friends are commonplace.

The industrial implications are that the traditional division into big publishers, who fund and market the games, and smaller game houses, who develop the games, will vanish. The big publishers and their funding power will be simply needed much less in 2020.

2.7.2 The Real World Takes On Games Logic

By 2020 political discourse, group working, simulations, decision-making and open innovation systems will all be influenced by lessons learnt from game design and game interaction. Educational content too will be augmented with playful interactivity, e.g. one can learn more energy efficient ways of driving or using household appliances by playing a real life game. Schell (2010) goes even further and says that our lives are becoming games. Game-like interfaces are simply more entertaining and rewarding to use than traditional computer user interfaces. Combined with social media people can compete with their friends in everyday life. For instance people can compete with their friends who has the smaller carbon footprint by, e.g., increasing their use of public transport.

Games as such will be conceptualized more widely than today through a wide variety of playful and interactive contents. Changes will also happen in video and book-like content, which will contain interactive components that are part of the original design and story. The diversity in games is also reflected in game interfaces, which vary from advanced sensors to voice and gesture recognition. The sensor systems will read various bio-signals more easily and comfortably and enable new types of game and interaction adaptations and biofeedback for increased self-awareness.

Important for the large media houses is that many aspects of *Gaming 2.0* can be transferred to music, TV, print journalism/magazines, and packaged media in general. If everything is a game, then media consumption is also a game that we play with our friends. This can be applied, for example, to Internet newspapers, by using again the reward mechanisms described in the sub section above, focussing on points for recommendations.

2.7.3 Games Discover The Real World

We assume that virtual worlds and mirror worlds, as well as augmented reality and *lifelogging* as outlined in the Metaverse Roadmap (Smart, Cascio & Paffendorf 2007) will ultimately merge. The reasons are the following:

New online games and virtual worlds will increasingly take the physical reality as such as their 'playground', e.g., a possible *Second Life*, *EVE online* or *WOW* follow-up will be located in real places. Real authors are quoted (e.g. in *Alan Wake*) and real brands are used already 2010.

The integration of real-time news into such games and worlds would lead to an even stronger connection to daily reality.

Additionally, game figures (avatars) can be rewarded if their owners prove that they did some meaningful task in the real world (e.g. supporting the poor or victims of real disasters).

This setting will be supported by devices allowing people to follow the game situation wherever they are (or move) through convincing augmented reality.

Consequently we assume that by 2030 (not yet 2020) Google Earth will be re-developed to assist such environments. Billions of sensors and millions of enthusiastic users will digitally mirror on distributed servers their local, physical environment until an 'e-Earth', a federated, digital, online and partially real-time model of the globe will be ready to serve as the ultimate immersive virtual, mirror *and* game platform.

One of the biggest challenges will be to manage large scale audience interaction so that individual participants will receive adequate feedback while the overall experience remains comprehensive.



Note the business opportunities for real word physical places such as cafés and shops displaying game situations online, in real-time. Customers will certainly visit places with much 'action' and many avatars around. We know already in 2010 that communities successfully attract tourists related to places used for movie sets. This will expand to game places.

Figure 6. Google Maps pin edited into physical space. Source: Smart et al. 2007

2.8 Media Companies and Their Features

By Stina Immonen

Key innovation drivers	Key scenarios by
<ol style="list-style-type: none"> 1. Demand for service process thinking 2. Agility and flexibility towards different audiences 3. Capability to adapt new roles 4. Competence to utilise company external resources 	Bender, Immonen Koponen Kuikkaniemi Pienaar Sirkkunen, Uskali

Media companies are always affected by their selected business models that shape the companies' core business processes and entire organisational systems, i.e. interrelations between technology in use; work tasks and processes; roles and competences of the personnel; and interaction between individuals inside and across the organisation. This chapter describes shortly company features that seem to be 1) inevitable regardless of the selected media business models either based on abundance or scarcity of something in interest of the customers, and 2) possible optional features. Note that we concentrate mostly on news media, as the scenario authors focussed on this area.

2.8.1 Fundamental Features

Knowledge work (e.g. Blackler 1995), done by company internal personnel and external content co-creators, is one of the media companies core processes. In its essence, knowledge work is needed to reduce the information chaos by applying ability to make and change theories, processes and rules in use. A typical media company has also knowledge assets that referring to Nonaka et al. (2000) are:

- **Experiential knowledge assets:** Tacit knowledge of workers – skills and know-how on individual level.
- **Conceptual knowledge assets:** Usually on company level, typically explicitly represented by the company brand, including the media- and overall design concept. They are articulated through images, symbols, fonts and language.
- **Systemic knowledge assets:** Documented explicit knowledge, within systems/databases/tools but also in manuals and IPRs. Ideally, systematised and packaged information about customers (including "the audience") and suppliers is available in this form as well. In our view, also the media product as such (e.g. online article) can be a systemic knowledge asset, if it is enriched by a sufficient amount of metadata, and stored in a database.
- **Routine knowledge assets:** This tacit knowledge is rather on organisational level, while being expressed by practices, day-to-day routines and the overall company culture. While being mostly practical, these assets also embrace the company's "story" and further background sharing.

Users and audience will demand professional knowledge services whatever interactive media is in use or however sovereign the users will be in accessing information. It is

unrealistic to delegate to search engines other than routine services. In high quality knowledge service provision all knowledge assets of a company need to be exploited.

The users will evaluate the quality of journalism by the experienced reliability, credibility, trustworthiness and transparency of the content production and editing processes (*Bender, Saarela, Väättäjä*). The common expectation is that there will always be a real demand for ‘official’ (trusted) news both for an elite audience willing to pay and for the masses expecting the content for free (see *Nordenstreng*).

Human editors, professional journalists, and other professionals will be needed for ‘fine-tuning’ the contents for different customer segments (*Bender, Cruickshank, Giesecke, Kuikkaniemi, Laukkanen, Li, Väliverronen*). Professionalism includes new types of roles that indicate also new types of interaction with the users and audience (*Goodman, Immonen, Jones, Kuikkaniemi, Pienaar, Uskali*). The roles of information gate keeper, filter and contextualiser are devoted to structuring information. Additionally needed roles are curator who will decide what content is made available; activator who will initiate user generated content and crowd sourcing campaigns; and customer intelligence officer who investigates the needs of the user and audience groups as well as customer groups. New skills and competences will be needed, such as the ability of making creative leaps in the analysis of information, ability to produce different types of journalism for different types of users and audience, and ability of creating stories and narratives around the subject in focus (*Cruickshank, Sirkkunen, Herkman, Nordenstreng*).

However, the number of permanently employed journalists and professionals in 2020 will be dramatically fewer than today (*Uskali, Nordenstreng*). Journalists will work mainly as self-employed freelancers with project type assignments (*Laukkanen, Nordenstreng*). Smaller organisational units set new requirements for permanent personnel. Since not everything can be done alone with a small staff, specialisation and scoping will take place alongside with networking and collaborating with other content providers, also with non-professionals (*Herkman, Immonen, Sirkkunen*). At the same time, the demand for multi-skilled journalists working mobile (and thus remote) without support of the ‘home-base’ work community will increase (*Sintonen*).

2.8.2 Optional Features

As sharing and consuming of contents takes place within user networks, company and product brands gradually lose significance for the users (*Saarela, Tolvanen*). This trend will be strengthened if the users will be technically and legislatively (no IPR regulations) more empowered to have access and control over the contents by their own. An additional view on brand is whether it is established around a company or individual content providers such as journalists, bloggers etc. This will have clear implications on the possible business models and thus service production processes of media companies.

Another feature deals with the nature of the content demanded in the future. Whereas one view emphasises that entertainment is taking over so called serious content, the other expects good quality, serious journalism to hold its position, even if only for ‘elite’ customers. In between is the third view supporting the idea that several different types of journalisms will co-exist. In an extreme view, new contents will not be professionally produced any more while the citizen generated content will be effectively re-used in the production.

2.9 Media Technology

By Olli Nurmi and Raphael Giesecke

Key innovation drivers	Key scenarios by
<ol style="list-style-type: none"> 1. Cloud based media services become ubiquitous 2. Next generation of mobile devices appears <ul style="list-style-type: none"> • Most devices are portable • The first flexible 3D displays appear • A typical device knows its location, directions and its user's biometric information. 3. New professional news tools for planning, (mobile) editing, A/V recording and real time online publishing 4. Printing presses allow printing in various qualities – all between a typical tabloid format and a glossy magazine 	<p>Bender Cruickshank Kuikkaniemi Werfel</p>

Note this dimension covers media technology related drivers which are not yet mentioned in the dimensions above.

2.9.1 Converging Networks Lead to Real World Web

In general, the capacity of networks will evolve. Also, mobile access to “rich” media content will be available nearly everywhere.

By 2020, different kinds of networks (wireless or wired, P2P or meshed) for different purposes (voice, video, data, control, etc.) have been homogenized and successfully share protocols and formats. This development started with the quality-of-service aspects. One example is identity-aware networks. In those networks, the communication infrastructure authenticates the user and uses this user data in accordance with the associated user profile. In this respect, the border between applications and communications is increasingly blurred (*FInES* 2010). The evolving semantic web, combining meaning with the structure of data is another early example (*Kuikkaniemi*).

Due to the fact that sensors and small devices are penetrating the daily life in all respects and that the correlating communication channels are spread mesh-like over the different domains, the real world communication is no longer distinct from the technical communication. This leads to wide-spanning and all-to-all-connecting networks, dubbed “Real World Web”. They will take market share out of traditional broadcasting.

2.9.2 Visualization, Search and Interaction Technologies

Building on the convergence of real and virtual worlds (e.g. through augmented reality), suitable visualization and interaction means have been developed to help creating, modifying and analyzing complex information (data). These technologies will also enable the creation of new services from publicly available datasets, including maps and statistics of all sorts. Stereoscopic (3D) view is commonplace.

Search technologies will evolve essentially. In 2020 image based and voice search will be common place. Users feed image or voice samples as keys and the search engine calculates by advanced recognition technologies the content of the key and returns the most relevant results. This technology will be used to find content inside video material, too.

2.9.3 Devices Replacing Notebooks and Handsets

In a technology driven scenario, *Cruickshank* estimates that by 2015 mid-resolution colour ink “notebooks”, folding like two thick postcards will be available. They would display all media. By 2020 these would be slimmer and rather inexpensive, available in a variety of sizes and resolutions with 3D displays. We expect that these devices would replace the currently known e-reading devices.



Mobile handsets, however, need to have much more functionalities in 2020. A typical device will thus know its location (the successor of GPS is built in), its direction, the user's heartbeat frequency, blood pressure and stress level. Additionally, to cope with augmented reality needs, it will constantly scan its environment.

Figure 7. Device study by Nokia

The combined device, integrating notebook and mobile handset, will most likely have a A5 to A4 size screen which can be curled. By 2030 these devices will be known as *iBrain* – as their computing and storage capacity will be used to inform and assist their users in a convenient way of “brain extension”. This is assisted by nightly automated large scale Internet server downloads based on the user interests, which may encompass a Terabyte of data. These nightly downloads also help to keep the wireless data rates at daytimes sufficiently low.

2.9.4 Planning, Journalistic and Editorial Tools

Tools for automated planning of articles will be broader and smarter in 2020. The currently used tools by *Demand Media*, *AOL* and *Associated Content* scan the Internet already for interesting themes, search queries and competing content offers. Following a check whether the planned article can be complemented with ads an automated task description for a freelance journalist is created. In 2020, these tools might be expanded to be able to deal with contents of culture, economy and finally, news.

Tools for (citizen-based) journalism in 2020 will include mobile editing, as well as audio and video recording devices that are easy to use and capable of real time publishing in online services.

On editorial level there will be the first generation of automated tools to check the relevance and importance of news and validate the user generated news, along with auto-summarization, auto-headline generation and smart filtering tools.

2.9.5 Others Supportive Tools

Audience interaction and profiling

By 2020, tools to manage large scale audience interaction will allow individual participants to receive adequate feedback while keeping the overall experience comprehensive.

Receiver-driven consumption refers to profiling technologies that contain the information about the user preferences. These profiles can be either manually or automatically based on user activity and profile adaptation. Profiles can be cumulated by collating information from different services to which a user has logged in.

Automatic Linking

Even in 2020, the inclusion of links for citation by-and-large remains a manual task. However a system for auto-generation of links within news articles has been developed in 1995 already. The links assist the contextualization of news by the inclusion of links to localized analogies (*Bender*). Thus there will be enormous pressure to develop this technology further.

Printing

Most 2020 printing presses have an integrated drying facility, allowing the printing of newspapers in various qualities – from standard formats to A3, brochure and magazine formats, including inserts. Combined with inline stitching and online trimming, a typical tabloid format can easily be converted into an A4 sized glossy magazine. (*Werfel*) We strongly expect that readers will want this magazine quality experience in case they need to *pay* for a newspaper.

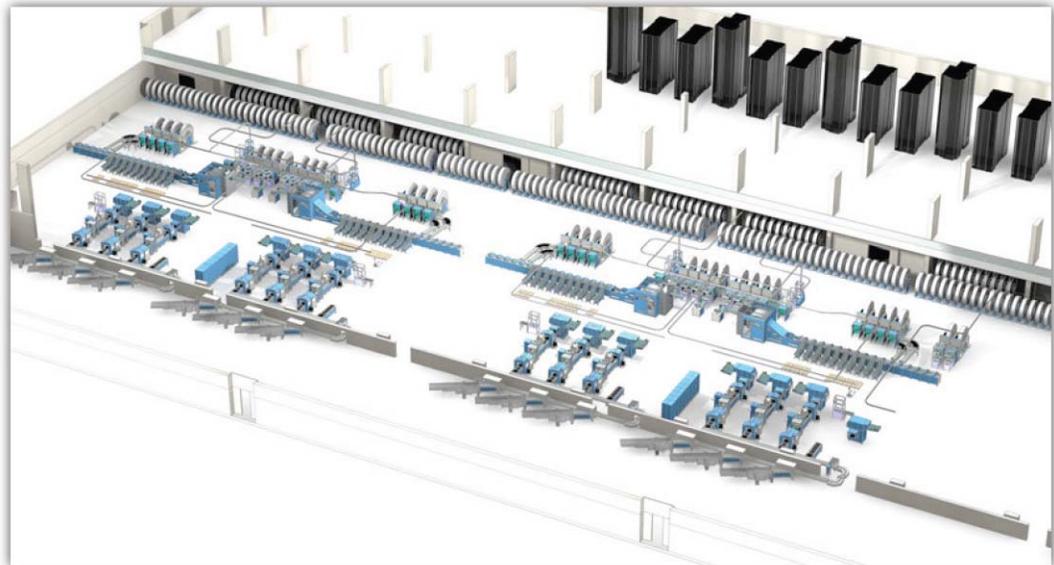


Figure 8. Integrated printing and packaging system. Source: Schur Wamac 2009

3 Business Concepts

By Stina Immonen and Seppo Leminen

Key innovation drivers	Key scenarios by
<ol style="list-style-type: none"> 1. Dynamics of knowledge 2. General demand for intelligent customer information 3. Providing value-adding (total) services for users, audiences, and other customer groups 	Goodman Koponen Kuikkaniemi Li, Nadel Pienaar Tolvanen

3.1 Context

We define the context of media business concept development as following:-

The media sector is a knowledge intensive business (Hipp 1999), using knowledge work in production (converting information into knowledge) while creating experiences and knowledge for users. See info-box in chapter 2.1.1 and chapter 2.8.

Neither user centric business models nor new technology promoting business models, nor simple combinations of these, will provide sufficient earning opportunities for the media sector. Instead, we propose to use a holistic, integrated system approach. Here, we assume that the combined (and optimised) value of the ecosystem of users, industry, ICT providers and further stakeholders needs to be taken into account.

The media sector as a whole (and not only in some selected parts, e.g., gaming) needs to progress towards new technologies and new meanings. We agree with Verganti (2010) that merging technological breakthroughs with radical innovation of meanings is a particularly effective type of innovation strategy. We also agree that a design-driven, i.e. integrated system approach would lead towards Verganti's technology epiphany (Fig. 9) and thus, towards a market leader position.

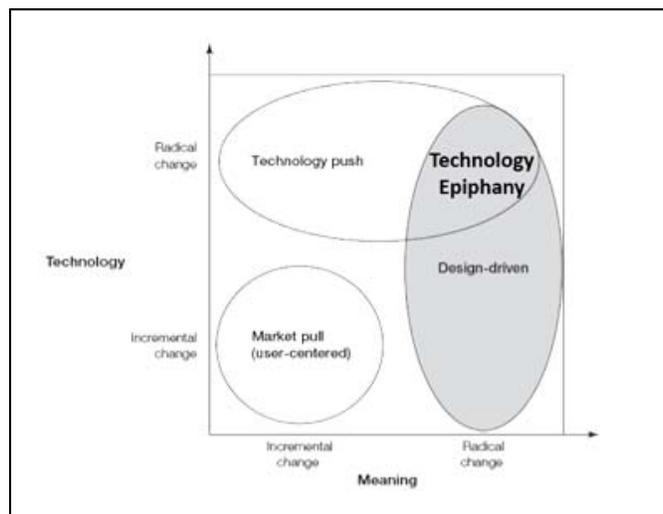


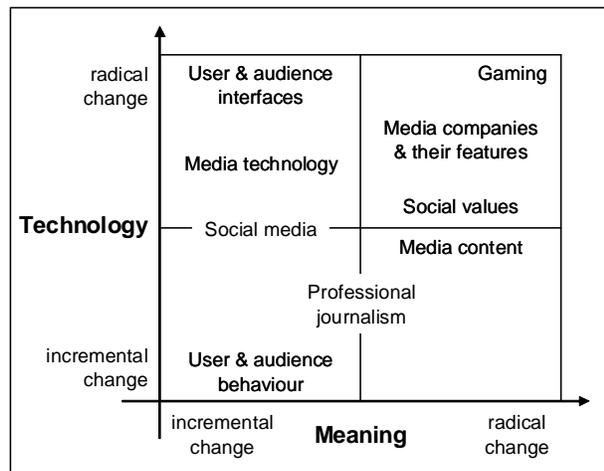
Figure 9. Verganti's technology epiphany

By business concepts we do not mean 'ready to implement' business models. Rather they are conceptual descriptions about potential business opportunities embedded with business drivers and earning logics. A business concept needs always to be locally

adjusted and implemented to a company-specific context which then makes it an operational business model.

According to Anderson (2009) the future, online economy is built on processing power, hard drive storage, and bandwidth. The costs of these elements trending toward zero very fast resemble an engine behind the new Free Economy. Thus, business models will be based on abundance, not on controlling scarcity. Anderson distinguishes three types of business concepts (or business models as he calls them): 1) direct cross subsidies - offering a product or service for free as an inducement to pay for something else, 2) three party markets - a third party pays for participating in a market created by free exchange, and 3) 'freemium' - offering a basic product/product for free but more value added component for a fee. This can be interpreted also in away that when offering something of very limited added value for a customer, the expectation for willingness to pay for that will also be rather low. Offering user experiences with new meaning provides possibilities for more radical changes in the business.

Combining Anderson's future business concept thinking together with Verganti's technology epiphany and our nine media scenario dimensions we can draw a map



presented in Fig. 10. The upper right hand quadrant of the map illustrates the area where we expect most potential both for radical technological innovations and new meanings for the customers and consumers. We propose to use this map for developing more detailed business models, combining technological breakthroughs with radically new meanings in a system-based approach. We will focus our future research on these dimensions.

Figure 10. Map of Business Drivers Dimensions

3.2 Key Business Drivers

3.2.1 In Search for New Meaning: Utilising Customer Intelligence

Six types of core business concepts, representing a continuum from conventional, incremental business development to more radical, creative solutions, were extracted from the writings of *Antikainen, Eriksson, Goodman, Herkman, Jones, Kirjonen, Koponen, Kuikkaniemi, Li, Lindqvist, Nadel, Pienaar, Tolvanen, Trappel, Saarela, Sirkkunen and Valtonen*. These were 1) providing targeted professional and user generated content to targeted audiences, 2) versioning content especially for mobile devices, 3) selling user information to a third party, 4) facilitating user's identity creation and expression, 5) providing services both for end user (individual) and a third

party (another business or non-profit organisation), and 6) providing content dependent devices and virtual environments for creative media use.

The first logical step when developing content business is transforming the traditional media from mass media (same content for many) to user centred media (tailored content for individual needs). User and audience groups must be much more effectively and accurately segmented (*Goodman, Immonen, Tiainen*). Accordingly, also the content could be offered with augmented reality or specific user specified attributes such as relaxation, dramatic details etc. even in the genre of news and narrative reporting (*Lindqvist, Sirkkunen*).

Moreover, users and audience are expected to become more mobile, and maybe less consciously *consuming* media but rather *living* with media (*Kuikkaniemi, Lindqvist*). This leads towards more precise versioning of the content driven by the end user devices. These contain intelligent technologies that recognise the situation of the user (*Nadel, Uskali, Valli*).

Selling user information (*Herkman*) to a third party acknowledges the content as a means for gathering user and audience groups and valuable data about them, which can be merchandised further for various purposes, mainly for advertisers.

Facilitating users' identity creation and expression, for example by using their affiliation to brands, exploits the users' new social value – *you are what you share* (*Jones, Koponen, Pienaar*). Supporting identity building provides possibilities for new revenues. The natural extension of this is to offer also additional identity consulting products and services.

Taking service business opportunities seriously shakes the industry (and its staff) considerably. A service is intangible, and basically an experience for the user. When the quality or performance of a media service is expressed with attributes such as immersion, the service providers need to know about their customers much more than the traditional reader statistics (*Kuikkaniemi, Li, Valli*).

The most unconventional business concepts are those that are not content-centred, that concede the control to the user or to companies providing user interfaces and concentrate on devices, platforms and virtual environments, whether they be new hardware and software solutions or extended experience services for the customers (*Li, Saarela, Valli*). The core competence of media companies lies still firmly on their knowledge about their users and customers, and on the ability to gather this information. This knowledge will also attract collaboration partners outside of the media industry, which in turn facilitates the offering of extended services.

3.2.2 Earnings from Advertisers

Advertising has traditionally meant for media a most significant cash flow. Advertising impact and users' experiences are evaluated with demand for more reliable and accurate methods (*Kuikkaniemi, Lindqvist*). Advertising revenue losses are an evident consequence of being unable to provide value-adding services for the advertisers. Advertisers look for means to reach clearly defined target groups by using, e.g., the possibilities of social media.

Advertising is related also to the brands – and consequently on the capability to establish, maintain and capitalise on a brand. A brand is a platform to attract audience

and thus advertisers. Advertisers are nevertheless confronted with the new social or cultural value of ‘word of mouth’ or viral marketing. This is connected to user or audience behaviour relying on trustworthy informants. Here, media needs to take on an active role of educating advertisers about the media users and their attributes.

3.2.3 Earnings from Users and Audience

At least six different types of user payments were identified of contributions of *Koponen, Kuikkaniemi, Lindqvist, Pienaar, Tolvanen, Sirkkunen*. Ordered from most conventional payments to more creative they are: 1) traditional income from subscription fees, advertisements, copy sales, access fees, and even some type of media tax, 2) micropayment based on actual, real-time consumption of media, 3) payment for on demand hyper-local contents, 4) payment for desired attributes of the content such as ‘lean-back and relax’, ‘dying to know more’ etc., 5) payment for services such as filtering, organising, investigating information, and 6) payment only for the device or delivery platform for content receiving and sharing.

The user by 2020 is expecting to have more content for free. However, this trend can be complemented with micropayments (*Koponen*). Examples could be payment by number of clicks, uploaded files or of searches in archives. The first view is free but the more interesting, contextually tailored, content would need payment.

Adding local content to the information stream is, at least to a certain degree, also possible to being automated by using metadata. However, the more in depth in the locality we go, the more probable it is that also human, local knowledge is required. Locality or even hyper-locality offers chargeable value for the users. Combined with the micro-payments it would be possible to have targeted information just in the right time (occasion) and in the right place (*Kuikkaniemi, Sirkkunen*).

A more refined earning model is based on payments connected to the desired attributes of the content (*Tolvanen, Sirkkunen*). This is already a familiar concept for customers when selecting a product for purchase, but still these payments could be developed more in line with the media experience that the mobile user is looking for in a particular moment and content.

Payment for attributes of the content is already very close to the idea of payment for the services (*Pienaar*). The first logical step seems to be to offer personal media assistance and content provision services. Media consumers will need guidance but also filtering of information and this is a clear service. We already discussed user identity creation as a service. Collecting and sharing revenues between different services and platforms will make the payment models for companies more complex, and as such this also represents a major opportunity for new technologies to emerge.

4 Key Innovation Drivers per Media Genre

By Raphael Giesecke and Olli Nurmi

One of the major ongoing discussions in the media industry is about the synergies between different media genres, and the best ways to make them visible and harness them in the most beneficial way.

Currently, researchers suggest that “traditional” media genres, especially news, may benefit when harnessing synergies from gaming and music industries. This is also our finding, at least for gaming, as shown in chapter 3.

But how can media genres be labelled, and what would be actually the innovation drivers per genre? Or does the whole industry amalgamate into a new state of being, which could be coined “future media”? We will focus in the following on the genres as defined in the Next Media programme plan:

1. **News and Information:** including online and offline media, and especially scientific and, broader, non-fictional books and magazines
2. **Education and Learning:** again in all forms, online and offline
3. **Entertainment and Games:** including music, TV, videos and also fictional books and magazines
4. **Community Media,** or social media: new media forms in which the main feature is strong interaction with users, their networks and communities
5. **Future Media:** all new media forms not mentioned above – including novel combinations of the above genres

The five tables below outline the innovation drivers with the most impact per genre. Note that in order to keep the tables short we concentrated on specific drivers per genre. Thus we advise to read the Future Media genre table additional to each of the four other tables, as it contains drivers also common for all genres.

We hope that these tables make the sometimes rather abstract innovation drivers as of chapter 2 and 3 more concrete, when read in the context of a specific genre.

The tables also illustrate that there is room for innovation in each of the genres, respectively – in that respect we do not foresee a “revolution” towards “future media”, but rather a slower, evolutionary path, with all genres evolving on their own as well.

Still, the most innovative genre is entertainment and games.

Dimension	Key Drivers: News and Information Genre
Social Values	<ul style="list-style-type: none"> • ICT-enabled collaboration: open innovation, collective intelligence and agile organisations • people rely on, trust & learn from their shared socio-graphs
Social Media	<ul style="list-style-type: none"> • co-creation is the means by which media companies produce most content • user profiles with more semantic knowledge
User & Audience Behaviour	<ul style="list-style-type: none"> • user-based tailored aggregation of content: media companies make use of recommendations, contextuality, personal profiles, aggregators & activators
User & Audience Interfaces	<ul style="list-style-type: none"> • intelligent personal agents, as in Apple's 1980's vision • people are "always on" and connected: media surrounds and accompanies people everywhere
Media Content	<ul style="list-style-type: none"> • fragmentation plays a key role and newspapers diminish • clear division between freely accessible news information and paid for high quality information services
Professional Journalism	<ul style="list-style-type: none"> • journalists need to manage the information flow, analyze it fast, tutor or guide the citizen journalist, develop the work in different professional-amateur constellations and initiate UGC and crowd sourcing campaigns
Gaming	<ul style="list-style-type: none"> • learning and persuasion through games • pervasive- and ad-games and playful interfaces • crowd sourcing
Media Companies & Their Features	<ul style="list-style-type: none"> • Professionals in media companies focus on gate keeping, filtering, contextualizing and community sense making instead of producing content. They have new roles such as "curator", "activator", "customer intelligence officer"
Media Technology	<ul style="list-style-type: none"> • mobile access to "rich" media content available nearly everywhere • new services from publicly available data
Business Concepts	<ul style="list-style-type: none"> • low protection of IPRs and the culture of sharing erode traditional earnings from ads, subscriptions and copy sales but premium access fees, service fees and a media tax combined with new adjusted payment methods exist. • business models through portfolios (i.e. scattered)

Dimension	Key Drivers: Learning and Education Genre
Social Values	<ul style="list-style-type: none"> • skills in information search are needed and developed • “media use” is subject of education
Social Media	<ul style="list-style-type: none"> • co-creation is the means by which media companies produce most content • co-learning develops further • life-long learning is supported by social media
User & Audience Behaviour	<ul style="list-style-type: none"> • workplace learning needs contextualised support • local learning support leads to media richness • most media use is based on personal profiles and ubiquitous media
User & Audience Interfaces	<ul style="list-style-type: none"> • libraries become information integration and sharing centres with personal, virtual librarians. • TV sets have integrated ratings and recommendations in the electronic program guide
Media Content	<ul style="list-style-type: none"> • [some] quality content is free for everyone to use, produced by e.g. top universities • digital content wins against printed versions
Professional Journalism	<ul style="list-style-type: none"> • journalism provides up-to-date content for history learning • wiki-based content production in learning projects (through journalists and UGC / crowd sourcing)
Gaming	<ul style="list-style-type: none"> • combination of evolution in new pedagogical methods (problem centred, project based learning) and new playful, multi-user interfaces and technologies
Media Companies & Their Features	<ul style="list-style-type: none"> • media companies select, filter, organise and package information for their customers only according to specific service requests • professional content editors concentrate on doing background research and increasing credibility by including links and original sources to the content
Media Technology	<ul style="list-style-type: none"> • portable learning devices (touch screen, eReading + 3D) • tele (virtual) presence • collaborative tools and shared workspaces
Business Concepts	<ul style="list-style-type: none"> • dynamics of knowledge create general demand for intelligent customer information • providing value-adding (total) services for users, audiences, and other customer groups • web of education services with certified information • life long learning “maintenance” book as a service for the learner

Dimension	Key Drivers: Entertainment and Games Genre
Social Values	<ul style="list-style-type: none"> • event/experience based entertainment and games • community created entertainment (e.g. Star Wreck) fulfils sense of belonging and experience • work becomes game-like as business systems have game interfaces whereas games become work-like through personal earnings from games: blur between work and fun
Social Media	<ul style="list-style-type: none"> • personalisation: semantic knowledge in semantic profiles • game element common in various application areas • social interaction connected to all entertainment
User & Audience Behaviour	<ul style="list-style-type: none"> • gaming will take time away from other forms of media use • users engage automatic search robots and knowledge curators, but also allow packaged, ‘walled garden’ media
User & Audience Interfaces	<ul style="list-style-type: none"> • augmented and virtual reality commonly used in mobile devices; searching of videos by voice & gesture recognition • game-like interfaces will become more popular for accessing serious content (e.g. in news games)
Media Content	<ul style="list-style-type: none"> • game like contents expand (see e.g. the “China game” by Amnesty International) • media contents are integrated into games and gaming (see, e.g. Newsgaming.com)
Professional Journalism	<ul style="list-style-type: none"> • professional journalists need to initiate user content co-creation and ultimately crowd sourcing campaigns • <i>see also “Media Content”</i>
Gaming	<ul style="list-style-type: none"> • multiple sub-markets – converge to other markets • all games online and [e.g. player status] updated • the real world takes on games logic and games discover the real world
Media Companies & Their Features	<ul style="list-style-type: none"> • demand for service process thinking • agility and flexibility towards different audiences • capability to adapt new roles • competence to utilise company external resources
Media Technology	<ul style="list-style-type: none"> • data transmission capacity rises • data collection from end user interaction • new portable devices (touch screen, eReading + 3D) • from application to services
Business Concepts	<ul style="list-style-type: none"> • dynamics of knowledge create general demand for intelligent customer information • providing value-adding (total) services for users, audiences, and other customer groups

Dimension	Key Drivers: Community Media Genre
Social Values	<ul style="list-style-type: none"> • people rely on, trust and learn more from their shared socio-graphs (friends of friends) and thus cultivate their personal networks (to find relevant information and recommendations)
Social Media	<ul style="list-style-type: none"> • recommending is one of the key features of social media applications • challenge to manage privacy and visibility at the same time
User & Audience Behaviour	<ul style="list-style-type: none"> • individualism versus strong ties (e.g. serving communities)
User & Audience Interfaces	<ul style="list-style-type: none"> • people are “always on” and connected: media surrounds and accompanies people everywhere
Media Content	<ul style="list-style-type: none"> • peer-to-peer recommendation dynamics
Professional Journalism	<ul style="list-style-type: none"> • the number of professional journalists decreases and there are more free lancers and other content providers • journalism will be more networked with citizens and their everyday life
Gaming	<ul style="list-style-type: none"> • bio-signal sensors enable new types of game and interaction adaptations and biofeedback • game style interaction in use in education, political discourse, group working, simulations & decision making
Media Companies & Their Features	<ul style="list-style-type: none"> • media companies select, filter, organise and package information for their customers according to specific service requests • professionals in media companies focus on gate keeping, filtering, contextualizing and community sense making instead of producing content. They have new roles such as “curator”, “activator”, “customer intelligence officer”
Media Technology	<ul style="list-style-type: none"> • new services from publicly available data, including maps and statistics of all kinds
Business Concepts	<ul style="list-style-type: none"> • advertisers demand performance measures for advertising efficiency and effectiveness from media • media consumers demand filtered information as a service.

Dimension	Key Drivers: Future Media Genre
Social Values	<ul style="list-style-type: none"> • cognisance – mastering the information overflow • togetherness – belonging to ‘trusted’, influential networks • acknowledged virtual human relations – managing ICT-mediated identities in social interaction • generation gaps – different needs and skills of different generations • rethinking legitimacy of user behaviour [for] data/information collection and analysis • more heterogeneous discussions and view points, e.g. climate change or “degrowth” approach
Social Media	<ul style="list-style-type: none"> • semantic knowledge in semantic profiles • identity management through profiling oneself toward different audiences • expressing social activity and interest through internet • discussion on who owns users’ profiles and manages social media will rise • profile connected to financial info means easy payments • earning money through activities in social media • real world feeds to one’s profile
User & Audience Behaviour	<ul style="list-style-type: none"> • adaptive media (mental-, emotional-, location aware, behavioural) • user based content recommendation • integrated 3D communication/consumption/collaboration environments
User & Audience Interfaces	<ul style="list-style-type: none"> • better sensing leads to much higher situational awareness of (portable) devices. Their gadgets are aware of anything the user wants to stay up-to-date with • awareness leads to more adaptive interfaces with, e.g., augmented reality in common use in mobile devices • situational- and user adaptation leads to less intrusion, even if media interfaces are ubiquitous and media surrounds and accompanies people everywhere • the interface experience is much more seamless than today. E.g., navigation/surfing is more image based, more intuitive and less dependent on language and keywords
	<p><i>...continued on next page...</i></p>

Dimension	Key Drivers: Future Media Genre
Media Content	<ul style="list-style-type: none"> segmentation plays a key role and consequently the role of general, mass media is less significant by 2020 clear division between freely accessible standardized news information and paid for, high quality information services more services based on publicly available data, including maps and statistics of all kinds, appear augmented reality, city services, 3D contents
Professional Journalism	<ul style="list-style-type: none"> professional journalists analyse and explain the world
Gaming	<ul style="list-style-type: none"> new gaming platforms and crowd sourcing enable faster development cycles and allow less risky revenue models the real world takes on games logic with game style interaction and game style user interfaces in use in education and work games discover the real world: virtual & mirror worlds and augmented reality merge; games take the reality as such as their “playground”; “e-Earth” serves as federated, digital game platform; people wear game devices in real life, casually
Media Companies & Their Features	<ul style="list-style-type: none"> demand for service process thinking agility and flexibility towards different audiences capability to adapt new roles competence to utilise company external resources
Media Technology	<ul style="list-style-type: none"> most devices are portable first new devices with flexible 3D displays appear blurring border between applications & communications from application to services tools for (citizen) journalism include mobile editing, audio/video recording and real time online publishing data transmission capacity rises common mobile technology platform data collection from end user interaction
Business Concepts	<ul style="list-style-type: none"> dynamics of knowledge general demand for intelligent customer information providing value-adding (total) services for users, audiences, and other customer groups crowd media: media consumed together, following the “public viewing” approach personalised media: customised media, consumed alone

5 Integrated Scenarios

By Stina Immonen

5.1 Deriving Integrated Scenarios

We encourage the industry to derive their own scenarios for their own business areas or companies, using the nine dimensions above. Scenarios can be derived from using one, two or several dimensions at the same time as conceptual change drivers. We suggest to use the dimensions as a conceptual tool to facilitate the depiction of possible futures. Since building foresights is very demanding, and business environments for various industrial players are different, we suggest that individual media companies also create their respective own scenarios once they understood the shared vision.

The following integrated scenarios are one outcome of the vision workshop involving the Finnish media industry as a whole. In this context ‘classic’ media means news & information, education & learning, entertainment & games; whereas ‘new’ media means community media and future media, including “wildcard” ideas and projects. The most influential dimensions for creating these scenarios were Social Values, Media Content, Media Companies and Their Features and Media Technology.

5.2 Worst Case Scenario



5.2.1 ‘Classic’ media

Consumers give up the choice of selecting, social media dominates and the willingness to pay for services disappears:

- 95 % of the population lives in city slums
- quality journalism is extinct
- non-quality content is free
- hyper-polarisation in ‘owning’ knowledge – the rich buy scarce knowledge
- the general knowledge level is very low
- politicians do not care about the nation’s state in general knowledge
- ‘wisdom economy’ rules: ‘10 million hits in Google cannot be wrong’
- independent thinking disappears

5.2.2 ‘New’ media

- the level of common knowledge is low
- the interest for community matters is low
- search robots are used to find relevant information and the importance of media brands is low

- the Finnish media industry is weak and owned by companies from abroad
- the number of media companies decreases
- while social media is the dominant form of media there are no business models
- advertisement sales is the only viable business model
- free information is dominant and quality journalism is only for elite products with limited numbers of users

5.3 Best Case Scenario



5.3.1 'Classic' media

The industry is able to redefine itself through user experience

- the media field is broad, with many actors and many channels in use
- credibility is the key driver for media consumption
- aesthetics are taken into account
- media is a part of furnishing
- consumers are known and they will be served individually
- interaction with consumers is on a high level
- on-demand journalism is performed according to consumers' true interests

5.3.2 'New' media

- contact to the customer is intimate and it is possible to get information about the users of the media products
- this close contact brings benefits to the customer (through e.g. loyalty programs)
- media products are generated together with the users
- generated information is important and relevant for the people in everyday situations
- there is a win-win situation for the commercial partners
- competition is about bringing the best user experience to the users
- media products and services are aesthetical and they can even be used as decoration element in people's homes
- commodity news are free but users are willing to pay for deeper information
- journalism is regarded as valuable by users
- access to information is flexible (no limitation to terminals, locations or time)
- it is possible to find and share relevant information easy

5.4 Scenario “Human Media”

The following is a positive example of an integrated scenario created within a workshop involving Finnish media industry.

Human Media in this context means that media is carrying a new – human – meaning for the consumers and users. In the following the new meaning is characterized by where, when, how and why human media is used and consumed.

5.4.1 Where

For conceptual illustration, new metaphors such as “media cafeteria” or “media shopping centre” were used, meaning 1) media is consumed in places where people want to spend their time, physically or virtually and 2) it is possible to pick casually whatever one wants. Following this logic, media is present also in public places and therefore is an essential part of city and society planning. Still, personalisation and privacy of media consumption is possible in these public spaces, following the consumer’s own choice.

5.4.2 When

Media use and offering is a seamless part of everyday life, context-aware and in synchronisation with the user’s needs. A large variety of different media services, channels and media (content) offering according to the “24/7 principle” allows the consumers to be in control of their own media consumption.

5.4.3 How

Media is ubiquitous in and through the consumer’s personal, mobile devices; and as design element at homes and public spaces using displays and other surfaces such as windows, tables, walls and floors or walk-through canvasses. The consumers personalise the interfaces according to their preferences including also printed media.

5.4.4 Why

Media is used for variety of reasons – learning and receiving information, entertainment and community building and participation. Media is supporting everyday life, offering relevant and context-dependent information for users’ needs. Last not least media empowers people to select the information they want to share with their network and communities.

6 Conclusions

The scope of this paper is extremely large. By conceptualising future media sector drivers and scenarios into nine dimensions we were able to collate data into logical sets. The data base is informative and useful for re-analysis. It has been developed by many international writers: 27 Finns and eleven authors from all continents.

However, while developing future business concepts, we need to maintain a delicate balance between speculation and conservatism. Speculation can be counterbalanced by, e.g., good reasoning and convincing narratives. Conservative views are mostly based on vague fears of the future. Academic research as such encourages a certain degree of conservatism, with its inevitable focus on the state of the art.

6.1 Findings

We assume (following *FInES* 2010, in contrast with Kumar 1995) that the social and societal effects of the combination of knowledge society on the one hand and the socio-technological systems developed by the global search machines and social media giants will shape the generation-Y and Millenium behaviour. The consequential phenomenon *Über-Reality* – the amalgamation of Physical and Digital – is an excellent opportunity for business models combining radical innovation of meanings with radical new technologies.

Gaming, especially as gamification will have a very large impact on all user and audience experiences in 2020. Also media and device interfaces will “learn” from gaming, including advanced bio-sensors, voice and gesture recognition, as well as 3D and consequently augmented reality. Still, the two dimensions Gaming and Technology can, and shall, be elaborated further.

Concerning media companies and the ways they will operate we confirm that the trends identified in Finnmedia’s 2009 strategy paper will be valid in 2020, still. The key message is that advertisers in 2020 will insist on better value (i.e. measurable ad performance), and media companies will consist of smaller professional units, focussed on contextual knowledge provision and editorial publishing, complemented by freelancers and citizen journalists. This content business based on abundance inherently threatens the conventional model of high quality journalistic work.

Our main claim towards industry is that the business concepts in use have strong impact on core business processes and the entire organisational system with its technology, work tasks and processes, as well as personnel and their roles and competences. Moreover, business concepts not based on scarcity and control of information will challenge the traditional view on leadership and management of media companies.

Anderson (2009) describes some key features of abundance management that call for determined organisational development actions. For instance, managing abundance will allow everything if not explicitly forbidden, decision-making is bottom-up, profit plans will be figured out only while doing business and organisational structures are self-emerging. Here, media companies will need to become more agile and flexible than ever before.

Our concluding suggestion to the media sector is to focus on business concepts based on a system approach. These should be developed by establishing and nurturing network relations with key stakeholders, users and audience, and (advertisement) customers. This approach may combine new technologies and new meanings into a truly innovative business epiphany.

6.2 Next Steps

6.2.1 SWOT Analysis of Media Scenarios 2020

The Media Scenarios 2020 have been analysed by applying the SWOT (Strengths, Weaknesses, Opportunities, Threats) method in workgroups consisting of various stakeholders in the media sector, including industrial players and academia.

These analyses will be developed by the Visio 2020 integration group into a vision, which in turn will be the basis for the roadmap process. This work will be documented in a new deliverable “Media Vision 2020”.

6.2.2 Vision Roadmap Development

Roadmaps describe visually the strategy that is needed in order to achieve the vision. Various media genre vision roadmaps will be constructed in workshops.

The roadmaps shall outline the most promising levers (mechanisms) to achieve the positive scenario, and how to avoid the worst scenario.

6.2.3 Nurturing the newly established network

The international component, alongside with a – smaller – outside of media component has significantly risen the creativity and novelty level of this document. Thus we recommend to keep and nurture this newly established network of people interested in the media future. Network members should be invited to Next Media dissemination events and generally encouraged to deliver speeches and presentations, or even lectures and courses, in Finland. This would lead to an even broader cultural and scientific enrichment of media research in Finland.

Literature

Articles

Domingo, D. et al. (2008) Participatory journalism practices in the media and beyond. *Journalism Practice* 2:3, 326-342.

Kallio, K. P. Pauliina, Mäyrä, F. & Kaipainen, K.. 2009 ”Pelikulttuurin monet kasvot. Digitaalisen pelaamisen arkiset käytännöt Suomessa”. In: *Pelitutkimuksen vuosikirja 2009*. Tampere: Tampereen yliopisto. Online: <http://www.pelitutkimus.fi/wp-content/uploads/2009/08/ptvk2009-01.pdf>. 1–15.

Mäyrä, F. 2008 “Open invitation: Mapping Global Game Cultures. Issues for a Sociocultural Study of Games and Players”. *European Journal of Cultural Studies*, 11:2. 249-57.

Stenros, J., Montola, M. & Mäyrä, F. 2007 “Pervasive Games in Ludic Society.” In: *Future Play: Research. Play. Share. – Future Play 2007 conference proceedings*, CD-ROM. Toronto: Algoma University College & University of Ontario Institute of Technology.

Stenros, J., Paavilainen, J. & Mäyrä, F. 2009 “The Many Faces of Sociability and Social Play in Games”. *MindTrek Conference Proceedings*, Tampere September 30 – October 2, 2009. ACM. 82-89.

Mäyrä, F. 2007 “The Contextual Game Experience: On the Socio-Cultural Contexts for Meaning in Digital Play.” In: Akira Baba, ed., *Proceedings of DiGRA 2007 Situated Play*. Tokyo: DiGRA & DiGRA Japan. p. 810-814.

Books

Beckett, C. 2008 *SuperMedia. Saving journalism so that it can save the world*. Blackwell Publishing.

Heinonen, A. 2008 Yleisön sanansijat sanomalehdissä. *Journalismin tutkimusyksikkö, tiedotusopin laitos, sarja A 108/2008*, Tampereen yliopisto. <http://tampub.uta.fi/tulos.php?tiedot=259>

Jyrkiäinen, J. 2008 Journalistit muuttuvassa mediassa. *Journalismin tutkimusyksikkö, tiedotusopin laitos, sarja B 50*, Tampereen yliopisto. <http://tampub.uta.fi/tulos.php?tiedot=233>

McChesney, R & Nichols, J. 2010 *The Death and Life of American Journalism: The Media Revolution that Will Begin the World Again*. Nation Books.

Mäyrä, F. 2008 *An Introduction to Game Studies: Games in Culture*. London & New York: Sage Publications.

Mäyrä, F. & Koskinen, I. (Eds.) 2005 *The Metamorphosis of Home: Research into the Future of Proactive Technologies in Home Environments*. Tampere: Tampere University Press.

Suominen, J., Koskimaa, R., Mäyrä, F. & Sotamaa, O. (Eds.) 2009 *Pelitutkimuksen vuosikirja 2009*. [The Finnish Yearbook of Game Studies 2009.] Tampere: Tampereen yliopisto. <http://www.pelitutkimus.fi/vuosikirja-2009>.

Väliverronen E. (toim). 2009 Journalismi murroksessa. Gaudeamus.

Further Studies

Deloitte. 2010 Media Predictions

Deloitte. 2010 Telecoms Predictions

Digitaalinen Suomi 2020: Älykäs tie menestykseen (Teknologiaateollisuus)

<http://www.teknologiainfo.net/default.asp?docId=12360&productId=15449&fromDocId=12349>

Gartner. 2009 Hype Cycle for Consumer Technologies

Gartner. 2009 Hype Cycle for Emerging Technologies

Gartner. 2009 Hype Cycle for Printing Markets and Management

Gartner. 2009 Key Issues for the Media Industry

Prospects and Opportunities of Information and Communication Technology (ICT) and Media

http://www.eict.de/fileadmin/main/download/pdf/releases/Summary_Prospects_and_Opportunities_of_ICT_and_Media.pdf

References

Anderson, C. 2009 Free: The Future of a Radical Price. New York: Hyperion

Aitamurto, T. 2009 Kymmenen väitettä journalismin tuhosta – ja miksi niistä ei kannata huolestua. Raportti journalismin trendeistä Yhdysvalloissa vuonna 2009.

http://www.hssaatio.fi/images/stories/tiedostot/raportti2_net.pdf

Beckett, C. 2010 The Value of Networked Journalism. Journalism and Society. London School of Economics and Political Science.

<http://www.polismedia.org/news/newsdetail/the-value-of-journalism.aspx>

Blackler, F. 1995 Knowledge, knowledge work and organizations: An overview and interpretation. Organization Studies, 16, 1021-1046

Bontis, N. 1998 Intellectual Capital: an Exploratory study that develop measures and models. Management Decision 36, 63-76.

Chang, T. 2010 “Gaming Will Save Us All,” Communications of the ACM, March 2010, vol. 53, no. 3, pp. 22-24.

Downie, L. & Schudson, M. 2009 The Reconstruction of American Journalism. Columbia Journalism Review.

http://www.cjr.org/reconstruction/the_reconstruction_of_american.php

EIFFEL Think Tank on Future Internet. 2009 Report <http://www.fp7-eiffel.eu>

EU Information Society Technologies Advisory Group (ISTAG). 2009 Report ftp://ftp.cordis.europa.eu/pub/ist/docs/istag-revising-europes-ict-strategy-final-version_en.pdf

EU National ICT Research Directors Working Group on Future Internet. 2009 Report http://www.future-internet.eu/fileadmin/documents/reports/FI_Rep_final_281108_.pdf

- European Commission. 2009 A Strategy for ICT R&D and Innovation in Europe: Raising the Game http://ec.europa.eu/information_society/tl/research/documents/ict-rdi-strategy-staffwd.pdf
- FInES Research Roadmap Task Force. 2010 Future Internet Enterprise Systems (FInES) Cluster Research Roadmap Draft Version 3.0 - Beta. European Communities <http://cordis.europa.eu/fp7/ict/enet/documents/task-forces/research-roadmap/fines-researchroadmap-v3-beta.pdf>
- Finnmedia (Viestinnän Keskusliitto). 2009 Viestintäalasta voittaja (Making the media sector a winner) http://www.vkl.fi/files/588/Viestintaalasta_voittaja_-_viestintaalan_toimialastrategia_-_raportti.pdf.
- Giesecke, R. & Immonen, S. 2010 Media Sector Business Drivers In 2020. 2010 NEM Summit Proceedings (in print)
- Hipp, C. 1999 Knowledge-Intensive Business Services in The New Mode of Knowledge Production. *AI & Society*, 13, 88-106.
- Holman, P. 2009 An Emerging News Ecology <http://journalismthatmatters.org/content/emerging-news-ecology-0>
- Kivinen, H., Immonen, S., Giesecke, R. 2010 Knowledge Architecture (in work). Tivit Flexible Services CrossMedia project
- Kojima, H. 2010 in Reuters. <http://www.reuters.com/article/idUSTRE6362GF20100407>
- Kumar, K. 1995 From Post-Industrial to Postmodern Society. Oxford: Blackwell
- Li, Man-Sze. 2010 D6.2.1a - Integrated EI Value Proposition – M24 issue. COIN Project <http://www.coin-ip.eu/research/coin-results/public-documents>
- Lietsala-Sirkkunen 2008 Social media. Introduction to the tools and processes of participation economy. Tampere University press, University of Tampere. <http://tampub.uta.fi/english/tulos.php?tiedot=231>
- Matthyssens, P. Vandenbempt, K. 2003 Cognition-in-Context: Reorienting Research in Business Market Strategy. *The Journal of Business and Industrial Marketing*, 18, 595-606.
- Nahapiet, J. & Ghoshal, S. 1998. Social Capital, Intellectual Capital, and the Organizational Advantage. *The Academy of Management Review*. Vol. 23, Nr 2. Pp. 242-266.
- NEM Networked and Electronic Media European Technology Platform Initiative 2009. Strategic Research Agenda <http://www.nem-initiative.org/Documents/NEM-SRA-070a.pdf>
- Nonaka, I., Toyama, R. and Konno, N. 2000 SECI, Ba and Leadership: a Unified Model of Dynamic Knowledge Creation. *Long Range Planning*, vol. 33, 5-34. Elsevier Science Ltd
- OECD 2010 Working Party on the Information Economy: The Evolution of News and the Internet. <http://www.oecd.org/dataoecd/30/24/45559596.pdf>
- Pew Internet & American Life Project and Project of Excellence in Journalism 2010 Understanding the participatory news consumer. How internet and cell phone users have

turned news into a social experience. <http://www.pewinternet.org/Reports/2010/Online-News.aspx?r=1>.

Remenyi, D., Williams, B., Money, A., Swartz, E. 1998 Doing Research in Business and Management. London. Sage Publications.

Schell, J. 2010 at the D.I.C.E. Summit® 2010. <http://fury.com/2010/02/jesse-shells-mindblowing-talk-on-the-future-of-games-dice-2010>

Smart, J.M., Cascio, J. and Paffendorf, J. 2007 Metaverse Roadmap Overview <http://www.metaverseroadmap.org/overview>

Various Authors. 2009 Next Media Strategic Research Agenda www.tivit.fi/fi/dokumentit/24/NextMedia_SRA_2009_05_20.pdf

Verganti, R. 2010 Design-Driven Innovation. Harvard Business Press

Appendices

Appendix 1: Individual Scenario Contributions

Appendix 2: Trigger Questions and Claims

See annex document