Future of European Printing Industry

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It is clear that the publication printing industry is in its cross-roads. The change in business reflects also to the supporting industries like research. The first idea for this study was actually to clarify the future role of the printing research, but it grew to be the guidance for the whole printing industry.

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## Contents

Acknowledgements .................................................................................................................. 2

1 Introduction .......................................................................................................................... 4

2 State of the industry .............................................................................................................. 4

3 Interviews of Industry Partners .......................................................................................... 5

4 Outcomes ............................................................................................................................ 7
   4.1 Efficient web printing production. .................................................................................. 7
   4.2 Added value for the printed product .............................................................................. 8
   4.3 Printed non-media products. ......................................................................................... 9

5 Conclusions .......................................................................................................................... 10

References ............................................................................................................................... 12
1 Introduction

This study was done to understand how the printing industry will survive the convergence that has happened in the media industry over the last few years. The study has been done by VTT and thus it concentrates on the technology needs, hidden or obvious, that the printing industry might have. The study also answers the question of what new technologies VTT should develop, and how VTT should develop competence in the selected new technology areas.

The study was done mainly at the end of year 2010 as a qualitative research trying to find out the different directions where to go and what the vision on the directions could be. The form of the interviews was semi structural, having a list of questions, but letting the interviewees to answer the questions freely and in the order they wanted. Also a literary pre-study was done to find out the statistics of the industry and economical figures.

The study did concentrate on publication printing, or reading products, as one interviewee said. One of the machine suppliers in the interview said that the printers have nowadays only three options: be effective and consolidate to serve the big brand owners, be local and serve the whole community with short runs and versatile production machines or the third option is to close the printing shop. We were obliged to study the situation more deeply and found out different visions how to stay in the business also in the future.

2 State of the industry

Printing industry has crossed a serious structural change in the past ten years. Consolidation has started and some overcapacity has been closed down. Generally printing houses can be placed in two categories. Small and medium-sized companies have the advantage of being more agile and they respond more swiftly to market needs. Large companies are primarily struggling with how to resolve the issue of overcapacity, which has resulted in a huge price war across the industry. These companies require different types of strategies for the future.

According to Smyth (2010) the top-line for Europe sees the print market falling. After the sharp downturn in 2008 some recovery took place in 2010–2011, but after that the market will continue falling. The industry is facing print prices going down across the board, some through greater efficiency and some through competition.

Smyth also states that we see the whole European print market dropping by some 9.5% between 2005 and 2015. Deflation in print pricing is occurring across the period, especially as printers are broadening their service offerings. The true price of most print products is declining. The importance of packaging and labels is high compared to the overall print market. In media and graphics sector only commercial print increases it share in 2005-2015 and that is largely due to the growth in Eastern Europe.

While the issue of overcapacity and price competition impacts the sector as a whole, technology offers both a threat and an opportunity. Changes in customer behaviour and a shift to the web are reducing demand for print. However, technology also helps increase productivity and provides access to new markets for companies agile enough to take advantage of the opportunities on offer. SMEs are best placed in terms of flexibility here (Intergraph 2010).
Already in 2007 the European printing industry got a valid action plan of how to handle the new media and media convergence. The printing houses that started the actions may have an advantage in surviving future challenges. The guidelines presented by Intergraph are as follows. (Intergraph 2007)

1. Managing production costs
   - Promote best practices in management and operational performance
2. Find new growth basis
   - Develop value added services for customers
3. Support European printers and develop EU printing industry
   - Intensification of the actions directed towards better harmonization of regulations within Europe
4. Invest in human resources for the future
   - Invest in human resources and develop new skills
   - Encure a culture of partnering within the industry
5. Make printing industry a reference in term of HSE performance
   - Improve health, safety and environmental performance
6. Improve the image of the printing industry with all its bests practices
   - Define a European printing industry quality charter for printing products
   - Enlighten public decision makers on the impacts of their actions for the printing industry

3 Interviews of Industry Partners

Interviews carried out during this study covered wide range of main actors in European printing industry. Interviewed parties included press manufacturers, print head suppliers, ink manufacturers, plate and blanket suppliers, and printing companies. Also several associations and federations gave their contribution to the project content in interviews or via email.

Interviewed parties shared many common thoughts on the market situation. The future of printing industry was seen generally quite positive, at least manageable, especially by the printing houses. Majority of the printing house representatives had a strong faith on prevalence of the printed media products and forecasted that after this turbulent season, print volumes would stabilize on a feasible level. Press manufacturers and material suppliers saw even growth, not in Europe however, but in Asia, Africa and Latin America. Growth in packaging will keep the supplying industry busy even if publication printing is decreasing. Publication printing has gained some recovery already from the worst situation a couple of years ago, but no one expected it to rise on the volumes of the best years.

Even if European printing media industry is facing a crisis, not one of the interviewed printing house representatives announced of moving (or even considered to move) to completely new business areas. Reasoning for not to make this leap was the huge investments and R&D needed for old machines to produce totally new products. The risk was seen too high because the uncertainty of existence of new customers markets and for the lack of support from the supply chain. Material suppliers, which are global leaders in their business areas, are not concerned about current print media market development because they can compensate the market changes with other product portfolios like packaging offering. The drivers for enormous change in production side are missing, and new business cannot therefore evolve. This unfortunate chicken and egg situation would need courageous actors to be solved.
Even if giant leaps are not taken, many actors in the European printing industry have recognized the need to transfer within the current business area. Almost all interviewed parties emphasized the importance of the services in the future and to understand the customers’ needs more thoroughly than currently. The value of the service around the printing press manufacturing, material supply or printed product delivery was considered to be remarkable in the future. Examples of the services provided next to the core business are consumables, maintenance, storage, delivery and marketing, and electronic communication. Increased additional services were however seen more as a requirement rather than something to be paid for.

In addition to service, printers mentioned two main possibilities to survive: competitiveness by efficiency and added value to existing products. Printers focusing more on the first option, efficiency, saw biggest threats in increased paper prices and overcapacity of printing houses in Europe. Their strategy to maintain the business concentrates on making lean products on cost efficient matters. R&D topics of these companies focuses mainly on automation, optimizing short runs, decreasing ink consumption, and simplifying the product concepts. The other group of printers is seeking for market share by attracting publishers. End product can be made more attractive through using for example new materials (paper, inks) and folding varieties, through heatset production processes or UV drying, or also perhaps personalized through integrated Inkjet printing systems. R&D of these companies is focused on any added value for current print products providing new possibilities for advertisers by creativity. This approach is a challenge in its wide range of possibilities and investments bind to certain choice. Added value is a competitive advantage as long as competitors cannot provide the same special effects on their products. Furthermore, added value products may easily turn into additional service and again into a requirement rather than a money-well.

The supplying industry does provide tools for the printing houses to help them succeed on the selected strategy whether it is based on the service, efficiency or the added value. The wide web printing press manufacturers focus their R&D in current production, flexibility, high production capacity, increased automation, high quality and also in added value applications. Environmental issues are taken into account as the trend requires. The increased capacity of the new presses has however produced a challenge for the manufacturers – fewer new high capacity presses are needed in the market to replace older ones. Wide web press manufacturers did not see digital printing as a threat due to different kind of end-product portfolio and lower volumes. Digital printing press manufacturers saw the future relative optimistic due to the wider range of new solutions available for digital presses.

Printing houses’ cost pressure reflects to printing ink manufacturers and in the same time ink raw-materials suppliers are choosing higher volume (and price) applications. Ink manufacturers R&D is therefore mainly focused on new materials and production efficiency. Plate and blanket manufacturers focus their R&D on environmental issues, like developing the chemistry free plates, reducing solvent in blanket production and recyclability of chemicals and waste.

All the interviewed parties highlighted the importance of co-operation in print production chain. Open communication and shared R&D projects with a joint goal were seen as the only way to compete against digital media. No-one was willing to take the development leap alone without the support from the other parties of the supply chain to either overcome or utilize the growing interest in digital media.
4 Outcomes

Results received from the interviewed actors in the European printing industry as well as the collected background information clearly stated challenges the printing houses are facing. Being in the centre of the whole value network the printing companies are cautious to redirect their business. Work for innovative new business concepts will be done only if printing companies see guaranteed pay-back value and commitment from customer. Despite this forerunners, who are both willing and capable of creating as well as launching new products, are needed.

Publication printing and printed media products are usually only one portfolio for materials and machinery suppliers, and in the long run they are able to adjust declining markets in Western Europe. For publishers and other media industry the content creation is their core business, and they utilize the delivery channels, which are optimal for the specific case.

Additional pressure on printing comes from the consumer side. The environmentally poor image of printed products makes people to believe that it is ecologically healthy to use digital media instead of printed matter. The consumption of high volume printing products has been reduced by the use of social media in reading and delivering news and other information.

Even though the above mentioned challenges are specific for printing houses, the brighter future can be built up only with loyal and inspired readers and with well working business networks. For the printed reading products to regain high acceptance from consumers, their image and functionality have to be reconciled with readers’ demands.

In this study VTT aimed to clarify various solutions the printing industry has, in order to navigate through this strait and survive. The relevant opportunity depends on several aspects, like the type and size of the company, and the strategy they want to follow. As a result of this study VTT could specify three different ways for printing industry to succeed with printing business.

The three approaches cover three specific cases. Each approach is based on the state of the art analysis and on the selected vision until the year 2020.

4.1 Efficient web printing production.

Vision: Total efficiency of print value chain via flexible production and effective materials usage.

The media experiences provided by digital sources are very versatile and consumption habits change constantly. In order the printed product to maintain its competitiveness, it has to provide same flexibility to content creators and readers that digital media offers, but in printed form. For this printing machinery needs to gain flexibility and ability to adapt various materials and formats. This change in printed media products sets new challenges also to production efficiency. Incremental improvements in process optimization, like automated processes for current production, do not serve the industry effectively enough in a long run. The same aspects as before need to be taken into account but now in more a complex environment. Therefore, the techniques developed for current production can be taken one step further to serve new production models.
According to VTT’s vision, fluent combination of different printing techniques enables versatile printed product portfolio in 2020. In a meanwhile, printing houses should offer wider range of materials for media uses. This again drives industry to utilize different printing methods simultaneously, but also shift substrate converting closer to end uses. Printing unit is designed to apply material on substrate and this ability can be utilized to modify the surface and not just to produce images on it.

Figure 1 Schematic roadmap for increased efficiency in print production.

In order to support printing industry in efficient print production, VTT is preparing a project to decrease ink consumption by modifying paper surface with a local ink hold-out aid. VTT is seeking for industrial and research partners to join this project.

4.2 Added value for the printed product.

Vision: Printed product is an independent interactive media, which offers concrete multisensory experiences and fluently links to other media.

Today interactivity is increasing its popularity also in printed media products. At the same time printed electronics is developed solar cell, display and power source purposes. According to VTT’s vision these two development roads will be combined in media products creating an opportunity for printing industry. Added value approach utilizes VTT expertise in fields of printed electronics, ICT, materials know-how and printing performance to make Harry Potter media products reality.
Roadmap 2: Interactive print product

- Printed product is an independent interactive media, which offers concrete multisensory experiences and fluently links to other media.
- Hybrid media technologies enabling the interactivity by using an external mobile device, 2D-codes and NearFieldCommunication as examples.
- Thin inexpensive power source.
- OLED and other thin and inexpensive displays.
- Customer databases.
- Augmented Reality.
- Substrate development.
- Material development of inks.
- OLED-technology.
- Customer databases.
- Augmented Reality.

New Product and Service concepts opening new business opportunities

Figure 2 Schematic roadmap for adding value to printed media products.

VTT already has projects on-going to ensure the first steps in field of added value. Projects, such as “Mermeid” on the use of Augmented reality and “Fumaga” on future magazine concepts, provide new means to use printed media. New technologies are already available and VTT supports companies in taking the leading role in commercializing new technologies in media products.

4.3 Printed non-media products.

Vision: Printing technology is widely utilized to manufacture non-media products. Those products might be stand-alone or integrated products, like pharmaceutical test strips or parts for solar cells.

Printing is a cost-efficient and flexible method to apply material on a surface. Today the method is for the most used only for image reproduction, but with the right material choices current machinery could be utilized to produce various non-media products. As mentioned earlier, printing is already utilized to produce electronics and diagnostic devices and according to VTT’s vision, the product portfolio could be enlarged further.
Figure 3 Schematic roadmap for printed non-media products.

VTT possesses strong experience in, for example, the field of printed functionality. In order to increase the usability of printing, VTT is preparing a project “ABC of Printed manufacturing”, which will give guidelines to the industry network and show business opportunities related to printed non-media products.

5 Conclusions

Even though the VTT’s approaches cover different types of products and production, some common features can be detected. All the approaches emphasize the importance of service elements. Regardless of the production type, service incorporated to delivered products increases added value, customer satisfaction and profits.

Technology is not usually the bottleneck, but it has to fit future requirements. The challenge seems to be the effective utilization of proven technologies. Important tools for that are multi-technology process integration, material development, automation and exploitation of business concepts. New competence is needed, which especially in small companies requires networking with research service providers.

The chosen vision might be reached by partnering networks and alliances with other printing companies. In some cases new players outside the printing business could be prone and better suited to innovative solutions. Bigger companies also have spin-offs, which are able to take higher risks.

Figure 4 shows the present dilemma, what the printing industry is facing, as well as tools and actions needed to develop new products and services.
As a conclusion, printing industry is facing challenges with current and traditional printed products. Media usage will change and so should publication printing industry. New technologies and services offer great new opportunities for skilled printing professionals and the only lacking skill seems to be courage.
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