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Integration and Convergence in the Media Field

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Abstract

The horizontal and vertical integration of the media processes, which was originally initiated by the rapid development in ICT technology, has resulted in a media convergence, where multiple media offer a new brand of information service. Therefore, the content must be stored in a structured form for simultaneous processing, transfer and dissemination in a variety of information carriers, from traditional papers to advanced digital monitors and mobile platforms.

The technical integration has also resulted in a restructuring of the traditional media industry. At the same time new players, such as network operators, providers of hardware and software enter the traditional field of publishers. Each player wants to extend his market place and to find new customer interfaces. The realisation that the content is the core competence of the media has forced the branch to a rethinking of its business strategies.

The modern media company must offer its customers – usually the content providers – all available channels to reach their customers – i.e. the content consumers or end users. In addition, it must find the most efficient way of reaching a specific target group for a specific message. This has forced the media companies to buy, merge or make strategic alliances with each other to reach the critical mass.

The segmentation of the ICT market has a more or less dramatic impact on the labour market, the copyright or digital rights management, the needs for R&D, and the utilisation of IPR values in a multi-branch environment. New innovations offering any of the players abilities to expand his position are strongly called for, the branch integration offers new applications of existing IPR values and know-how, and the restructured need for labour and skills rises new challenges for professional training and education.

The presentation summarise the megatrends in the media market and give examples of integration and alliances to execute media convergence. It also contains an overview of methods for recognising innovations in the media field and a review of trends in the labour market.

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1 Introduction

The technical development in the Information and Communication (ICT) technologies during the last decade, and the integration of the media industry as one inseparable part of the ICT sector, has resulted in a total media convergence. At the same time the roles of the content providers, the network operators and the electronics suppliers have become more diffuse and overlapping. This will obviously result in a restructuring of the media field, the ownership and in a totally new value chain for the content business. This, in turn, has dramatic consequences for many institutions in the society, e.g. the trade unions.

To serve the future media industry, one must understand the structure and the needs of the integrated ICT sector. For this reason the new organisation of VTT Information Technology integrates the whole value chain of this sector (Figure 1).

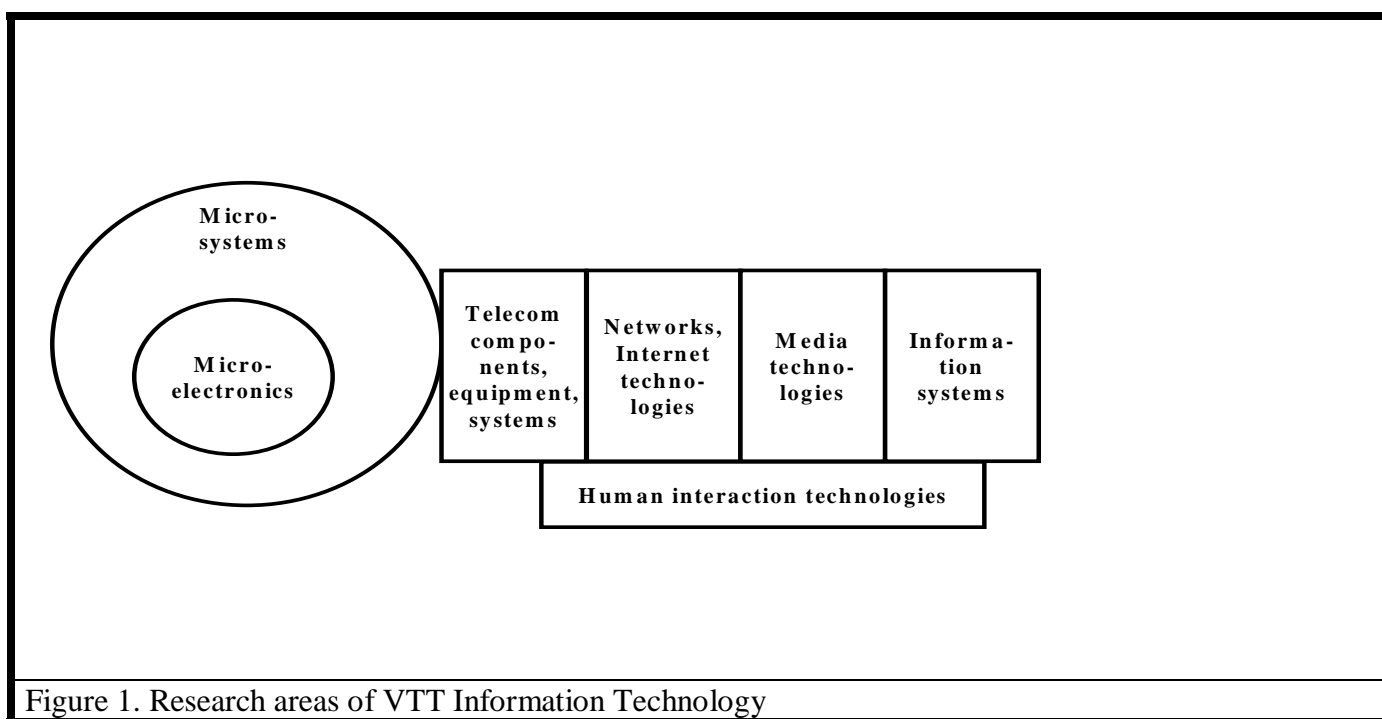


Figure 1. Research areas of VTT Information Technology

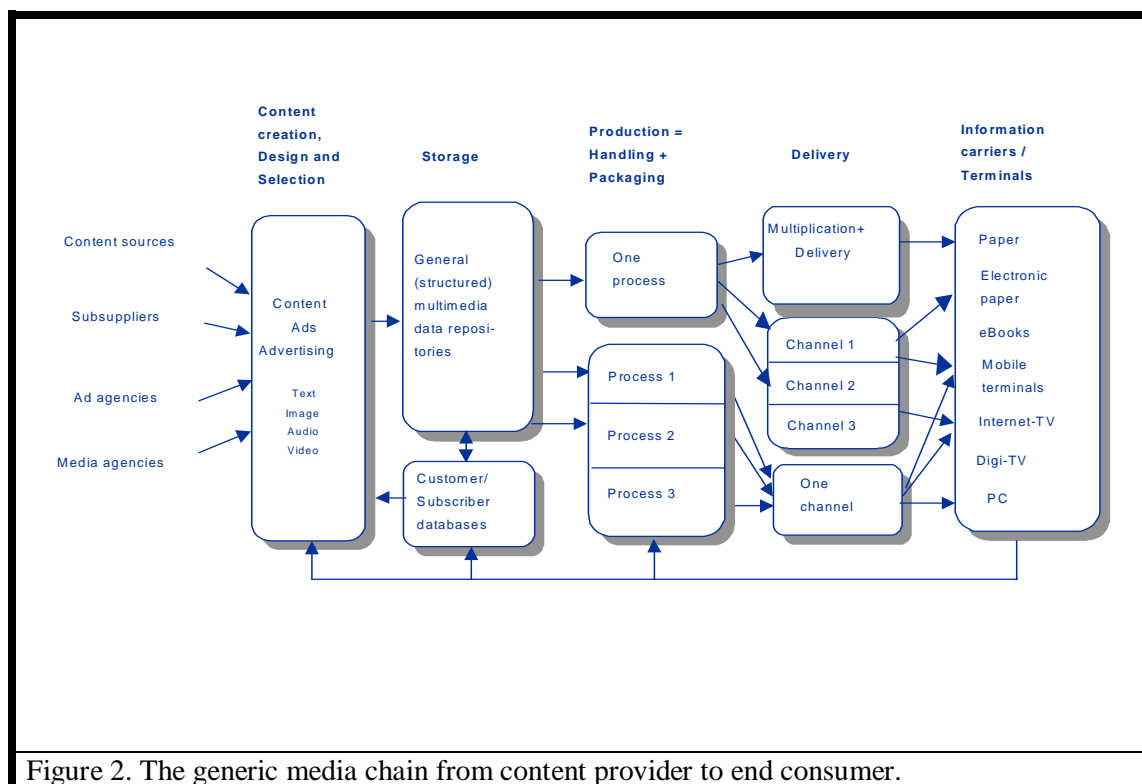
During the last year we have carried out a range of strategic projects and commissions, where the strategic megatrends in the ICT sector and their consequences for the whole branch and the society have been analysed. Some works have focused on the technical convergence, others on convergence in the market place. Since innovations will be the key to success for the traditional media companies in the future, systematic methods for media innovations have been developed, and are taken into use in the strategic planning of future research. Finally, the new role of the trade unions of the sector have been analysed. This paper gives a review of some outcomes of these studies.

2 The new value chain of media

2.1 The technical convergence

Interactive Electronic Publishing (IEP) is defined as the interactive provision of information and related services to users in digital form. A value chain has been developed for better understanding of interactions between business and technology, especially emphasising the interactivity between users and producers. The components of this value chain are: content generation, digital content management, customer & transactions management, distribution and delivery, usage environments, advertising and promotion management, overall integration and process management.

The new value chain enables multiple use of the content on a variety of "information carriers" after storing in a generic and structured form, processing and delivery (Figure 2). The media convergence also enables the integrated use of different media, and an optimisation of the media choice according to content, target group and consuming situation. The Internet has been the core of the integration (Figure 3). These questions are analysed in many of the referred research projects of the Institute.



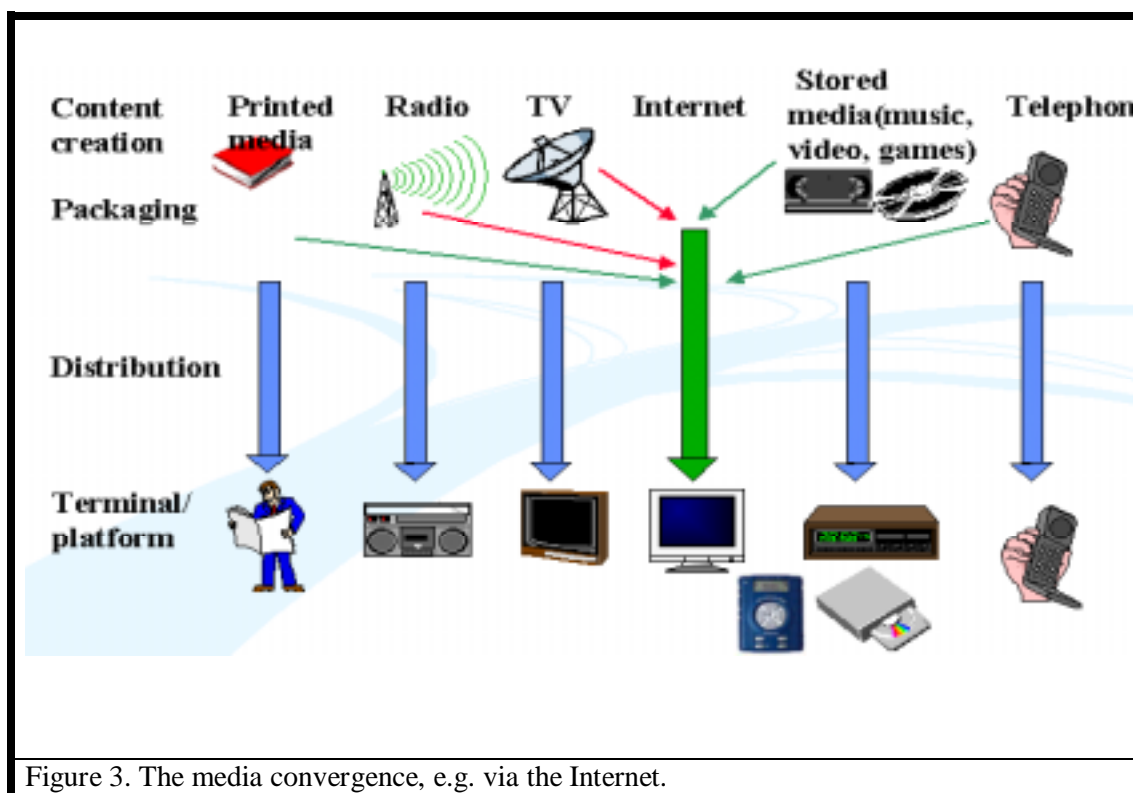


Figure 3. The media convergence, e.g. via the Internet.

From a European standpoint especially the breakthrough of mobile phones and wireless Internet has been the main driving force in the ICT sector. 3G and 4G of mobile communication service offers the platforms for performance and access in combination with the Internet, if they will ever be realised in practise. So far, experiences have been obtained in Japan only, and even there the content providers play a minor role in the value chain.

The critical factor will be the content itself, since the consumer is the king. The consumer will not automatically adapt all the media available. For instance HDTV and audio MiniDisc did not conquer the markets. On the other hand, the most profitable business area for the telecommunications – the SMS messages – perfectly surprised them.

Therefore, technical functionality and economic potential do not predict the success of a media alone. Also human needs, consumer behaviour, communication habits, cultural and sociological factors must be taken into account. In fact, the first reaction may be strongly misleading. An example of this is the impact of broadcast radio on the sell of audio records and gramophones during the first years, Figure 4.

Electronic publishing is an essential part of the new value chain not only in the media sector, but also in the entire ICT sector. It will find applications in Business-to-Business (B2B), Business-to-Consumer (B2C) and Consumer-to-Consumer (C2C) services. The latter includes the formation of new globalised societies of focused interests. In this value chain the role of the publisher as the content provider will change dramatically. He may become a node in the new network of societies, but he may also be overtaken completely.

The new value chain also creates new forms of content combination, such as edutainment (education and entertainment), infotainment, etc.

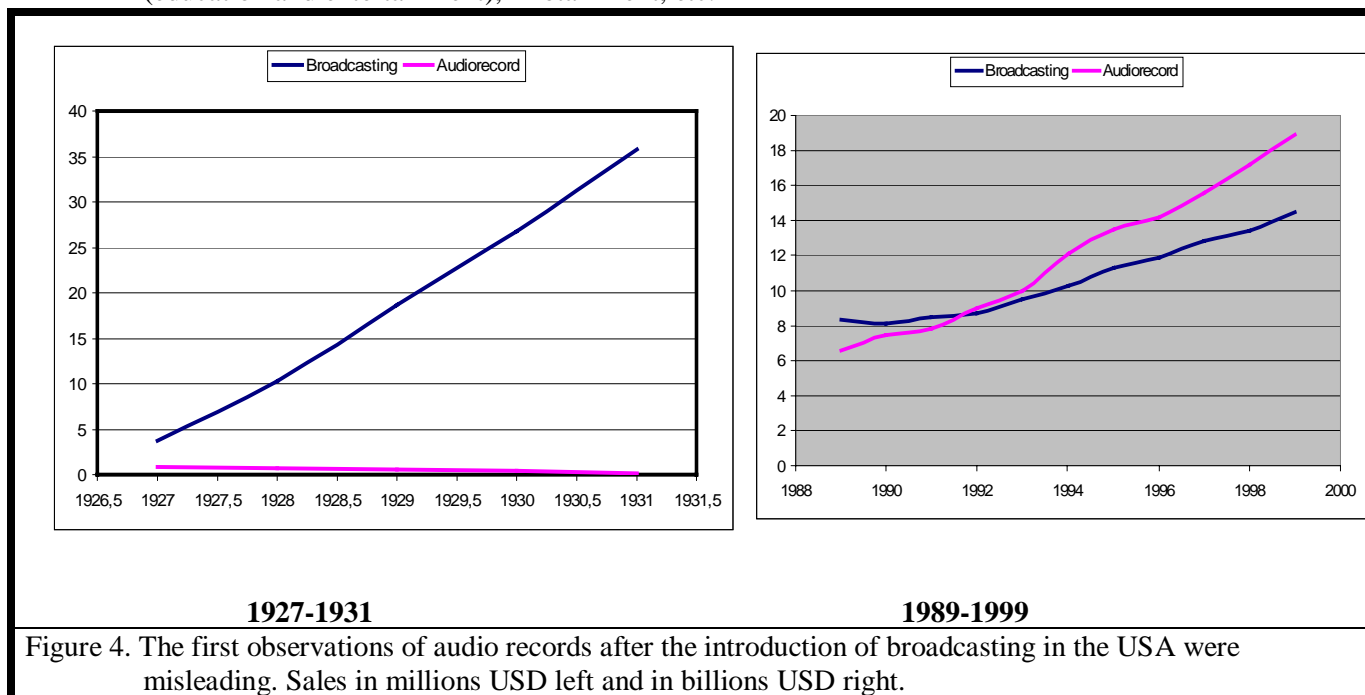


Figure 4. The first observations of audio records after the introduction of broadcasting in the USA were misleading. Sales in millions USD left and in billions USD right.

Also regarding Digital Television (iDTV) Europe has a strong position with an anticipated growth of connections up to 350 millions in 2006. This will enable a wide t-commerce in addition to other services like pay-TV, gaming, education, and information. However, the introduction stage has been slower and more fumbling than expected. Like the stock value of the ICT sector itself, the introduction of a new media often creates a "hype" phenomenon, when expectations and consumer behaviour do not fit. In the long run a stable growth often appears after a while. Our hype-model is presented in Figure 5, and similar phenomena occur in other branches as well, e.g. in the food industry with the introduction of so-called functional foodstuffs.

Other technological progress is made in the field of handheld devices and lightweight laptops with high-resolution liquid-crystal displays and PDAs. Also new options for data storage for mobile multimedia, metadata structures, content filtering and retrieval (The Semantic Web) will offer new possibilities for media convergence. A prerequisite for an unlimited use of the new techniques is, however, interoperability and consolidating of open standards. In this category we also include the upgraded Internet communications protocol IPv6.

From our studies so far we may conclude, that the technical conditions for a complete media convergence are already there. There are also technical possibilities for a further convergence between the players of the ICT sector. However, it depends more on economical, market-oriented and owner-structure related factors to what an extent and at what time schedule the convergence really occurs.

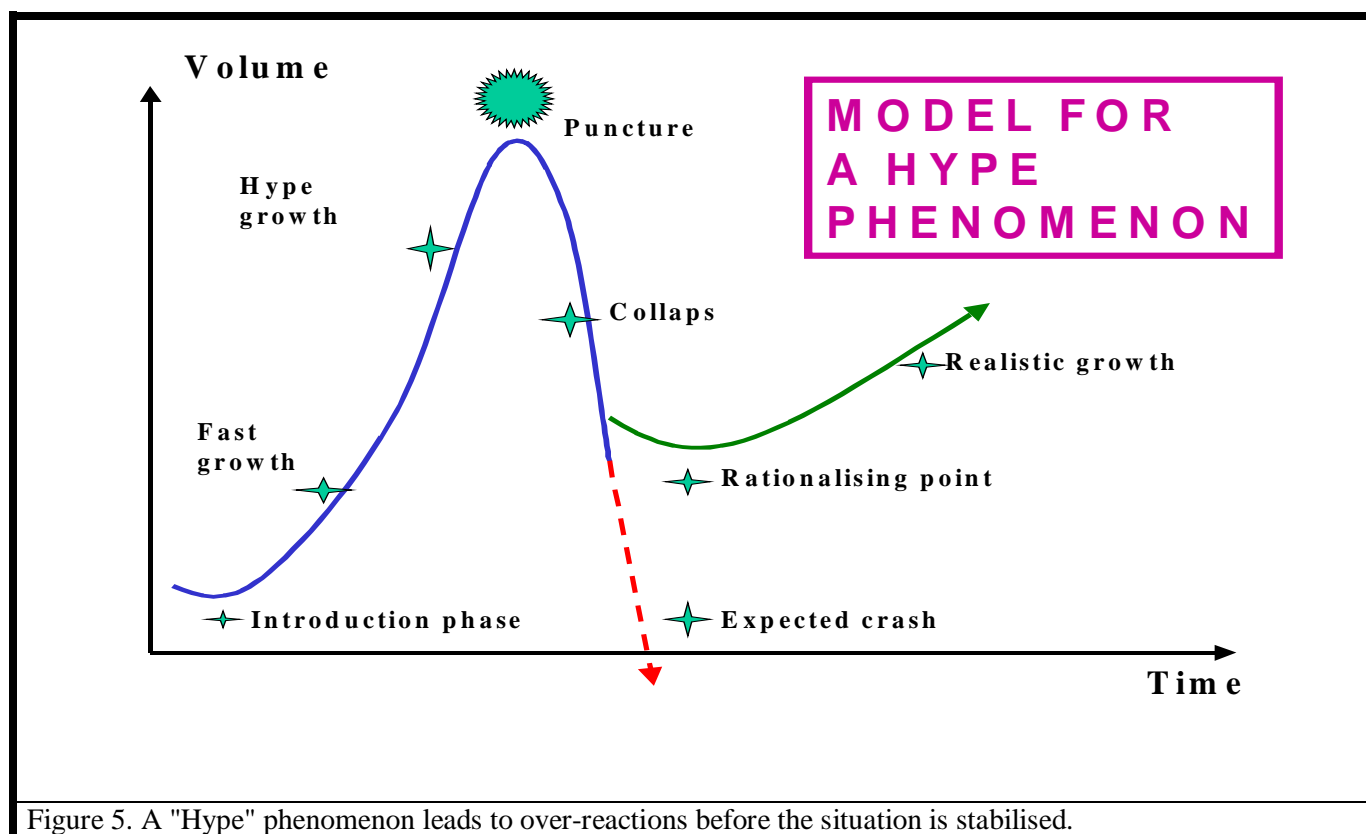


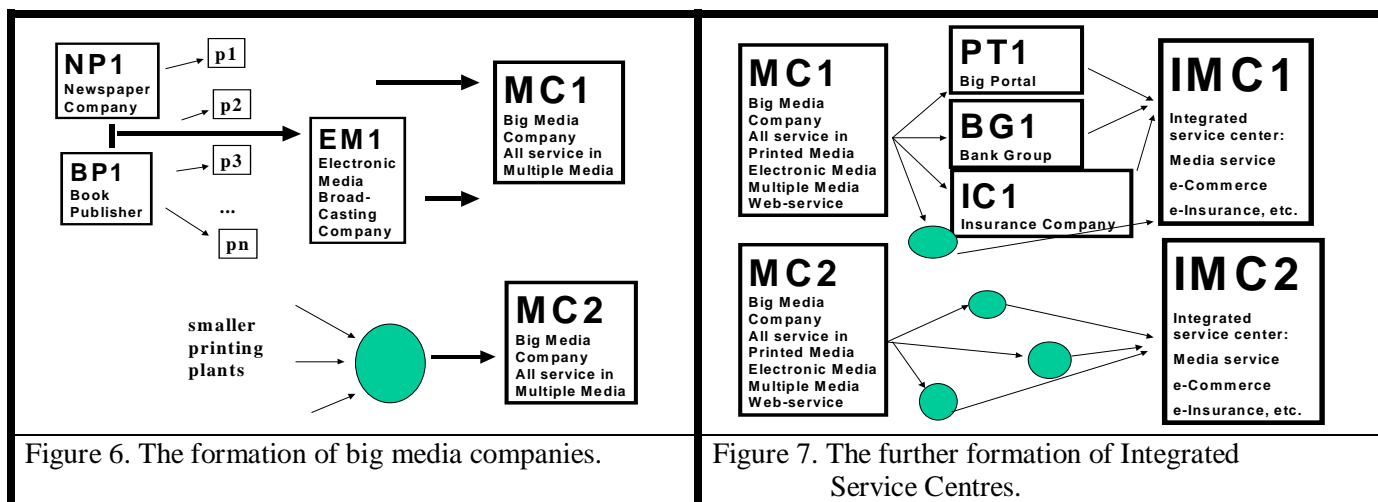
Figure 5. A "Hype" phenomenon leads to over-reactions before the situation is stabilised.

2.2 Convergence in the market place

The merging between media is an international phenomenon. Leading media companies search to offer a complete and all-round multiple media service, covering both printed media, electronic media and new media. A prerequisite is that the new media giant possesses distribution chains with enough capacity.

One possible model for the development is presented in Figures 6 and 7 (based on examples from Nordic countries and the US). In the first step a big publisher - e.g. a newspaper - (NP1) company merges another company - e.g. a big book publisher - (BP1), and buy up a number of smaller printing shops (p1...pn) in order to offer their customers full service in printed media. After merging a big electronic media company (EM1) a new "media giant" (MC1) is established, which can offer a complete variety of media. In the same way other "media giants" (MC2) are created.

In the next step the media giants obviously will form alliances with leading telecommunication operators - i.e. possessors of leading market place portals (Figure 7). This alliance can also include significant providers of other services, such as a leading bank group, a leading insurance company, a leading marketing group, etc.



Many other industrial branches have gone through the same kind of "metamorphose", which is likely ahead of the content industry, and will affect electronic publishing. The paper industry, the car industry and the shipyards are all examples of this development.

2.3 Convergence in the ICT sector

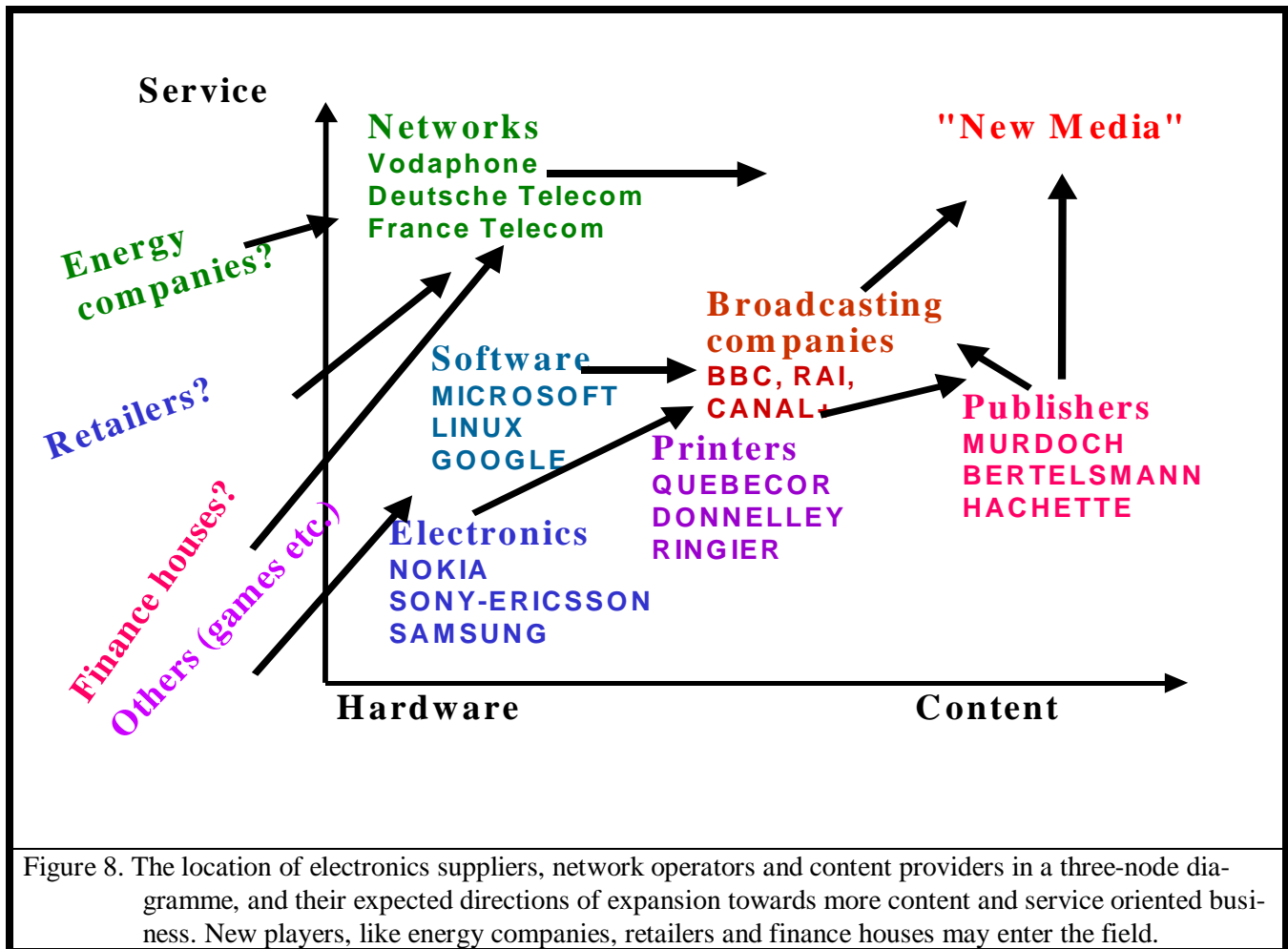
It follows, that the whole ICT market space is changed, as the new players search for their role and the old players want to expand their position. The ICT space can be presented in a three-node-graph (Figure 8), where content, service and hardware are the nodes. The electronics suppliers, the network operators and the content providers (publishers) all have their own corners in the diagram, but also the printers and the electronic media providers match in it.

Each player aims at expanding his market, to find new contact areas to new customer groups, but at the same time also to offer his customer new forms of service. The development of additional service is, in fact, a prerequisite for each player to survive.

The telecommunication operators create new service plazas, and new media companies – often SMEs - offer new information services and games over the Internet. For the telecommunication operators the content service has become a must, if they want to increase their volume and market value or to become a part of the content value chain. A part of this strategy is also to integrate amusement service, games and betting.

Also the leading manufacturers of mobile phones show an increasing interest for the content market, since the performance of the new generations of mobile phones is not needed for conversations but for distribution of multimedia content. The available European content is so far limited, and a significant increase of the supply is becoming a prerequisite for the further technical development. E.g. Nokia employs 3000 new engineers to their R&D departments to develop new business forms. The polarisation may continue in searching for alliance partners, although this is not necessarily the case.

New players, like energy companies make the figure more complex, finance houses – i.e. banking and insurance corporations - and retailers, who penetrate the same market space by competing or forming alliances with the conventional players.



The strategic changes in the ICT field and especially in the media field and the field of electronic publishing is the focus for several project carried out by our Institute. Also searching for innovations in the media field has been carried out utilising the fact, that each player is looking for developments helping him to progress in the decided direction.

3 Challenges for the media industry

3.1 Global megatrends

During the last decade the message to the printing industry from one of its most prestigious "trend-making" events, the Comprint Conference, has been "join the electronic media, since you cannot beat them!". This year the signals were more severe than ever before:

- Printing continues, in some areas it may even grow, but to most readers and publishers it is just one alternative among others.
- Therefore, the printing industry should create an additional value to their customers by extending its service to cover most of the value chain. This requires new innovative solutions.
- The global over-capacity in the printing industry makes the innovative service a must; only the innovative companies will survive and expand.
- New production management systems make the customer a product designer, who follows the entire work flow in real time. This calls for closer and more open co-operation between the printer and his customer.

According to *Birkenshaw* (2002) the Ad market share of the printed media is declining slowly and is now about 50 per cent. The market share of the digital media is increasing from 2 to 9 per cent in 2005. The development of the media market is strongly related to GNP. With extended customer service prices should be based on customer value rather than on production costs.

In the next few years no growth is expected in the printing market. This is most critical for the offset printers, who must manage high investment costs, declining markets and falling prices at the same time. For the publishers the digital media offers plenty of new possibilities. Personalized digital ads increase in volume, but classified ads lose the competition to on-line ads.

The reproduction houses must expand their service towards archiving. This means that the customers must have access to their archives, and remote proofing becomes a trump. Newspapers and magazines should utilize their brand names when expanding into digital media. For advertising campaigns on-line monitoring will become common standard.

The forecasts for the paper consumption are, according to *Jallinoja* (2002) very optimistic – see Figure 9. The total consumption was 324 million tons in 2000, and is expected to grow by 2,6 per cent annually up to 475 million tons in 2015. However, both consumption and growth vary strongly between countries, but so far the introduction of new media has had only a marginal impact on the paper consumption.

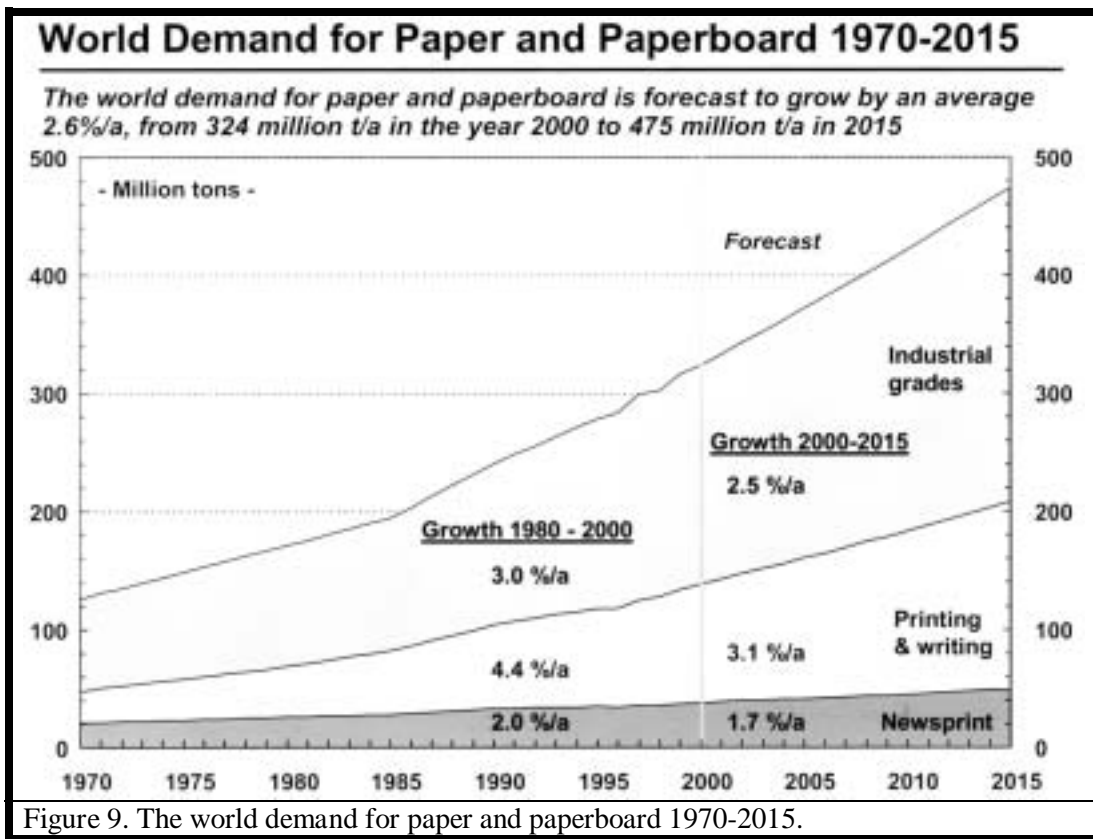


Figure 9. The world demand for paper and paperboard 1970-2015.

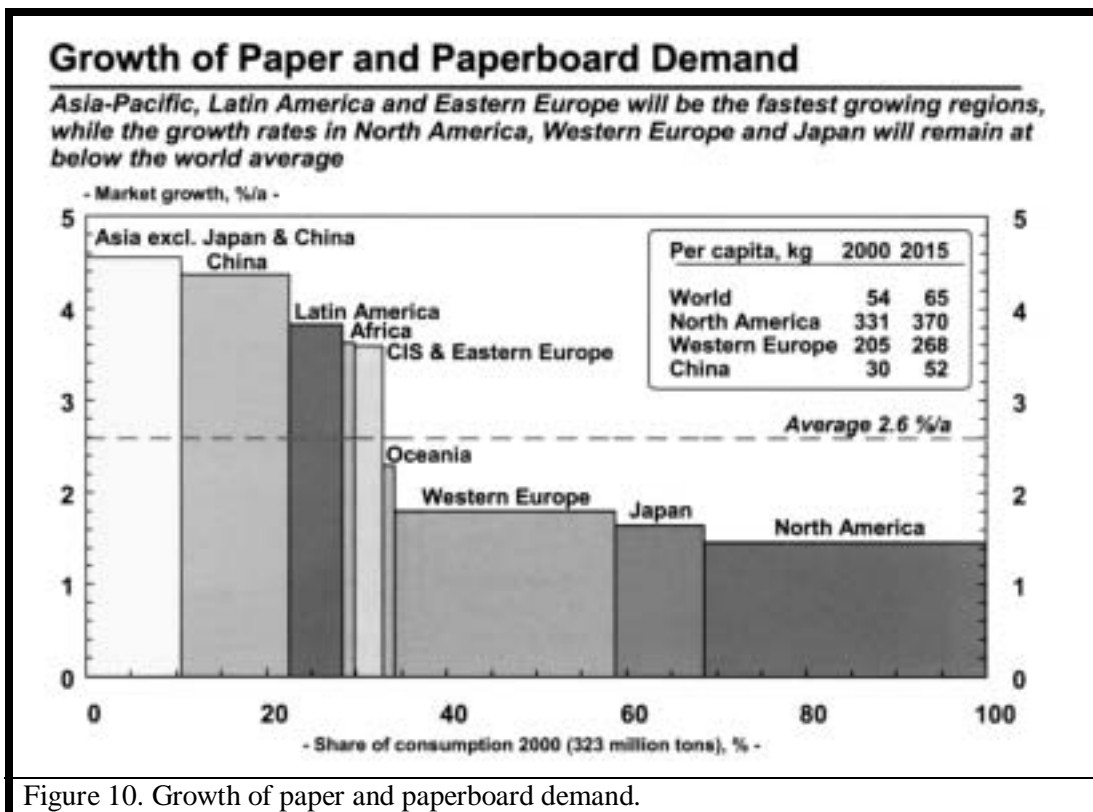


Figure 10. Growth of paper and paperboard demand.

Relatively the main growth in the paper consumption appears in Asia, China, Latin America and Africa. The forecasts are surprisingly optimistic also for Western Europe, Northern America and Japan, although the newspaper consumption has not grown in the US during the last decade.

American forecasts predict a much faster growth for digital media (including digital printing) compared to Europeans, *Delmontage* (2002). Traditional printing is losing market shares from 80 per cent 2002 to only 50 per cent in 2006. New digital media will compete strongly for catalogues, manuals and newsletters, but only weakly for newspapers, packages, direct sale, postcards and books. Therefore, also the sale of equipment and materials for traditional printing is decreasing, with the exception of CTP processors.

According to the study of *Rose et. al.* (2002) the printing industry is going through metamorphose. In 2007 only 40 per cent of the printers are still in business as such, more than one third offer multiple media services, and one third is out of business. Also this study predicts a growth for digital printing, but not based on technology push, but on innovative new products and services.

As the printing house turns into a media company, also the organisation must be restructured. Special attention should be paid to the information flow in the whole organisation. A prerequisite for success is a flexible and service minded personnel which is open to changes.

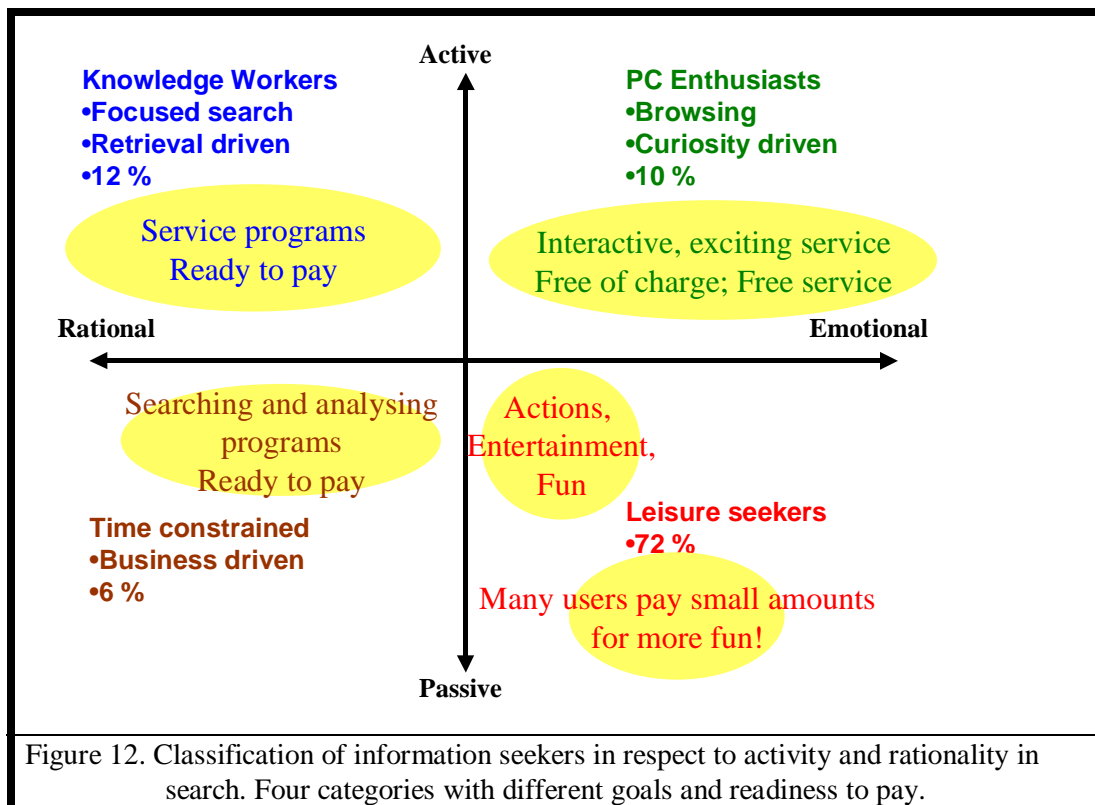
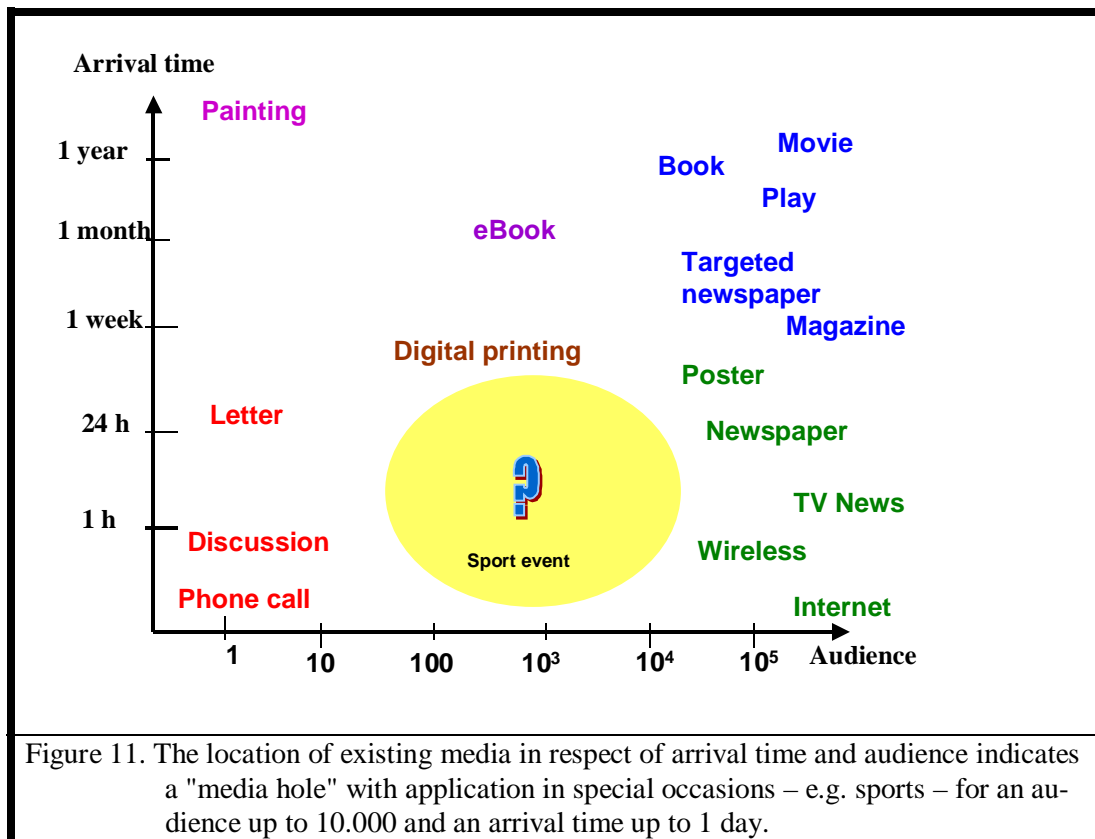
3.2 The search for innovations

Since media innovations seems to be the key factor in the future media business, special methods to identify specific needs for new products and services in the media sector have been developed and taken into use in some research project. It is obvious, that already the strategic expanding directions for the players in the ICT-field, indicated by arrows in Figure 8, define a concrete need. There is an obvious request for any new product or service form giving

- the publisher an ability to offer his readers an additional interactive service, or
- the network operator an ability to add more content service to his network, or
- the equipment supplier an argument to sell his 4G application to customers, who do not even need the features of 3G.

One general method for identifying media innovations is to localise all existing media products in multidimensional diagrams according to different market and technical criteria. One example is shown in Figure 11, where existing media have been localised regarding audience they reach and arrival time.

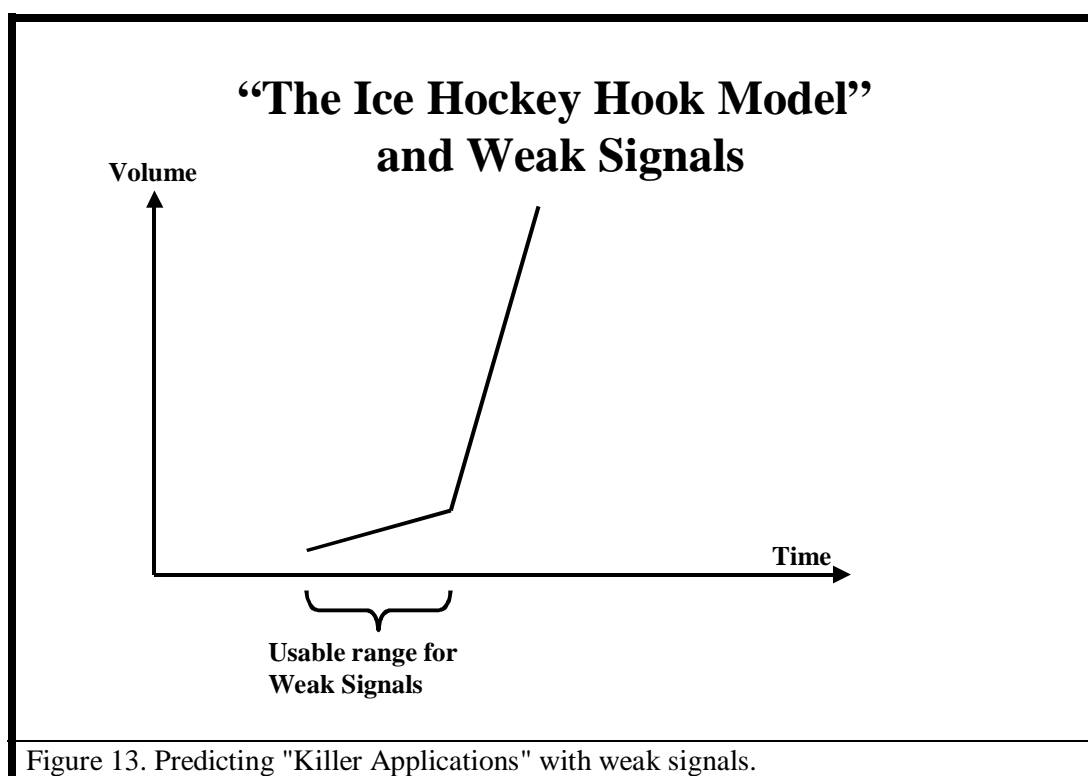
A "media hole" is indicated for an audience of 100-10.000 viewers and with an arrival time of up to one day. In this field reporting to special target groups about special events - e.g. sports – could be one possible application. In fact this was applied to create a new on-line gambling system for soccer.



Another application of this method is to analyse the information seekers with respect to activity and rationality in searching – Figure 12. In this case the users fall into four categories. The biggest one of these are the passive and emotionally acting "Leisure Seekers", almost 72 per cent. This group is attractive to the content providers because of its size, and it may be prepared to pay a small amount extra for better and more exciting entertainment.

More rational seekers are the "Knowledge Workers" (12 per cent) needing more advanced searching software, and the time constrained "Businessmen" (6 per cent) needing efficient searching and analysing software. These professional groups are relatively small, but ready to pay a lot for their professional application of media.

Another method used to indicate the rapid growth of sudden "killer applications" is the use of "Weak Signals". The method is sometimes called the "Ice Hockey Hook" because of the shape of the curve, Figure 13. The idea is to predict the phenomenon by a number of simultaneous weak indicators. A thunder storm is usually preceded by a number of less distinct natural phenomena: darkening, windiness, quieting of the birds, distant rolling, raindrops and finally lightening.



In the same way we have tried to explain two characteristic media phenomena of the Nineties with weak signals, i.e. the fast growth of PCs and the unexpected business growth of SMS text messages, especially in Northern Europe. Both phenomena follow the "Ice Hockey Hook" model exactly. In the case of SMS important requisites – or weak signals – for the breakthrough were: compatible standards between the network operators, a high enough penetration of mobile phones (30 per cent), prepaid phone bills for the youngsters (by their parents), European system "Caller plays the bill", etc.

However, even if all the prerequisites are at hand, the predicting of a breakthrough may be extremely difficult. In fact none of the operators recognised the business potential of the SMS before the explosion in 1996, although the signals were there several years earlier.

4 The new role of the trade unions

The rapid changes in the information society and the expected restructuring of the ICT cluster have placed the trade unions in a completely new situation. In Finland the trade union of the printing industry is the oldest one, and the collective labour agreement of the branch has more than 100 years of traditions. The union decided not just to passively follow the convergence from beside, but to take an active role in it and to develop their supervision service to fit the future demands of their members.

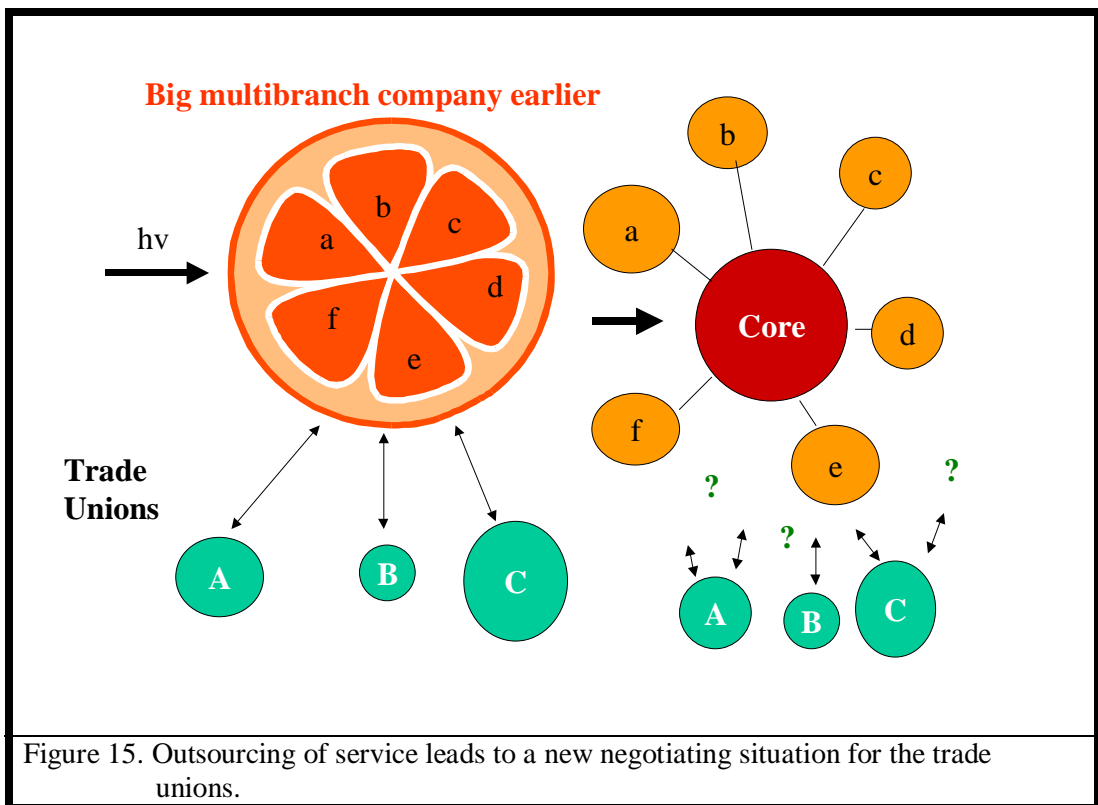
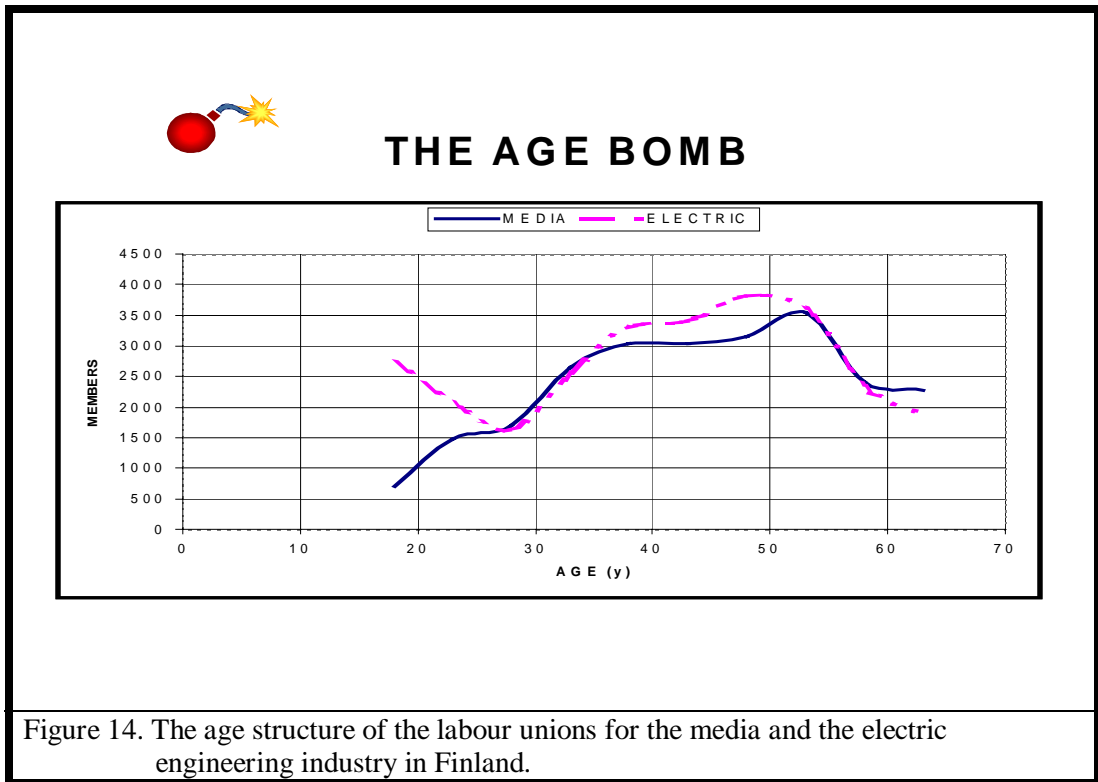
Since the ICT field is converging, the labor unions must do so too. Together with trade union of electrical engineering the trade union of the media branch committed a study at VTT Information Technology about the changes in the sector and the main alternatives for the future. Special attention was paid to the question, to what an extent the branch convergence calls for an intensified co-operation between the trade organisation of the media branch and that of electrical engineering.

The survey clearly indicated that the technical premises for convergence between the media branch and the telecommunication branch already exist. The realisation will, however, depend on the future ownership of the big media companies, electronics manufacturers, tele-companies and software vendors. The main players in the ICT field will obviously change dramatically through company merging and globalisation, but also since other branches, like energy supply and electric installation, will be integrated into it. The future was outlined via three scenarios: "*The expected future without surprises*", "*The steady state future with strict branch barriers*", and "*The converging future without barriers*".

We expect a development, where new big concerns are established across the traditional borders of the media, IT and telecommunication sectors. This will have a direct impact on the supervision work of the trade unions, and it requires a much closer co-operation between the union of the media branch and the electrical engineering branch in the future. The co-operation may even include structural integration and reorganisation. The unions should jointly and continuously monitor changes in the branch utilising "weak signals", specified here for this purpose.

The two unions today deal with partly identical and partly totally different problems. The high average age among members is a common problem (See Figure 14). In ten years the majority of today's members have retired. After the deep depression in the Finnish economy in the early Nineties, the printing industry has applied a very strict recruiting policy. As a result there are very few young members in the age 20-30 years. It is obvious that the branch, therefore, will face a labour shortage in the next decades. The same problems do not occur in the electrical engineering branch.

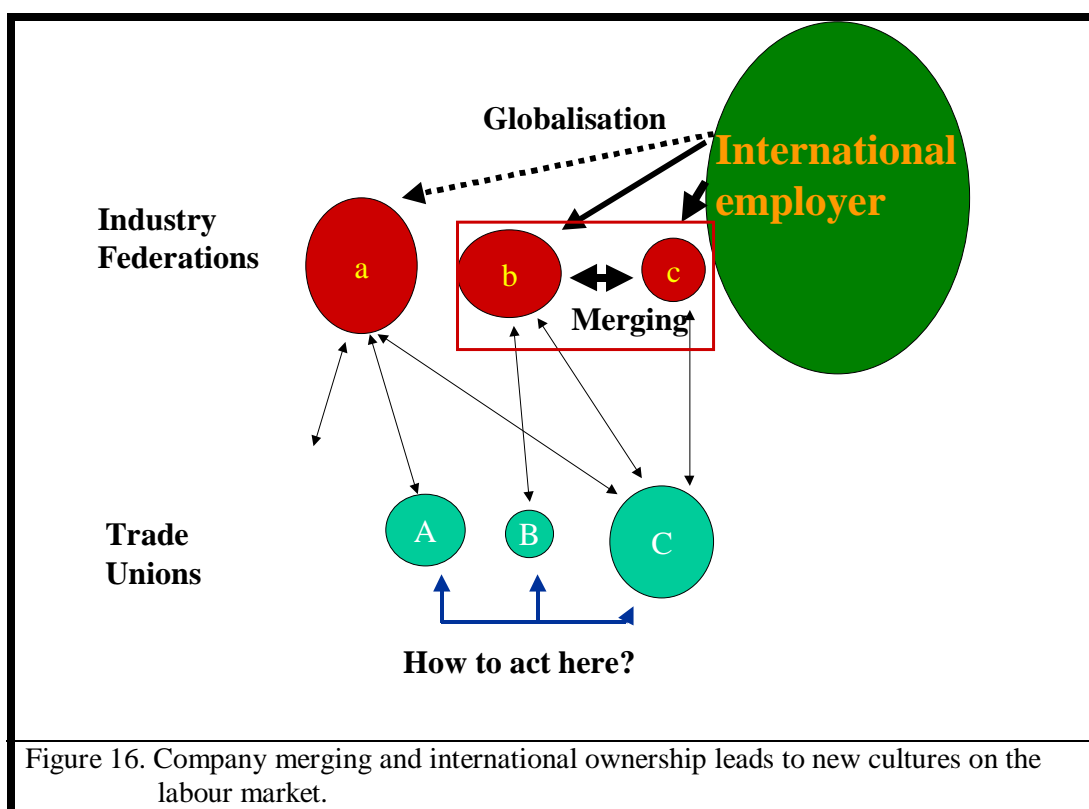
The restructuring of the big companies with outsourcing of service and logistics and focusing on core business is another new challenge for the trade unions. While the unions earlier negotiated directly with the company, their members have now been split up on a lot of small subcontractors with limited economic resources. In a future depression the subcontractors is a buffer for the big company, and they have to adjust their capacity to the market situation by denouncing their personnel (See Figure 15).



The new role of the trade unions have been evaluated in a SWOT analysis. The strength of the unions still are the strong professional identity in the branch and the high degree of members among the workers. The weakness (in addition to the age structures of the members) are the sensitiveness to trade circles of the branch, increasing amount of snippet works, and little experience of international negotiations.

The threats are that international companies reduce the influence on decision making of the unions by moving it abroad, low interest for organisations in the young ICT generation, and an increasing competition between the unions, as the branch borders become diffuse. Finally, the increasing ICT sector offer the trade unions many new opportunities to recruit new and skilled members.

The activities of the unions should be expanded towards individual consulting for workers' contracts, consulting to companies for branch agreements, and training activities, in addition to traditional supervision of members. The services offered by the unions should be further developed and efficiently marketed as products to the new categories of workers in the ICT sector, the professional identity of which may differ significantly from that of the current members. The ICT sector is expanding, which gives opportunities to recruit new members despite of the increasing competition between the branch unions.



The globalisation brings new challenges for the trade unions. The future opponent in the negotiation for a collective agreement is not necessarily the national federation of the industry, but may be large multi-national enterprises or their international federations (See Figure 16). The trade unions will need persons with good knowledge of language

(especially English), and experience of international legislation, agreement praxis, negotiation techniques and other skills.

5 Summary and conclusions

The rapid technical development in the ICT sector and its impact on the media business has been studied from several angles in a range of research projects. It is obvious, that the technical prerequisites for an integration of the content chain to form new brands of multiple media, but also for a convergence of the whole Information and Communication Technology (ICT) industry already exist. This may call for a restructuring of the whole sector, as the traditional roles of content providers, network operators and electronic suppliers are extended, competing and merging.

However, technology push alone has not power enough to trigger the convergence. It depends on the estimated business potentials, ownership structures and preferences, which kind of companies and alliances finally will be established. Therefore, it is still open who will manage the value chain from content providers to end consumers.

The consumer always makes the final decision which new brands of multiple media products will be successful and which will fail. In combination with the global over-capacity in the traditional printing industry, it is clear that only those who create an additional value for their customers by innovative solutions will survive and expand. Innovations also enable the media industry to manage a bigger share of the value chain. So, a systematic innovation process must become a part of daily business.

The restructuring of the ICT sector and the globalisation also have a strong impact on many functions in the society, among them labour market policy. The trade unions are facing new challenges, as their future negotiation partners may be large multi-national enterprises or their international federations. At least in Finland the trade unions have already taken an active role in the restructuring of the sector, and develop their service to their members to fit future demands.

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