CONVERGENCE AND DIVERGENCE IN MEDIA: DIFFERENT PERSPECTIVES

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A current issue in the media industry is coping with the effects of convergence. The concept of convergence is frequently used both in the academic field and within the media industry to denote the ongoing restructuring of media companies as well as to describe the latest developments in media forms, distribution, and consumption. However, there is currently no generally accepted definition of the concept. Depending on the context, the meaning and connotations vary. Some researchers suggest that convergence is a result of a change toward a more modern media society while others treat the concept as denoting the actual process toward a more efficient management of the media value chain. This paper discusses various definitions of convergence, both in a historical perspective and as it is used and understood in contemporary media and communications research, one aim being the evaluation of how the meaning of the concept has evolved during the past decade. The study is based on literature research and one conclusion is that convergence is a process dependent on current circumstances within society. The use of the concept has therefore developed from being mainly connected with digitalization in media technology to also include elements of integration, combination, competition and divergence. This paper suggests that convergence should be seen as an ongoing process of media and media industry development that is dependent on and in continuous interplay with a contrasting and complementary process, that of media divergence.

Keywords: Convergence; divergence; multiple media publishing.

INTRODUCTION

In the field of media technology, the concept of convergence has for decades frequently been used to describe concentring courses of events in terms of processes becoming more alike or as a common denotation for a change toward a certain goal. Several research groups have suggested models for media convergence such as the intersecting circles presented by Negroponte in the late seventies (Figure 1) [1], the European Union's definition of convergence areas [2] and, more recently, through forums such as the Newsplex project in the US [3], to mention a few. Despite the fact that the convergence phenomenon has given rise to several research projects and developments in the media industry all over the world, there is currently no standard definition of the concept. In the literature, convergence is discussed mainly from two points of view. The first suggests convergence to be a result of a change in the media society whereas the second treats the concept as a way of denoting the actual process toward a more efficient management of the media value chain. This paper, based primarily on literature studies, will present a review of some of the existing models for media convergence.

GENERAL DEFINITIONS OF CONVERGENCE AND DIVERGENCE

The concept of convergence is used in a number of academic fields. In the context of media technology, it has almost become compulsory when presenting new technology or services. From literature studies it has become clear that divergence is defined as the opposite of convergence; however, both concepts can sometimes be used to describe the same phenomenon. The models presented in this paper have their origin in previously published media research. Since many definitions share similarities, each studied definition has not been included in this paper.

The definitions of convergence in other fields than media are somewhat similar to each other. In the Swedish National Encyclopaedia, NE [4], there are several definitions of convergence. According to NE, within the field of mathematics, convergence denotes a move toward a certain value in series of values. In oceanography, convergence deals with a horizontal inflow of water into an area. In medicine, convergence denotes the pointing inwards of the eyes, which occurs when viewing an object at close range. The biological definition of convergence describes how similar biological structures have been developing from separate sources of origin. Examples of biological convergence are the flying vertebrates such as flying lizards, birds, and bats. However, the convergence process in the biological sense is never completed. The organism's original heritage is always preserved in some form [4].

Divergence, being essentially the opposite of convergence, is commonly defined as a drawing apart, as of lines extending from a common centre, the acquisition of dissimilar characteristics by related organisms in unlike environments and a deviation from a course or a standard [5]. Similarly to the concept of convergence, divergence is frequently used within several academic fields such as mathematics, optics, and biology.

Several other terms are frequently mentioned in the studied literature in the same context as convergence, such as alliance, partnership, sponsorship and collaboration [6].

THE CONVERGENCE CONCEPT IN MEDIA RESEARCH

The Latin word for two entities coming together is "convergere" [5], and might first have been described in the literature by a theologist named William Derham [7]. However, the first media researcher to describe convergence was according to Murali [8], Ithiel de Sola Pool in his book "Technologies of Freedom" discussing the interdependence of various media. The first introduction of the concept media convergence into media research might have occurred even earlier, in 1979, when Nicholas Negroponte presented a convergence model based on three intersecting circles (Figure 1).

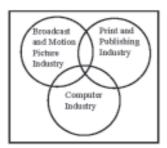


FIGURE 1: NEGROPONTE'S CIRCLES DESCRIBING THE MIT MEDIA LAB'S CONSTRUCT OF CONVERGENCE [1].

The circles illustrate how three media industries come together as a single entity [1]. From the presentation of those circles, the media convergence debate has continued. Over the years, convergence as an effect rather than as a process has been used to denote everything from organizational structures, new high-technological inventions to mergers between media companies.

Trying to explain the phenomenon of convergence, Golding and Murdock [9] describe convergence in the following manner: "For the first time, all forms of communication – text, statistical data, images both moving and fixed, music and speech, can now be encoded, stored and forwarded with the same fundamental digital vector of zeros and ones, the language of the computers. The result is that the boundaries for what up until today have been separate areas of communications are now dissolving. We are now entering the era of convergence. The potential is impressive and new combinations are becoming possible" [9]. This definition of convergence is essentially a description of digitalization, which along with Negroponte's circles are a common ground and starting point for defining convergence.

In Europe, during the 1990'es, convergence was considered to be the driving force behind developments in telecommunications, media and information technologies. In 1997, the European Union [2] presented a definition of convergence suggesting two possible uses of the concept, the first one being the possibility for many types of networks to distribute principally similar services and the second being the merging together of different electronic appliances such as telephones, television sets and computers.

The Swedish Government Commission on convergence [10] presented a similar description dividing the concept into four parts: net, service, electronic appliances and market convergence. The Swedish Agency for Innovation Systems (Vinnova), presented a similar model in 2001 [11], pointing out four areas of convergence: services, electronic appliances, networks and market convergence. According to Vinnova, convergence of services occurs when information traditionally connected with a certain media channel is provided through alternative media channels. An example of this is when TV channels broadcast programmes usually broadcast in the national TV broadcasting nets, on their websites as web TV. Convergence of electronic appliances happens when different types of electronic gadgets are combined. The combination gives rise to new functionality than that afforded by the original uncombined electronic appliances. An example of this type of convergence is 3G telephones, combining telephone services with services originally used in handheld computers. The third area of convergence, according to Vinnova, is network convergence, which involves the integration of separate infrastructures and the distribution of services from other areas than the services traditionally distributed over a certain network. Internet is the superior example of network convergence, since it simultaneously functions as a publishing tool displaying content and as a means of two-way communication. Market convergence, as described by Vinnova and The Swedish Convergence Commission, is convergence involving the market forces. This convergence type appears as a result of the three types of convergence mentioned earlier. It occurs when actors in the market move into adjacent areas, which had not previously been their primary areas of interest.

The second and fourth types of convergence, as described by Vinnova, are also described by Flynn [12]. He identifies three areas of convergence in the digital world: devices, networks and content. The convergence of devices is, according to Flynn, when two devices are merged together. The challenge is whether the consumers will use these merged devices or not. Flynn claims, that if there is no consumer adaptation of the resulting hybrid, convergence will not take place. Convergence of networks originates from the discussion and development of the once popular concept "electronic information superhighway" denoting a broadband-switched network infrastructure. The content convergence, in Flynn's opinion, is limited since he believes that

technological barriers still make it impossible to use the same kind of content in all the different publishing channels. Flynn argues that the conventional view on convergence over-emphasises the benefits to be derived from the potential advent of "write-once-run-anywhere" content and instead suggests a fourth type of convergence, that of the consumers. Flynn seems to have adopted an almost philosophical view of convergence of devices, claiming that it does not exist if the consumers are not willing to use the new devices. However, if the devices exist, the convergence of devices must have taken place in the production of the new device, regardless of the consumers' willingness to use it.

Media content production is an area where the concept of convergence carries yet another meaning. There are several current definitions of what could best be denoted as newsroom convergence. This type of convergence involves sharing of resources within and between media organizations [13]. At the Newsplex facilities at the University of South Carolina, USA [14], research is focused on convergence processes taking place within the editorial departments at media companies. The researchers at University of South Carolina have, in cooperation with the international newspaper technology organization IFRA and a number of other partners, built a media content production facility called Newsplex where the editorial department of the future is developed and tested [3]. In the media content production companies of the future, reporters work on written content as well as with audio and images for multiple publishing in all conceivable publishing channels. Convergence in content production also involves editorial system technologies and the professional role of the reporters.

Convergence in media content production is also discussed by Enlund and Lindskog [15]. They describe editorial convergence but also convergence of devices used for displaying content. According to them, many devices are incarnations of the same basic technical solution and they believe that these devices can converge toward a generic media machine. Enlund and Lindskog exemplify convergence in content production as integrated computer systems supporting news production for a number of publishing channels. These definitions use convergence as a way of denoting ongoing developments within media. Enlund and Lindskog argue that the devices are converging even though the content published in these devices at the same time may be diverging. The number of media channels increases with the new possibilities in the content production technology. At the same time Enlund and Lindskog might be right in denoting it as convergence since the same content can be published in all the different media publishing channels. A TV can in this manner be used for surfing on the Internet and a computer for watching TV programmes.

It is the author's opinion, that the combinations of components into a future generic media machine is convergence of purposes for using the device, but not convergence of technology, since in some cases only the components are combined into a new device. The device itself has been subjected to a process of combination rather than a process of convergence. The content, however, is in this manner converging.

Instead of concentrating on content and technology, Gordon [16] identifies five types of convergence: ownership, tactical, structural, information-gathering and storytelling convergence. Ownership convergence could be compared to merging of companies. Tactical convergence is a form of cross promotion, structural convergence is a process taking place within the editorial departments, influencing the editors to become more of multimedia editors. The information-gathering convergence, as described by Gordon, could best be summarized as a form of backpacking journalism where the reporters carry all their equipment with them, producing content for all imaginable publishing channels. Storytelling convergence is, according to Gordon, about new ways to present information in the different publishing channels.

RECENT MODELS OF CONVERGENCE

Dailey, Demo and Spillman [13] have presented a model of convergence called "The Convergence Continuum". The model has been created because of the authors' belief that there is a lack of a common, behaviour-based definition of convergence and a lack of a common instrument for measuring convergence effects. They therefore suggest a model for convergence in newsroom content sharing with the purpose of making it easier for researchers all over the world to compare results. The model consists of five partly overlapping areas (Figure 2):

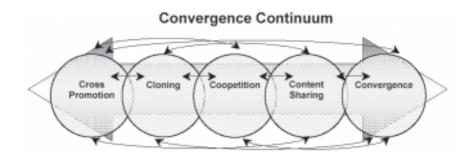


FIGURE 2: THE CONVERGENCE CONTINUUM [13]

According to Dailey et al., cross promotion is defined as when partners cooperate and promote each other through their media publishing channels. Cloning is the stage where material is re-published in several publishing channels with minor adjustments or re-editing. Coopetition is when material is shared among several of the competing but cooperating partners involved. Content sharing is where the partners involved exchange material and publish it in their respective publishing channels, after repackaging the content to suit each specific publishing channel. Full convergence exists, according to the authors, at the level where the cooperating partners share a central news desk. The work is performed in groups with representatives from several publishing channels, and the group members cooperate in both gathering and disseminating the news. In this manner it is possible to use the strengths of the different media publishing channels and emphasize aspects in the specific news content in different ways depending on the chosen publishing channel. For true convergence to happen, the designers of the Convergence Continuum model believe that the partners involved need to agree on news values.

Dailey et al describe this model in detail. The graphical representation of the model, however, is hardly intuitive as the areas toward convergence are placed on a straight line, with arrows pointing between all areas. It would seem simpler to place the circles on a circle with all areas intersecting, much resembling the model presented by Negroponte in 1979. To use the model to measure the effects of convergence in a uniform way in order to compare results seems like a difficult task since convergence not is measurable unless target variables are introduced. Some measure of time, money or other resources is required to enable such comparisons to be made. Furthermore, this model is applied to convergence in newsroom content sharing, and is of little relevance to other types of convergence processes.

Lawson-Borders [17] suggests another model of convergence, where the starting point is that convergence is a "concept as well as a process". She does not discuss creation of content to the same extent as is discussed in the Convergence Continuum, but has more of a technological approach. She claims that convergence could be described as a wedding of technology and content delivery by means of computer technology (Figure 3). She describes convergence as "distribution of content through the blending of traditional and new media which leads to doors

opening to new opportunities in the media industry". The consequence of this convergence process is that the traditional one-way communication model is modified to include two-way communication.

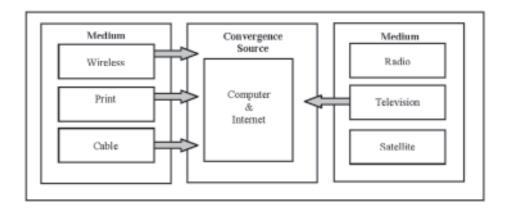


FIGURE 3: LAWSON-BORDERS' MODEL OF CONVERGENCE [17].

Lawson-Borders has identified seven "observations" of convergence all beginning with the letter c: Communication, commitment, cooperation, compensation, culture, competition, and customer. These seven areas are partly overlapping and can serve as a guideline for best practises to expound on convergence both as a concept and a process [17]. The difficulty of using Lawson-Borders' image of convergence as presented in figure 3, is that the consumer and the market are left out of the discussion. If the model is two-way oriented, the consumers should be included. The suggested seven areas of convergence are however important in the ongoing debate. The two areas compensation and culture are often left out of the discussion even though they are of great importance for both those working in media and for the audience. For journalists working with multiple media, compensation is of interest, since many models for compensating journalists still are based on the belief that journalists work with one single medium only. As content is published globally, cultural differences might influence the popularity of the content as well as the way it is presented to suit its audience.

Contradictory to Lawson-Borders, Jenkins [18] does not try to combine many types of convergence into one model. He explains the confusion when attempting to define convergence to originate from the fact that people talk about convergence in several contexts. He divides convergence into five areas, technological, economic, social or organic, cultural and global convergence. Technological convergence is the digitalization of all media content, economic convergence deals with the integration of the entertainment industry and the social or organic version of the process handles the consumers' multitasking strategies for navigating the new information environment. According to Jenkins, cultural convergence is the explosion of new forms of creativity at the intersections of various media technologies, industries and consumers. Finally, global convergence is the cultural hybridity that results from the international circulation of media content. This definition is in line with the author's belief that convergence is a process rather than an effect and that it is important to distinguish what area of media convergence that is discussed.

In the non-academic context, several models of convergence flourish. The most common way of visualising convergence in both the non-academic and the academic world is perhaps by giving examples of convergence of devices as in figure 4.



FIGURE 4: "CONVERGENCE" THE LAST 5 YEARS... [19].

Convergence of devices is often described as integration or a combination of several products into one super-device. Dekerf et al. [20] believe that one device will enable access to all media content. They claim that this device will know us better than we know ourselves. With the launch of this device, printing plants will become museums but media companies do not necessarily have to go the same way. Dekerf et al. claim that the core of convergence is having one distribution channel for everything, no middlemen and no more possibilities for the media publishing companies to control the supply chain. They suggest that media companies, such as newspapers, in a near future will be subjected to "napsterization" of their companies, where the player who controls the super-device is "king". With this line of reasoning, they argue that newspapers should learn to sell content, not print. When news is seen as the core product of the newspaper companies, the distribution process becomes less important.

Furthermore, Dekerf et al. claim that discussions about convergence are quite industry-centred. In the end, however, the consumer (buyer, reader, viewer, listener) is in control. He or she decides on what to read, buy and see [20]. With this way of reasoning, "napsterization" of news is not difficult to imagine and has indeed already happened with services such as Google News [21] and companies specializing in sending out e-mails with customized collections of news from the news bureaux all over the world.

DIVERGENCE IN MEDIA

One recent trend regarding information has been about "more". If something is unclear, it is blamed on the lack of information, and the solution has so far been to add more. But when it comes to documents, the opposite occurs – a strive toward less information and at the same time more content and context than before [22]. In Fidler's book "Mediamorphosis" [1], convergence is said not to lead to fewer forms of communication nor to established traditional media becoming extinct.

A recent media publishing trend is the creation of niche publishing channels focusing on a certain topic or a specific target group. Enlund and Lindskog [15] describe how the range of information from a consumer perspective has widened, as content now is available in many more publishing channels than before. In this manner, interactivity and niche publishing encourages divergence,

but at the same time the technology behind the services and the production workflow, prior to publishing in the different channels, are converging. When the areas involved in a process are either converging or diverging at the same time, describing the process as one event can be somewhat confusing.

Interactive services enable divergence in media as the range of publishing channels increases with the consumers' own will to contribute to the information flow. One example of the consumers' wills to contribute is the growing blogging culture on the Internet. The word blog is derived from weblog [23] and the blog format is becoming a popular way for people all over the world to communicate. The original weblogs were link-driven sites with commentary and personal thoughts [24]. As the "blogosphere" has grown, many blogs are now more similar to diaries where the editors post their personal thoughts and other bloggers comment on them. Several media companies have adopted the blogging trend. Blogs connected to on-line editions of large newspapers have become common and news might be subjected to discussion in the blogging community for a long time after they have happened.

Whether something is diverging or converging, however, depends on the observer's frame of reference. Seen from a newspaper company's point of view, digitalization as the core reason for convergence might lead to divergence as the range of content becomes fragmentized. As seen from the consumer's point of view as an individual, a wider range of information channels indicates divergence.

The strategies of media companies and players involved in, for example, the manufacturing of new technology, can shape whether a device, a usage trend or certain content might be subjected to a process of convergence contra divergence. One example of strategies shaping the process of convergence or divergence is the development of electronic paper. Some of the e-paper terminals currently under development are made for interactive use while others only will support one-way-communication, functioning as pure reading tools [25]. If e-paper is going to be developed as a one-way communication tool, it will become yet another gadget, adding to the range of different media gadgets available on the market; a process of divergence. If the e-paper terminal instead is developed to be compatible with many formats and to be an interactive tool with more to offer than just displaying written text and images, it will, on the contrary, be part in several types of convergence processes. At the present time, it is still unclear what functionality e-paper terminals will have. So far, only prototypes from research labs have been shown to the public.

DISCUSSION

Convergence in media as it was defined at the end of the 1990s mainly concerned the data, broadcasting and telecom industries, focusing on convergence of networks and services. The Internet and multimedia in general were regarded as new media where the difference between new and old, with the exceptions of radio and TV, mainly was that traditional media forms had been static while the newer media forms were dynamic and constantly subject to development and improvements. During the first years of the 21st century, researchers began to describe convergence as not one process but as several more or less interacting processes occurring in different fields. Several models of convergence were presented, often involving other similar concepts such as cooperation, cross-promotion, content sharing, integration or combination. In the year 2004, convergence has become more of a niche concept, used for almost any field to describe developments of new technology, but having different connotations and meaning depending on which niche it is describing.

Media convergence is an ongoing process, occurring at various intersections between media technologies, industries, content and audiences; it is not an end state [18]. The driving forces behind convergence are often discussed and the theories vary. Berger [26] believes that the force behind convergence is competition, and that people, not technology make convergence happen.

The definitions of convergence and the connotations associated with the concept have been subject to change over time. Even though the definition of convergence is the opposite of divergence, in media, the two concepts appear together, hand in hand. The publishing channels are said to converge, at the same time new interactive publishing channels are being created.

Hujanen and Ferrell Lowe [27] claim that if convergence is the prerequisite and digitalization is the platform, then the prerequisite is a utopia. Since convergence in this paper is regarded as an ongoing process, it has no ending. If the process ends, another process starts. To see convergence as an end-state or effect is then a utopia. The effects of convergence are sometimes, in my opinion incorrectly, denoted in the literature as convergence. The correct way of describing the effects of convergence is by using other related concepts, such as integration, combination, merging, cooperation or cross promotion, to name a few.

It is the authors belief that for companies such as the newspaper publishers, manufacturers of technological devices and the people working in journalism and communication industries, the effects of convergence are more interesting to observe than the process of convergence, since it is the outcome of the processes that affects us, not the process itself. If convergence is to be seen as a well-defined generalized concept that is applicable in the same manner to all aspects of media, defining it is then certainly a utopia. However, if convergence is used to describe separate processes and not end-states within the media industry, media content production or the distribution of media content, it is possible to define and use the concept for many different situations. Furthermore, it is important to keep in mind that convergence in one area within processes related to the media market might be of a totally different nature than convergence in another area. And as convergence is taking place in one part of a process, divergence in another related area might appear as a result of this process of convergence. Convergence and divergence are conceptually two opposites, but in reality they often appear side by side or as a consequence of each other.

As convergence and divergence are used to denote changes, the concepts themselves are also subject to change. Over time, the concepts have been applied to new areas, making the connotations of the concepts change slightly, depending on the area in which they are discussed. The definitions of convergence and divergence will therefore most certainly continue to evolve in the future, alongside with changes in our society.

CONCLUSIONS

The concept of convergence has become a buzzword, popular to use when describing several different processes and effects in media technology, the media market, consumption of media, and creation of content. Jenkins [18] discusses the confusion in the definition of convergence originating from that people try to use the concept in the same manner for several separate contexts.

There are many factors to consider when discussing and using the concept of media convergence. Convergence is to be seen as a process, and not as an effect. The effects of the process of convergence are visible, measurable and possible to detect, while the actual process might not be. The process of convergence can be strategically planned and is influenced by market forces, trends in society, and technological developments. Divergence is another process, also creating effects. These effects can sometimes be similar to the effects of convergence. As one

process ends, another starts and convergence and divergence can therefore follow after the other as well as running in parallel.

Developments in technology have made many types of convergence processes possible, such as the digitalization of content, the integration of components and the combination of different devices into new multi-tasking devices. If technology development is regarded as a process taking place in the background and enabling developments in the media production and distribution industry, the process of content creation, packaging, distribution and consumption in media can be visualized as in figure 5.

Convergence processes can be present in all stages of the value chain in figure 5. To show where the models presented in this paper could be applied, I will here give some examples: The model by Daliey et al. [13] and the definition by the researchers at Newsplex could for example be applied to the creation and packaging stages.

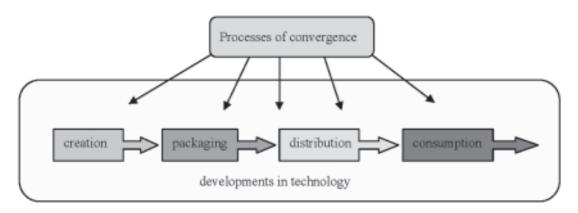


FIGURE 5: THE VALUE CHAIN FROM CREATION TO CONSUMPTION OF CONTENT IN MEDIA PRODUCTION.

Lawson-Borders' model is mainly applicable to the consumption stage but also in some respects to the creation stage. Flynn is mainly interested in the last two stages concerning distribution and consumption. Not all of the presented definitions are directly applicable to this value chain, mainly because some models are based on the view of convergence as an end-effect. Furthermore, many models include other areas of convergence equally important, however not in my opinion as interesting when describing the creation and distribution of media content as seen in figure 5.

In literature there seem to be as many definitions of convergence as there are authors discussing the topic. The irony in this jumble of convergence definitions is that as the term "convergent thinking" describes thinking focused on finding one predetermined correct solution to a problem [4], the attempts to define convergence so far are so many that the range of definitions tends to diverge. My opinion is, that defining convergence is subordinate to the study of the effects of the processes since what is being created in the processes of convergence is what affects us, thus shaping our society and the media publishing companies.

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REFERENCES

- [1] Fidler, R. *Mediamorphosis Understanding New Media*. Thousand Oaks, California, USA: Pine Forge Press, 1997.
- [2] European Commission. Green Paper on the convergence of the telecommunications, media and information technology sectors, and the implications for regulation towards an information society approach, Brussels, Belgium: December 1997
- [3] Quinn S. *Knowledge Management in the Digital Newsroom*, Oxford, Great Britain: Focal Press, 2002.
- [4] Marklund, K. (red), *Konvergens*, National Encyclopedin, band 11, Höganäs, Sweden: Bokförlaget Bra Böcker AB, 1993.
- [5] Merriam Webster's Online Dictionary, http://www.m-w.com, 2003-08-15
- [6] Harshbarger, R. *On Convergence* in Media Alliances, Newspaper Marketing. The Journal of NAA's Federations, Vol 2, No 1 November/December 2003. P. 15.
- [7] Gordon, R. Convergence Defined, in Digital Journalism: Emerging Media and the Changing Horizons of Journalism, Inc. Editor: Kevin Kawamoto, USA: Rowman & Littlefield Publishers, October 2003.
- [8] Murali, D. A "killer" map of the current terrain, The Hindu Business Line, Wednesday, Apr 16, 2003
- [9] Golding P., Murdock G., Curran, J., Gurevitch, M., Culture, Communications and Political Economy. *Mass Media and Society*, London, Great Britain: Third Edition, Arnold, a member of the Hodder Headline Group, 338 Euston Road, 2000, p. 79.
- [10] SOU 1999:55. *Konvergens och förändring*. Samordning av lagstiftningen för medie- och telesektorerna. Betänkande från konvergensutredningen, Stockholm, Sweden: Nordstedts Tryckeri AB, 1999.
- [11] Alström B. et al. *En föränderlig medievärld teknik, ekonomi och journalistik*. Stockholm, Sweden: TELDOK och VINNOVA Verket för Innovationssystem, 2001.
- [12] Flynn, B. Digital TV, Internet & Mobile Convergence Developments and projections for Europe, Phillips Global Media, 2000.
- [13] Dailey L., Demo L., Spillman M. *The Convergence Continuum: A Model for Studying Collaboration Between Media Newsrooms*. Ball State University, Muncie, Indiana, USA: Paper submitted to the Newspaper Division of the Association for Education in Journalism and Mass Communication, Kansas City, Missouri, July- August, 2003.
- [14] Newsplex, www.newsplex.org, 2004-05-12.

- [15] Enlund N., Lindskog T. *Nya redaktionella processer vid flerkanalspublicering. På väg mot medievärlden 2020*, in Hvitfelt H., Nygren G. (eds.), Sweden: Studentlitteratur, 2000.
- [16] Gordon, R., The Meanings and Implications of Convergence, Medill, Fall/Winter, 2002.
- [17] Lawson-Borders, G. *Integrating New Media and Old Media: Seven Observations of Convergence as a Strategy for Best Practices in Media Organizations*. JMM, The International Journal on Media Management, Vol. 5 No. II, 2003.
- [18] Jenkins, H. Convergence? I Diverge. Technology Review, June 2001.
- [19] Outr. Net, *Beyond Today's Convergence of Mobile Devices*, July 15, 2002. Outr.Net Real World Wireless Applications, <u>www.outr.net/newsletter_future_devices.htm</u>, 2003-06-16
- [20] Dekerf, F. et al., *The Urge to Converge. Towards a paradigm shift from convergence as a purely technological issue to a demand driven customer service issue provided through new technology devices.* Multi-Company Group: Fabrice Dekerf, Adrian Hillman, Christophe Rasch, John Sheils, Kalle Virtapohja. Leaders 2003.
- [21] Google News, http://news.google.com, 2004-05-16
- [22] Seely Brown J., Duguid, P. *The Social Life of Information*. p. 203. Harvard Business School press, Boston, Massachusetts, USA, 2002.
- [23] Baker, L. *Blogging Along Blogs for Newbies*, Blog News, 22nd Sep 2003. http://blogsearchengine.com/blog/indes.php?p=4
- [24] Blood, R. *Weblogs: a history and perspective*, Rebecca's pocket, 7 September 2000. http://www.rebeccablood.net/essays/weblog_history.html
- [25] Appelgren, E., et al. *E-paper Production Workflow Adapting Production Workflow Processes for Digital Newsprint*, San Antonio, Texas, USA: The 56th annual TAGA Conference, April 2004. To be published.
- [26] Berger, G. *Media Convergence is King*, South Africa: Rhodes University, Dept of Journalism and Media Studies, 2001
- [27] Ferrell Lowe G., Hujanen T. (eds.). Broadcasting and Convergence, Rearticulating the Future Past. Broadcasting & Convergence: New Articulations of the Public Service Remit. Sweden: RIPE 2003, Nordicom. Grafikerna Livréna i Kungälv AB, 2003.