

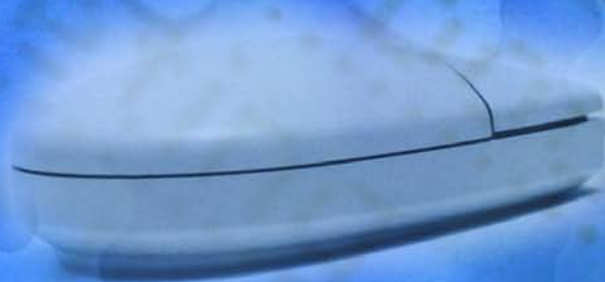
Sector Report No. 03-I (July 2005)

ICT and Electronic Business in the

Publishing & Printing Industry

Key issues and case studies

e-business
w@tch



European
Commission

Enterprise & Industry Directorate General

The e-Business W@tch

The European Commission, Enterprise & Industry Directorate General, launched the *e-Business W@tch* to monitor the growing maturity of electronic business across different sectors of the economy in the enlarged European Union, EEA and Accession countries. Since January 2002, the *e-Business W@tch* has analysed e-business developments and impacts in manufacturing, financial and service sectors. Results are continuously being published on the internet and can be accessed or ordered via the Europa server or directly at the *e-Business W@tch* website (www.europa.eu.int/comm/enterprise/ict/policy/watch/index.htm or www.ebusiness-watch.org).

This report is the first Sector Impact Study on electronic business in the publishing and printing industry published by the *e-Business W@tch* in the 2005 period. It builds on previous e-business studies in the Media and Printing Industry sector from 2002 and 2003. This study focuses on specific issues which were found to be particularly relevant for the sector at stake and features case studies on how companies use ICT for conducting business in this industry.

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Introduction to the *e-Business W@tch*

e-Business W@tch – observatory and intermediary since late 2001

The European Commission's *e-Business W@tch* monitors the adoption, development and impact of electronic business practices in different sectors of the economy in the enlarged European Union. The background of this initiative was the eEurope 2002 Action Plan, which provided the basis for targeted actions to stimulate the use of the Internet for accelerating e-commerce, acknowledging that "*electronic commerce is already developing dynamically in inter-business trading*" and that "*it is important for SMEs not to be left behind in this process.*" The eEurope 2005 Action Plan confirmed and built further upon these objectives with Action 3.1.2 "A dynamic e-business environment", which defined the goal "*to promote take-up of e-business with the aim of increasing the competitiveness of European enterprises and raising productivity and growth through investment in information and communication technologies, human resources (notably e-skills) and new business models*".

It is against this background that the European Commission, Enterprise & Industry Directorate General, launched the *e-Business W@tch* in late 2001. The objective of this initiative is to provide sectoral analysis based on empirical research, including representative enterprise surveys in countries of the European Union, the EEA and Accession States, with special emphasis on the implications for small and medium-sized enterprises (SMEs).

Since its launch, the *e-Business W@tch* has published more than 50 e-Business Sector Studies on 17 different sectors of the European economy, three comprehensive synthesis reports about the status of electronic business in the European Union, two statistical pocketbooks and various other resources (newsletters, special issue reports, etc). These are all available on the website at www.ebusiness-watch.org.

The quantitative analysis about the diffusion of ICT and e-business is based to a large extent on regular representative surveys among decision-makers in European enterprises. The 2005 survey covers more than 5000 enterprises from 10 different sectors across 7 EU member states. In addition, more than 70 case studies on e-business activity in enterprises from all EU, EEA and Accession countries are carried out, to complement the statistical picture by a more detailed analysis of current e-business practices.

Survey results of the previous years have confirmed the initial assumption and rationale of the *e-Business W@tch* that the sector in which a firm operates and the size of a company, rather than its location, are the main determinants of its e-business activity. The large demand for the various publications and statistics provided by the *e-Business W@tch*, and their exploitation by other research institutions (for example, in the EITO Yearbook 2003 and in the OECD Information Technology Outlook 2004), document the demand for sectoral e-business analysis. Facilitated by positive responses and the growing interest in its analysis, the *e-Business W@tch* is increasingly developing from an observatory into a think-tank and intermediary, stimulating the debate about the economic and policy implications of e-business among stakeholders at an international level.

The wide-angle perspective: *e-Business W@tch* provides the "big picture" as a basis for further research

The mission of the *e-Business W@tch* is to present a "wide-angle" perspective on e-business developments and practices in the sectors covered. This has important implications regarding the level of detail in which various issues can be explored, both in terms of the quantitative picture (survey) and in terms of the qualitative assessment and background research.

Over the past 10 years, "*electronic business*" has increased from a very specific to a very broad topic to be studied. The OECD proposes a definition of e-business as "*automated business processes (both intra-and inter-firm) over computer mediated networks*". This definition is useful as it makes clear that

e-business is more than e-commerce (which focuses on commercial transactions between companies and their customers, be it consumers or other companies) and that e-business includes internal processes within the company as well as processes between companies. Furthermore, the OECD definition implicitly indicates that the focus and main objective of electronic business is to be found in business process automation and integration, and the impacts thereof.

This implies that the potential scope for e-business analyses has also broadened. The measurement of e-commerce transactions (the volume of goods and services traded online) can and should be complemented by studies analysing the degree to which business processes, including intra-firm processes, are electronically linked to each other and have become digitally integrated. Hence, it becomes practically impossible to cover in depth all areas and facets of e-business in one study. Thus, study scope needs to be carefully defined.

The *e-Business W@tch* Sector Studies apply a wide-angle perspective and zoom into selected aspects of electronic business only. In general, studies with a wide-angle approach allow for a wider range of issues to be covered and investigated at the same time. This, however, necessarily limits the level of detail in which each single issue is explored. This must be considered when using the Sector Studies prepared by the *e-Business W@tch*.

The role of economic analysis in the Sector Reports

In addition to the analysis of e-business developments, the *e-Business W@tch* Sector Studies also provide some background information on respective sector. Following the configuration of the sector (on the basis of NACE Rev. 1.1 classification) at the introduction of each study, this overview includes some basic industry statistics, as well as information about the latest trends and challenges concerning the specific sector. Readers should not mistake this background information, however, as the main topic of analysis. An *e-Business W@tch* "sector report" is not a piece of economic research on the sector itself, but a **study focusing on the use of ICT and e-business** in that particular sector. The introduction to the sector is neither intended to be, nor could it be a substitute for more detailed and specific industrial analysis.

The data presented in each sector's overview are mainly derived from official statistics prepared by Eurostat, but are processed and refined by DIW Berlin. The purpose is to close the many gaps that occur in the official statistics, with missing data being imputed on the basis of extrapolations and own calculations.

The **mission** of the *e-Business W@tch* is to monitor, analyse and compare the development of e-business in different sectors of the European economy – not the sectors themselves.

Its **objective** is to provide reliable results, based on commonly accepted methodologies, which are not readily available from other sources and would trigger the interest of policy-makers, researchers, and other e-business stakeholders for more in depth analyses (or statistical surveys).

The *e-Business W@tch* has adopted a "wide-angle" perspective in its **approach** and the necessary trade-offs are transparently depicted in all its deliverables.

The definition of sectors and the adequate level of aggregation

Economic sectors constitute the main level of analysis for *e-Business W@tch*. In 2005, the sample consists of ten sectors. Their configuration and definition are based on the NACE Rev. 1.1 classification of business activities.

The rather broad aggregation of different business activities into sectors in 2002-2004 made it possible to cover a broad spectrum of the economy, but also caused some challenges for the analysis of e-business developments. For instance, it was hardly possible to focus on individual sub-sectors in much detail within a single sector report. The selection and definition of sectors proposed for 2005 reflect these concerns. Six out of the ten sectors proposed are sub-sectors that were part of

(aggregated) sectors analysed in 2002-2004. The rationale for "zooming in" on former sub-sectors is that the broad picture for the whole sector is now available from previous sector studies, and that this seems to be the right time within the prospective life-cycle of the *e-Business W@tch* to focus the analysis on more specific business activities.

The 10 sectors covered in 2005 were selected on the basis of the following considerations:

- The current dynamics of electronic business in the sector and the impact of ICT and electronic business, as derived from earlier *e-Business W@tch* sector studies.
- Interest articulated by the industry in previous years on studies of this type.
- Policy relevance of the sector from the perspective of DG Enterprise & Industry.
- Roll-out strategy of 2003: New sectors (not covered in 2002/03 and/or 2003/04) have been added, as well as specific industries which have only been covered as part of a larger sector in the past

In 2005, the *e-Business W@tch* will also deliver four cross-sector studies. These Special Reports will focus on a particular e-business topic of interest across different sectors rather than on a single sector.

The 10 sectors analysed in 2005

The 10 sectors which are being monitored and studied in 2004/05 include seven manufacturing, construction and two service sectors. Four of these sectors have been covered in the previous years of implementation, while the other six were covered as well, but as part of (aggregated) sectors analysed in 2002-2004.

Exhibit: Sectors and topics covered by *e-Business W@tch* in 2005

	Sector Studies	NACE Rev. 1	Publication date(s) *	
1	Food and beverages	15	July 2005	Sep. 2005
2	Textile industry	17, 18	July 2005	---
3	Publishing and printing	22	July 2005	Sep. 2005
4	Pharmaceutical industry	24.4	July 2005	Sep. 2005
5	Machinery and equipment	29	July 2005	Sep. 2005
6	Automotive industry	34	July 2005	---
7	Aerospace	35.3	---	Sep. 2005
8	Construction	45	July 2005	Sep. 2005
9	Tourism	55, 62.1+3, 92.3+5	---	Sep. 2005
10	IT services	72	July 2005	Sep. 2005
Special Topic Reports				
A	A User's Guide to ICT Indicators: Definitions, sources, data collection		July 2005	---
B	International Outlook on E-Business Developments		July 2005	---
C	E-Business Standards and Interoperability Issues		---	Sep. 2005
D	ICT Security and Electronic Payments		---	Sep. 2005

* There will be 1 report (in 2005) on 4 of the 10 sectors, and 2 reports on the other six.

Executive Summary

Scope of the study

This report analyses current developments and impacts of electronic business in the publishing and printing (P&P) industry. The sector covers business activities specified by Division DE 22 of the NACE Classification of Economic Activities, including publishers of books, newspapers, journals and periodicals, sound recording companies, and the printing sector.

E-Business Activity

The European P&P industry is in a state of flux. Information and communication technologies (ICT), and in particular the internet, have had a profound impact on business activities of firms in all sub-sectors of this industry. Impacts concern practically all areas of business activity, most importantly internal work processes (process innovation – cf. chapters 2.1 and 2.3), the products themselves (product innovation) and the distribution of products (cf. chapters 2.2, 2.4), marketing strategies and interfaces between companies and their customers in general (cf. chapter 2.4). Newspaper and magazine publishers in particular have already experienced substitution effects in advertising markets (e.g. migration of classifieds to the internet).

As a consequence, the sector is undergoing structural changes both in terms of organisational processes and with respect to the type of products and services that are produced, delivered, and consumed.

Publishing

As a general trend, publishing is becoming a complex, multi-channel, rich-media content delivery business. The core competence of publishers remains to collect and package contents into media products which are then marketed to readers and advertisers. Visionary forecasts from the mid 1990s that publishers would gain significant revenues from transaction fees for business conducted over their online platforms (in the way eBay does) have not materialised.

However, a vast majority of newspaper and magazine publishers maintain sophisticated websites which can have different strategic functions. Only in some cases, the online service has become profitable in itself (cf. case study *DerStandard.at* in this report). While a good deal of online content remains free for all, value-adding services tend to be subscription based (e.g. available to subscribers of the printed version), or have to be paid per item. Online advertising and online classifieds markets have gained momentum and constitute a business opportunity for publishers. However, publishing and advertising online may lead to channel conflicts and thus compete with existing business.

Printing

ICT have far-reaching implications for the organisation, operation, and management of printing activities (cf. case study *Finepress Oy*). The industry is changing role, from mere manufacturing to full-scale service provision. Print management backward-integrates into publishing as well. Digital technology is a key driver of innovation in this industry, as practically all solutions are becoming digitally integrated. This ranges from digitally generating and printing (e.g. regional and local newspapers) to digital post-press activities. Moreover, conventional printing technologies face disruptive digital technologies and services, such as e-book or print-on-demand services (cf. case study *PubEasy*), and end-user devices. The market for such digital printing services is still small but growing.

Conclusions

From a broad perspective, companies in the P&P sector are confronted with the challenge how to handle "convergence management". Convergence and its economic and regulatory implications have been widely discussed since the mid '90s. The development is far from being completed. The current developments in the P&P industry, and the further evolution of electronic business in this sector, are driven by the fast proliferation of new technologies (e.g. in printing, online editing systems) on the one hand, and changing patterns in consumer behaviour on the other. As a result, companies have to cope with technical complexity, changes in their value chain, increased competition in the advertising market, the erosion of traditional business models, and organisational change.

Notwithstanding these challenges, there are ICT and e-business related opportunities for companies from this sector. This includes improving the workflow-management, the fast growth in online advertising, and new digital delivery models (such as print-on-demand, see case study on CardCorp). For exploiting these opportunities, publishers of print media have to take a variety of strategic decisions, for instance on cross-media publishing, channel diversification, and whether to enter the emerging but highly uncertain mobile commerce market. Similarly, publishers of recorded media are seeking strategies how to integrate internet-based delivery in their business models, with many uncertainties regarding the future development (e.g. digital rights management issues).

Policy Implications

In some areas electronic business developments may have implications for European or national policy. Issues to be considered concern in particular the role of media in society and competition policy.

Policy objective	Concerns and suggestions
Ensure the high quality of publishing in Europe, acknowledging the role of media in society	<ul style="list-style-type: none"> • Counteract e-business skill-shortages in the sector, e.g. by monitoring their demand and supply • Monitor and assess implications of electronic publishing developments on existing media regulation (e.g. subsidies for print media, legal status of e-books) • Carefully weigh concerns of ensuring free trade versus concerns about cultural identity
Ensure fair competition, counteract market failure	<ul style="list-style-type: none"> • Monitor concentration of ownership in the publishing industry, including a consideration of online services • Create an adequate framework for digital rights management • Consider impacts of possible changes in VAT regulation on the publishing industry

Industry background

The P&P industry (NACE 22) generated a production value of more than 238 billion EUR in the EU-25 in 2001 (Eurostat New Cronos) and employed about 1.9 million people (excl. Poland, Slovenia). Thus it is not a huge sector compared to others such as construction, retail or business services. However, the special importance of the media industries is not only constituted by their economic activities, but also by their important information function for supporting democracy and culture.

The sector has not been unscathed by the economic industry downturn since 2001. In particular, publishers have experienced a decline in advertising revenues, when many companies (and especially the former stars of the new economy) had to drastically cut down on their advertising budgets.

e-Business in the Publishing and Printing Industry: Major Trends and Business Challenges

1 Introduction

This study explores the development and implications of ICT and electronic business in the P&P industry. It builds on previous e-Business sector studies 2002 and 2003, published by the *e-Business W@tch* on the "media and printing" industries, which had a broader scope as they also included broadcasting. This report focuses on specific issues that were found to be particularly relevant to the sector in question. The analysis is supported by case studies of ICT and e-business activity in specific enterprises, drawn from expert interviews with selected companies. A second report, to be published later this year, will focus on quantitative aspects of ICT adoption and use in enterprises.

The conclusions in this report highlight the main business implications of ICT and e-business for small and medium-sized firms in the sector. In addition, important drivers for the development of electronic business in this industry for the next 2-3 years are presented. Finally, the study indicates ICT-related policy challenges.

Study structure

This report is organised in five main chapters and three annexes:

Chapter 1	<ul style="list-style-type: none"> introduces the objectives and the scope of the study provides an overview of main results from earlier reports by <i>e-Business W@tch</i> on this sector. reviews assumptions about the development of electronic publishing from the late 1990s, assessing to what extent they have materialised.
Chapter 2	<ul style="list-style-type: none"> analysis of key application areas of e-business developments currently affecting the European P&P industry features case studies
Chapter 3	<ul style="list-style-type: none"> draws conclusions on business opportunities and risks for SMEs in the sector features a brief outlook on market and technological trends that are likely to shape the development in the next 2-3 years
Chapter 4	<ul style="list-style-type: none"> ICT related implications for policy
Chapter 5	<ul style="list-style-type: none"> provides some background information on the P&P industry, focusing on industry trends and business challenges features some macro-economic statistics on the sector, based on the New Cronos database of Eurostat, focusing on structure, production value, employment, productivity, and labour cost.
Annex I	<ul style="list-style-type: none"> an overview of the main online revenue sources and business models
Annex II	<ul style="list-style-type: none"> a glossary of ICT related abbreviations and technical terms from the field of publishing and printing
Annex III	<ul style="list-style-type: none"> provides a list of experts interviewed for this study

1.1 Scope of the study

Sector definition

Business activities covered by the P&P industry are defined under Groups 22.1 ("publishing") and 22.2 ("printing and service activities related to printing") in the NACE classification of economic activities (NACE revised version 1.1 – final draft 2002).¹

Business activities subsumed under NACE 22.1 (Publishing) include publishing of books, newspapers, journals and periodicals, of sound recordings, and other publishing.

Activities in NACE 22.2 (Printing) refer to all economic activities surrounding the manufacturing and servicing of identical copies of written or graphic material by means of mechanical devices or digital hard- and software technologies and infrastructures. This includes printing of newspapers, bookbinding, and pre-press activities.

Exhibit 1-4: Business activities for the P&P industry (NACE Rev. 1.1)

NACE Rev. 1.1	Business Activity
DE 22	Publishing, printing and reproduction of recorded media
22.1	Publishing
22.11	Publishing of books
22.12	Publishing of newspapers
22.13	Publishing of journals and periodicals
22.14	Publishing of sound recordings
22.15	Other publishing
22.2	Printing and service activities related to printing
22.21	Printing of newspapers
22.22	Printing of n.e.c.
22.23	Bookbinding
22.24	Pre-press activities
22.25	Ancillary activities related to printing

The report does explicitly *not* cover the following business activities which are closely related to the P&P industry:

- Printing in the packaging industries (Group 74.82 of above NACE Division 74).
- All downstream distribution channels for content on physical media types (print, video, CD, DVD) such as wholesale or resale of such products (part of NACE 51 and 52, respectively) or video rental (NACE 71.40).
- Upstream hardware supply of printing (ink, paper, etc.).

Some statistical problems result from the traditional structure of the publishing industry. Individual authors, if they contribute as freelancers, are included in NACE 92.31 and are not part of the publishing industry. This must be kept in mind in the subsequent analysis, as freelance working is of significant importance in the sector considered in this report. Not included in this report, but an important creator of content, are news agencies (NACE 92.4).

¹ NACE Rev. 1 is a 4-digit activity classification which was drawn up in 1990. It is a revision of the 'General Industrial Classification of Economic Activities within the European Communities', known by the acronym NACE and originally published by Eurostat in 1970.

The P&P industry issues books, music, photographs, maps, or other printed materials for sale to the public. This usually includes negotiating contracts with authors and their literary agents, editing the author's manuscript, designing the physical item (typography, layout), producing the finished product (printing, binding), marketing the work, and making arrangements for its distribution through regular market channels. Printing is thus seen as an integral part of the publishing industry supply value chain.

Industry background

The P&P industry (NACE 22) generated a production value of more than 238 billion euros in the EU-25 in 2001 (Eurostat New Cronos) and employed about 1.9 million people (excl. Poland, Slovenia).² Thus it is not a huge sector compared to others such as construction, retail or business services.

However, the special importance of the media industries is not only constituted by their economic activities, but also by their important information function for supporting democracy and culture. The sector has not been unscathed by the economic industry downturn since 2001. In particular, publishers have experienced a decline in advertising revenues, when many companies (and especially the former stars of the new economy) had to drastically cut down on their advertising budgets.

1.2 Macro-trends

Information and communication technologies (ICT), and in particular the internet, have had a profound impact on business activities of firms in P&P industries. They have brought structural changes on both industry and firm level. As noted by the OECD (2004a), "... companies continue to invest in e-business solutions. To meet increased competition, they adopt various ICT-enabled changes: more sophisticated and rapid use of information; a streamlining of business processes, often accompanied by a transformation of the value chain (outsourcing, use of ICT in manufacturing, global sourcing, new network organisation structures, etc.); the use of e-business software (such as customer relationship management – CRM); and a change in the ways in which firms interact with suppliers and customers" (p. 106). Although these comments were made at the general level, they are well applicable to many companies from the sector under study.

A main reason why ICT are so relevant for this sector is that most of the services it produces can be digitised. Consequently, there is a huge innovation potential for producing these services and for delivering them to the customer. Therefore, this study focuses on new production and delivery models. The new business practices that emerge as a result of digitisation can be mapped against some general concepts and trends that have been widely discussed within the industry, and partly also in policy contexts, in recent years.

In particular, the concepts of convergence, channel diversification and cross-media publishing constitute a useful analytical framework that helps to understand current developments in the industry:

Convergence and substitution effects in the media industries: the term convergence refers to the creation of synergies, disappearance of industry boundaries, and the integration or overlapping of markets. Convergence can consequently be studied from different angles; in particular, technical convergence (driven by digitisation of information and communication) and industrial convergence (of the ICT and electronics industries) have been widely debated

² See chapter 5.2 (background statistics).

in terms of business and policy implications.³ Convergence can either drive substitution effects or facilitate the entry of new competitors, as digitisation of products reduces market entry barriers. For example, the internet has slowly but steadily eaten into the role of TV and magazines as information channels for travel, jobs, and property. Traditional media hold a strong position for news and sports but are likely to lose more share as Europeans move to broadband.

Channel diversification: Digitisation enables publishing companies to use electronic distribution channels in addition to the traditional way of selling printed newspapers, magazines, books etc. The concept of "channel diversification" thus refers to the use of new technologies and processes such as online publishing, digital printing, personalized electronic newspapers, Digital Terrestrial Television (DTT), or the use of mobile devices.⁴ However, results so far are mixed. Some newspaper publishers have consequently cut down on ambitious online projects as the anticipated revenues have not materialised. On the other hand, publishers cannot ignore the new channels and the changing user behaviour, for example among young people.⁵

Cross-media publishing: Although closely related to channel diversification, this concept focuses on content production processes rather than on distribution to customers - digitisation being again the underlying enabler and driver. Cross-media publishing means that text-based content can be produced for various media from one single data source. Content management systems (CMS) allow content to be directly produced by editors in various formats (HTML, XML, WML). Text is simply inputted in templates and can then be published in different layouts and on different media as well as exported to other formats. In large publishing companies, CMS are supplemented by digital asset management systems (DAM) that manage the digitisation, storing, indexing, and retrieval of content.

Customisation: Customisation is the process of delivering goods and services that are customized to satisfy a specific customer need. Firms talk to individual customers to determine the precise product offering that best serves the customer's needs. This information is then used to specify and manufacture a product that suits that specific customer. In the P&P industry, for example, digital printing technologies are introducing increased levels of flexibility into the print production process, facilitating the creation of localised publications and, increasingly, customer-tailored publications.

SME – the need for cooperation: Small and medium-sized enterprises (SMEs) may find market entry to online markets difficult as they lack the necessary resources to invest in ICT and e-business solutions. The P&P industry is characterised by a great number of small companies equipped with very basic, frugal information technology. For the majority of less-well equipped SMEs cooperation is indicated as a strategy to stay in the market.

³ The European Commission's "Greenbook on convergence in the fields of telecommunications, media and IT" (1997)³ has been a milestone in this debate in the European context.

⁴ For an interesting discussion on the topic, see the report "Shaping the Future of the Newspaper" from the World Association of Newspaper publishers (WAN).

⁵ Media statistics on "time budgets" (= media consumption measured as minutes per day) show that the time budget for reading daily newspapers decreases significantly among young people (particularly in the age group of 16-29 years). The internet is believed to be a major cause for this decline.

1.3 Previous sector studies by *e-Business W@tch*

Previous e-business sector studies undertaken by the *e-Business W@tch* on the media and printing industries in 2002⁶ already confirmed the "profound impact of digitisation" on these sectors, and that they were "undergoing structural changes" (*e-Business W@tch* / European Commission, 2002/2003). Impacts concerned organisational processes, but also the type of products and services which are produced:

- **Organisational changes:** ICT change the workflow and value chain within and between companies. Steps in the value chain can become obsolete or are conducted by other actors in the company.
- **New products:** Traditional products (such as classifieds in newspapers) are substituted by internet-based ones, with severe implications for traditional business models.

The reports pointed at new business opportunities that were emerging and the requirement for many companies from the sector to develop new strategies. For example, printers can offer print-on-demand or small-scale printing. Publishers can diversify into content syndication or e-commerce.

However, it was also pointed out that most of these new business models still had to prove their viability. It was not clear for what types of new services customers were eventually willing to pay in the online environment. Moreover, copyright issues were seen as a sector-specific challenge in this context.

Companies themselves perceived impacts of their e-business activities in a similar way as firms from other sectors (*e-Business W@tch*, 2002). The strongest impact of e-business was seen in the area of internal work processes. Impacts on the organizational structure and internal work processes were considered relatively more important in large enterprises.

The relative importance of ICT in the sector compared to other industries can be visualised by the E-Maturity Index and the e-Business Scoreboard (Exhibit 1-1).⁷ The "e-Business Scoreboard" approach was developed by the *e-Business W@tch* in 2004. It is an instrument to **compare and visualize the intensity of ICT use** and e-business activity across different sectors, countries or size-bands, and in different areas of business activity. The Scoreboard builds on an earlier pilot by *e-Business W@tch*. In 2002 and 2003, a compound indicator was presented for sectors based on (a proxy to) the methodology of the eEurope 2005 e-Business Index. Data were taken from the e-Business Surveys 2002 and 2003. This index had two dimensions (ICT infrastructure, and ICT use for e-business). The new Scoreboard keeps the "infrastructure" dimension, but looks at "ICT use for e-business" from three perspectives.

The Index confirms that media and printing companies tend to be rather extensive users of ICT. The use of the internet for marketing and sales was already a key e-business objective for many media companies. A website was practically a must, and about 25% of firms (by employment) reported using a Content Management System (compared to 16% on the weighted average) back in 2002. Firms from this sector also had a higher propensity towards selling their products online (26%) than in most other sectors (17% on average) studied by the *e-Business W@tch*. However, 75% of these companies said that they were making less

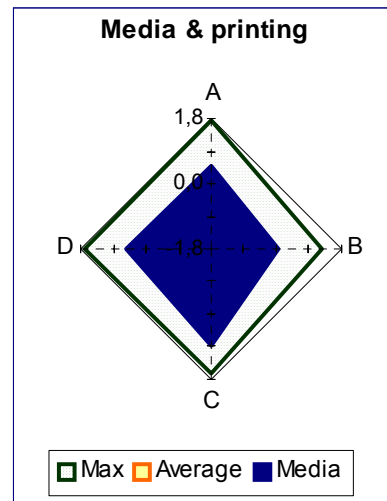
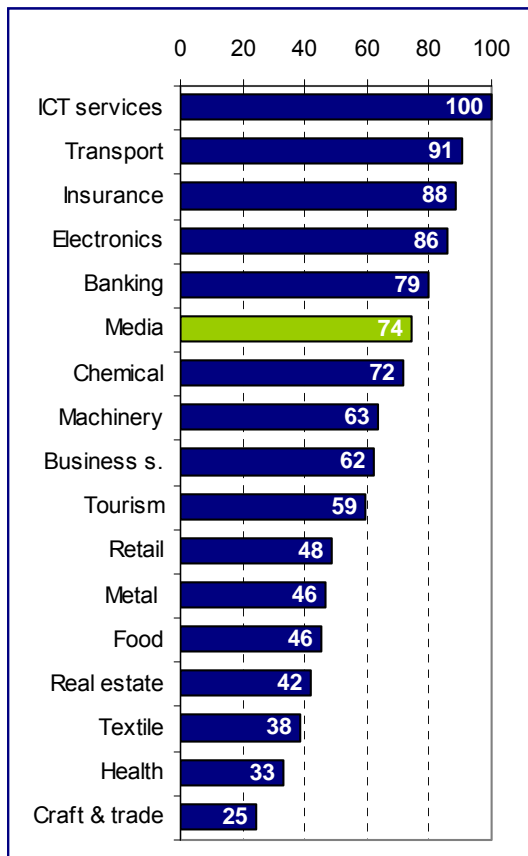
⁶ e-Business Sector Study on the Media and Printing Industry, October 2002. www.ebusiness-watch.org ('resources').

⁷ Further information on composition and methodology of the E-Maturity Index and the Scoreboard can be found at www.ebusiness-watch.org ('about') and in the methodology annexes of the forthcoming, second report on P&P (Sep. 2005).

than 10% of their total sales online. Electronic procurement, although limited to just a few types of inputs (many inputs cannot be fully standardised and this is a barrier to e-procurement in this sector), was also used more than in other sectors (53% compared to 42% on average).

New and updated statistics on the diffusion of ICT and e-business, based on the e-Business Survey 2005, will be presented in the 2nd issue of this report (due by September 2005).

Exhibit 1-1: E-Maturity Index



Both graphs are compound indicators, based on 16 component indicators from 4 dimensions:

- A = ICT infrastructure
- B = Internal business process automation
- C = Supplier-facing e-business activity
- D = Customer-side e-business activity

Average = Mean value of all sectors.

Blue diamond = values for the respective sector.

Scale: Distance to the mean value (= 0) measured by multiples of standard deviations.

Source: e-Business Surveys 2002 / 2003 (depending on sector)

1.4 Earlier scenarios for electronic publishing

The importance of ICT, and in particular of the internet, for the P&P sector has long been recognised by European policy. Already in the mid 1990s, the European Commission had issued market studies on electronic publishing, for example in the context of the Info2000 Programme (1996-2000). The resulting studies were widely distributed and proved to be important documents for guidance and understanding of the developments. In 2003, the Enterprise and Industry Directorate General launched the "Publishing Market Watch", a 12-months project analysing the competitiveness of the European publishing industry.⁸ Publishing Market Watch presented four sector reports for the newspaper, magazine, book-publishing and directories segments.

As a starting point for the analysis of e-business implications on P&P (chapter 2), this chapter briefly reviews the main results of these earlier scenarios and studies. It explores to what extent earlier assumptions of the mid 1990s have materialized, and the main conclusions of the recent reports by Publishing Market Watch. The points of reference are the following market studies:

- The "**CONDRINET**" study ("Content and Commerce Driven Strategies in Global Networks – Building the Network Economy in Europe"), conducted by Gemini Consulting within the Info 2000 Programme (1998), and the "**EL PUB 2**" study ("Strategic Developments for the European Publishing Industry Towards the Year 2000"), conducted by Andersen Consulting within the Info 2000 Programme (1996/97)
- The recent sector reports by **Publishing Market Watch** (2004) on the newspaper industry, the magazine industry, and on book publishing.

The crisis of the publishing industries

The EL-PUB 2 market study on the European publishing industry pointed at the difficult situation of this sector. Traditional print publishing, and newspaper publishing in particular, were found to be **declining industries** on the macroeconomic level. Print advertising markets were seen as saturated, and sales revenues would not be able to compensate for stagnating advertising revenues (Baubin & Hofbauer, 1997, p. 26). This assessment is still valid in 2005, although it is very broadly stated and, obviously, does not equally apply to all niche markets. A good indicator for visualizing the long-term market development is the figure for total circulation of daily newspapers in Europe. Graphs showing the development of circulation since the 1950s tend to have a striking resemblance to the classical life-cycle curve for products, showing stagnation and even signs of decline since the mid 1990s.⁹

The stagnation in the market for readers (measured by circulation) goes hand in hand with the development in the advertising market. However, for a short period of time, it appeared that the crisis of the mid 1990s would be overcome: publishers benefited greatly from the new economy boom, when newly founded companies as well as existing ones spent enormous amounts on advertising in magazines and newspapers. As is well known, the boom came to a sudden end in 2001. The burst of the dot-com bubble had significant implications for advertising markets and, thus, for the publishing industry. Most newspapers had to face a substantial decrease in the volume of advertising and classifieds after 2000. A study on the Germany daily newspaper market, for example, found that trans-regional,

⁸ For more information about Publishing Market Watch, and for downloading the sector reports, see <http://www.publishing-watch.org>. The studies were carried out by Rightscom, a consultancy based in London, with contributions from the Turku School of Economics and Business Administration (Media Group) in Finland.

⁹ Publishing Market Watch confirms the steady decrease in circulation, see Sector Report 1: The European Newspaper Market (2004): "Circulation is either static or falling in most EU member states, and has been for some years. Declines are steady rather than dramatic" (p. 7; p. 90f.).

subscription-based daily newspapers experienced a decrease of up to 75% of employment related classifieds from 2000 to 2003 (Mayer-Lucht, 2003). The study identified this decline as a major reason for the economic crisis of the newspaper industry.

While the evidence presented in the paragraphs above mainly refers to the newspaper industry, similar observations could be made for magazine and book publishing, albeit the general background and situation in these industries is less homogeneous.

Implications for e-business¹⁰ based delivery strategies

Against this rather gloomy economic background, and with a view to the fast deployment of the internet and digital consumer technology, one of the key questions that emerged was to what extent paper-based production would be either substituted or enhanced by digital formats (which includes physical media such as CDs or DVDs and online publishing). In 1997, the book, periodical and newspaper markets were estimated to earn more than 95% of their total revenues from paper-based products (Blunden & Blunden, 1997, p. 8). There were different views to what extent these revenues would migrate towards digital products, and to what extent publishers could participate in these new markets themselves, to defend their revenues against new entrants.

Notwithstanding the many challenges involved, the EL-PUB 2 study presented a quite **optimistic scenario** for publishers in the digital era. One of the main underlying arguments was that publishers were "*in a **strategically strong entry position***", as they possessed "*the most important competency which is not also possessed by many competitors in EP [electronic publishing]: the competency to develop, manage and organise content.*" Therefore, publishers could become forerunners in the new media markets. (Baubin & Hofbauer, 1997, p. 26). It was assumed that this strategic advantage could compensate for a decrease in traditional market segments, as electronic publishing would increase the value of services.

Against this background, the summary of the EL-PUB 2 study features **10 theses** how the new, electronic publishing markets would evolve and on strategic implications for publishers. These theses are revisited in Exhibit 1-2, with an assessment from today's perspective, i.e. about 8 years after their initial presentation. It can be seen that these earlier assumptions proved to be right (or mostly right) in six out of 10 points, but were wrong in a few – albeit critical – points. One of the main issues where the study was wrong was that publishers would gain significant revenues from transaction fees, that is by acting as a third party between sellers and buyers in the electronic marketplace, which is an issue discussed in more detail in the report at hand.

A much debated issue since the second half of the 1990s has been the emergence of "**online communities**" (see thesis 7). The recommendation that publishers should focus on creating such communities of interest was taken up – and confirmed – by the CONDRINET study in 1998. This study, which presented an assessment of general (content driven) opportunities for businesses in the networked society, concluded that businesses "*must adjust to the changes that are occurring and act now to capture opportunities rather than simply wait for and react to the outcome*" (EC DG XIII, 1998, CD-ROM, "Summary" section).

This led to an important conclusion and strategic implication for publishers: Ultimately, so the reasoning, publishing would become a unique "*conglomeration of content, communication and commerce*" and allow publishers "*to build attractive, highly targeted user communities*" (Bruck P. / Selhofer H., 1997, p. 117). This scenario has materialised for some companies.¹¹

¹⁰ The term "e-business" as used by the *e-Business W@tch* is broader than the term "electronic publishing" (EP) as used by the EL-PUB 2 study of the EC. Electronic publishing refers to content delivery channels, while "e-business" also encompasses internal work and production processes. In the *e-Business W@tch* conceptual framework, "EP" would largely correspond to customer-facing e-business processes.

¹¹ See, for example, case study on Grada Publishing in this report.

Exhibit 1-2: 10 theses on the development of electronic publishing revisited: 1997 – 2005

Theses according to EL-PUB 2 study (1997)		Assessment against the market situation in 2005	
1	<i>Electronic publishing (EP) is pace-maker for the information society</i>	↑	The internet has become an essential communication channel for democracy, in education, government and business.
2	<i>EP scepticism is ruinous for publishers, as it is the only chance for a majority of publishers to have sustained success</i>	↙	Difficult to prove. It is true that a majority of publishers has engaged in some digital activity (e.g. online publishing of parts of the content), but traditional services have remained the core business for most book, magazine and newspaper publishers.
3	<i>The key technology for the mass market after the dial-up modem will be digital TV, rather than on-demand multimedia infrastructure</i>	↓	Has not yet materialised. Deployment of Digital TV is slow compared to broadband for internet access. Multimedia is still "pull" rather than "push"-driven.
4	<i>Consumers will not significantly increase their time and media budgets and only use EP services if they have a significant perceived added value</i>	↗	Consumer have increased their time budgets for media consumption; however, user behaviour has changed, and parts of the "additional" budget is linked to using media in parallel (e.g. television, internet). It holds true that multimedia services are rejected if they fail to deliver a clear added value (see, for instance, the limited success of WAP based mobile services, as well as the selective use of online services).
5	<i>Rich content and functions, and interactivity, are key EP product features for consumers</i>	↑	Holds true as a general rule. A good example are CD versions of books: These are successful in particular in scientific segments and for directories, where hypertext navigation and search (cross-references) have the highest importance.
6	<i>EP will enable a diversification of the traditional publishing industry. Transfer of core competencies from print to EP markets is a critical success factor.</i>	↙	A significant transformation, or diversification of the publishing industry cannot be observed. The main "diversification" has been in online publishing. Segments in traditional publishing, however, have largely remained the same.
7	<i>EP enhances customer relations and building brand oriented "communities"</i>	→	This is certainly a main impact of the internet on publishing. Customer service, and peer-to-peer activities (e.g. commenting on articles in the online editions of newspapers), have become an important aspect. EP has become important for customer loyalty in specific segments.
8	<i>The traditional revenue sources (subscription, advertising) will be supplemented by transaction fees.</i>	↓	An important forecast that has not materialised in a substantial way for the majority of publishers. Only exceptionally, publishing companies are operators of e-marketplaces.
9	<i>Publishers are confronted with strong new competitors in the EP market.</i>	↑	Holds true, although publishers are themselves major players in the multimedia industry. Still, new online service providers are competing with publishers for audience attention and advertising budgets.
10	<i>The EU requires a focused and coordinated media and telecommunications policy for ensuring its competitiveness.</i>	↑	The regulatory environment has changed significantly since 1998, e.g. the liberalisation of the telecommunications industry, and subsequent directives (e.g. on digital television).
↑ = confirmed; ↗/↙ = rather confirmed / rejected → = partly confirmed; ↓ = has not materialised			

Source: Developed from European Commission (1996): Electronic Publishing. Strategic Developments for the European Publishing Industry towards the Year 2000. Executive Summary.

Implications of internet and of new technologies on the publishing industries were addressed in the recent (2004) sector studies of the EC's **Publishing Market Watch** project (PMW).¹² The authors' assessment is briefly summarised in the following paragraphs.

The impact of the internet on newspaper and magazine publishing: more risks than opportunities

The PMW sector report on the newspaper industry concludes that current business issues the industry has to face "*arise mainly from **competition with other media** than from competition between newspapers*", and that "*these structural issues will have the longest-term effect on the industry*" (p. 9). In fact, internet-related developments are found to play a relevant role in this context. For example, the report points at evidence that more time is already spent using the internet than reading magazines, and that broadband diffusion could further promote this trend.¹³

By and large, this assessment may have a rather sobering effect for newspapers and magazines. As regards their own online activities, the report concludes that only few online services of newspapers are profitable. Newspapers still **continue to experiment** with these services, for example with collaborative ventures to create platforms for the delivery of classified advertising.

On the other hand, the study confirms that newspaper publishers have to face new competition due to online services by other providers. For example, several industry experts interviewed for the study regard the significant **web presence of public service broadcasters** as the "key industry development" for their business.¹⁴

PMW also warns that newspapers and magazines must also be concerned about **online advertising**. While display advertising has not yet provided a sustainable business model for themselves, it still has the potential to erode conventional newspaper advertising. Classified advertising in particular was found to be under threat.¹⁵

In summary, the challenge both for newspapers and magazines is that they can presently hardly gain any profits from the internet,¹⁶ but have to maintain an attractive online presence nevertheless because their readers increasingly expect it. The situation presents itself as a kind of prisoner's dilemma, where competitors' strategies are determined by collective behaviour.

There are some advantages to be gained from the internet for newspaper and magazine publishers, though. For example, magazines that have a significant web presence were found to do "*in order to build direct interactive relationships with readers that both extent the brand and allow the publisher to collect demographic and behavioural information about readers.*"¹⁷ Another opportunity is the collaboration with partners in merchandising. However, it remains difficult to quantify (or monetise) the benefits and value of such relationships and collaborations.

¹² See: www.publishing-watch.org. Note that the objective of these studies was to analyse the development of the EU publishing industry from a broad perspective, and to draw conclusions on its competitiveness, rather than focusing on ICT or e-business in particular. Relevant issues have been addressed, however, in terms of their implications for the industry.

¹³ cf. PMW Report 3: The European Magazine and Journal Market, p. 79.

¹⁴ cf. PMW Report 1: The European Newspaper Market, p. 101.

¹⁵ *ibid.*, p. 102; PMW Report 3: The European Magazine and Journal Market, p. 80.

¹⁶ There are exceptions to this rule, however; see, for example, case study on DerStandard.at in this report.

¹⁷ PMW Report 3: The European Magazine and Journal Market, p. 81.

The impact of new technologies on book publishing: yet to be seen, although emerging

The PMW sector report on book publishing discussed business implications of ICT for this industry. With regard to **e-books**, the report states that these have not yet been successful in the European market, and that "*the impact of dedicated e-book platforms has yet to be seen*".¹⁸ Consumer electronics companies are still using different file formats. This is a situation that resembles the VHS / Betamax competition in the early days of video. Moreover, publishers are afraid of file-sharing services. However, as e-books have lower per-copy production costs than printed books, PMW concludes that they could have a potential in specific niche markets, for example in the academic and educational markets. They could become a lower-cost substitute for printing scientific publications, which have typically low circulations and are therefore expensive in printing.

For **print-on-demand** services, PMW finds that these are now becoming established in the market. As with e-books, the educational sector might be the first sector to make substantial use of this technology. Print-on-demand is used mainly for single-copy printing and for titles with a very low circulation, e.g. less than 100 copies.

As regards the internet, PMW concludes that most book publishers have seen their online activity as essentially a form of marketing and sales. Educational publishers have used online platforms to deliver additional content to teachers and students.¹⁹ The business impact for book publishers that use online distribution in a substantial way should not be underestimated, though. The case study on Grada Publishing in this report shows how online marketing and sales can have a significant (positive) impact on customer relationship.

Summary: from electronic publishing to electronic business – a broader perspective

In summary, the findings of the studies reviewed above point an ambivalent picture of the impact of the internet and new technologies. On the one hand, the internet presents considerable **risks and challenges** for publishers. Competition both for advertising budgets and for users' "time budgets" increases. On the other hand, online activities provide **opportunities** for publishers to enhance customer service and to support the brand. For a majority of newspaper and magazine publishers, it appears that online activities have not had a significant impact on the basic underlying business models. The situation may be different in the markets for scientific and educational publications, where online delivery (e.g. to libraries) has greatly changed the distribution mechanisms and – to some extent – the subscription models.

Based on these considerations, this report by the *e-Business W@tch* looks at electronic business developments from a different, broader perspective. It is uncontested that digital delivery of contents as an alternative or additional distribution channel (see macro-trends in chapter 1.2: "channel diversification") is important and has possible implications for all segments of publishing. Therefore, analysis in chapters 2.2 and 2.4 of the report at hand deals with e-trading in the book industry and online publishing.

A major impact of ICT on the sector, however, is to be found in internal work processes. This report dedicates, therefore, much of its attention to digital workflow developments in printing (chapter 2.1) and in newspaper publishing (chapter 2.3).

¹⁸ PMW Report 2: Book Publishing, p. 81.

¹⁹ *ibid.*, p. 82.

2 Key application areas of e-business in 2005

This chapter focuses on key application areas of ICT within the P&P industry which have been identified as particularly relevant for the sector. Analysis is based on desk research, interviews with industry experts and makes use of case studies of e-business activity in specific firms. The focus is on small and medium-sized enterprises (SMEs) in Europe.

ICT and e-business are relevant for nearly all core business areas of the P&P industry. The issues analysed in this chapter, however, as well as the case studies presented, cannot cover all aspects of this complex field. Four key issues relating to technological and economic impact on corporate business activity in the P&P industry have instead been selected as representative examples of current ICT and e-business practice, to illustrate the related opportunities and challenges. This selection was based on the following criteria: it covers the use of ICT for internal processes within companies as well as collaborative aspects between them. Secondly, it includes analysis of ICT adoption for e-business from both P&P sub-sector perspectives. Finally, analysis extends to both business models and sell-side aspects of change in response to changes in the market. The four issues are as follows:

- **Digital Workflow in Printing and Print-on-Demand:** Chapter 2.1 briefly discusses main technology drivers in the printing industry. It focuses on two key issues: implementation of integrated workflow in digital printing and print-on-demand as innovative e-business technology in the sector.
- **Electronic Trading in the Book Industry:** Chapter 2.2 discusses key issues of electronic trading in the book industry. It looks into current technology trends against the background of increased market pressures in the book industry. It presents two case studies on ICT-induced change in the book industry in Europe and illustrates successful B2B e-trading solutions in this publishing industry segment.
- **Digital Workflow Management in Newspaper Publishing:** Chapter 2.3 portrays the issue of workflow process innovations in the newspaper publishing industry sector. The business example presented focuses on ICT-induced changes in the newspaper industry and illustrates the potential of a new publishing workflow system to make the production workflow more flexible and efficient.
- **E-Selling Models for Publishing:** Chapter 2.4 illustrates sell-side activities of publishers of newspaper and book-type publications. It shows how publishing companies successfully apply the internet and e-business solutions as selling and revenue-generating tools as well as a loyalty improving and community-building communication channel.

The case studies, summarised below in Exhibit 2-1, together with information from secondary literature, build the basis for the initial conclusions and policy implications presented in the chapters 3 and 4 of this report. Together with fresh statistical data, to be published in the second part of the report (due by September 2005), they will be used to contribute to the overall conclusions and complete the presentation of relevant policy challenges.

Exhibit 2-1: Case studies presented in this report

Chapter	Title and Purpose
<p><i>Chapter 2.1:</i> Integrated MIS in printing</p>	<p><i>Case Study: Finepress Oy</i> – Implementing an integrated Management Information System (MIS) in Printing</p> <ul style="list-style-type: none"> • Insights into problems of business process change initiated by integration of a new MIS system in digital printing. <p><i>Case Study: Cardcorp.co.uk</i> – lead case in digital print-on-demand of business prints</p> <ul style="list-style-type: none"> • Example of customisation through digital print technologies. • Potentials for inclusion of customers into value webs.
<p><i>Chapter 2.2:</i> B2B e-trading solutions in book publishing</p>	<p><i>Case Study: Nielsen BookNet</i> – E-trading for Bookshops.</p> <ul style="list-style-type: none"> • Insights into latest technology trends affecting the book industry as a whole, as well as in the strategies of innovative players in this sector segment. <p><i>Case Study: PubEasy.com</i> – Enhancing Supply Chain Efficiency in the Book Marketplace</p> <ul style="list-style-type: none"> • Analysis of supply chain efficiencies through application of e-business technologies and processes.
<p><i>Chapter 2.3:</i> Digital workflow management in newspaper publishing</p>	<p><i>Business Example: Berliner Verlag</i></p> <ul style="list-style-type: none"> • A daily newspaper publishing company implements an integrated workflow system in order to link business processes across departments and increase efficiency.
<p><i>Chapter 2.4:</i> E-selling models for publishing</p>	<p><i>Case Study: http://derstandard.at</i> - The Internet success for News Publishing</p> <ul style="list-style-type: none"> • Example of online advertising and online classifieds are a viable business opportunity for newspaper publishers <p><i>Case Study: Grada Publishing</i> – Widening the Customer Base through Online Selling</p> <ul style="list-style-type: none"> • Highlights the importance of customer support and servicing as loyalty-building tool in book publishing

2.1 Digital Workflow in Printing and Print-on-Demand

Introduction

This chapter deals with e-business in "printing and service activities related to printing" (Group 22.2 of NACE Rev.1.1 classification). Automation, digitisation and the introduction of computer-to-X technologies have changed the face of the printing industry. In particular, the formerly strict separation between print and non-print techniques has fallen away. ICT now enables different segments of the sector value chain to be combined, or not, and businesses can range in scale from specialised printing to full-scale media house. This must be considered as an important and continuing trend.

At the same time, the traditional products of the printing industry are being developed further, new on-line products and services step into competition with classical offers or supplement these meaningfully. Printing is expected to remain core business for most players, and in the future, business firms will differentiate themselves less by technology than by their product portfolio.

Digital printing technologies are introducing increased levels of flexibility into the print production process, facilitating the creation of localised publications and, increasingly, customer-tailored publications. Such technologies, linked to electronic networks, also open the way to print-on-demand, either in the form of self-publishing, the ability of consumers to order out-of-print books. Using similar techniques, publishers and book sellers can experiment gaining maximum benefit from short to very short printing runs.

Digital printing technologies can be usefully broken down into the following domains²⁰:

- Computer-to-film: digital data transfer technology; output on film as pages and colour prints; imaging off-press; printing method: offset.
- Computer-to-plate: digital data transfer technology; output on plate; intermediate steps of film production, montage, etc. are waived; imaging off-press; printing method: offset; allows for low-circulation (up to 3.000) prints (short-run colour).
- Computer-to-press: digital data transfer technology; output on plate or paper; imaging on-press; printing method: offset; allows for printing of higher circulations.
- Computer-to-print: digital data transfer technology; output on dynamic print forms; printing method: digital print (non-impact printing method: electro-photography, inkjet, DI litho).
- Computer-to-paper: digital data transfer technology; no physical output; printing method: digital print (non-impact printing method: inkjet, thermography).

Although digital printing can provide greater value in many applications, it must still compete with existing production alternatives. In an industry dominated by low-cost offset, digital print faces a tough economic environment, in particular clear cost thresholds (cf. Seybold, 2001). An investment in digital press has to consider non-financial issues as well. These include marketing factors, workflow, and organizational side effects, customer requirements and new emerging markets. Financial investment decisions are, however, of major importance. Furthermore, digital workflow systems integrate/replace pre-press, press, and post-press processes.

Workflow and print management systems are a key issue in printing. These systems integrate and optimise the workflow in print shops all the way from the management to production and from prepress to finishing. Investment in these systems has to consider both financial and non-financial issues. Financial parameters are of growing importance and accompanied by considerations including marketing, workflow, organizational side-effects, customer requirements and new emerging markets.

The following two case studies show:

- Successful implementation of an **industry-specific integrated workflow system** in the digital printing business field, and
- A successful **print-on-demand e-business solution** for commercial print.

The rationale for selection of the first case study is that management information systems are increasingly applied within printing firms. Although most of them provide similar features of process optimisation in production, administration and networked communication, their technical features differ greatly. Importantly, there is need for improved managerial know-how as to organisational and efficiency impacts of systems provided. The second case study portrays a best-practice print-on-demand e-business solution for commercial print. It offers valuable insights on profiting from value webs in e-business markets where print providers can directly cooperate with customers and thus achieve valuable cost efficiencies.

²⁰ Weinert, 2001 and Teschner, 2004.

CASE STUDY: FINEPRESS OY, IMPLEMENTING AN INTEGRATED MANAGEMENT INFORMATION SYSTEM IN PRINTING

Abstract

Finepress Oy is a leading publishing and printing company, located in Turku, Southern Finland. The company was established in 1945 and currently employs 30 people at its production site in Turku. The main single group of customers are advertising agencies and bigger companies that produce their own marketing. Operating in a market that is characterised by increasing demands to service, responsiveness to customers and short production time, Finepress Oy has succeeded in continuous adoption of new technology to strengthen its position.

The following case illustrates how the purchase and implementation of an industry-specific integrated workflow system can improve management information, efficiency and market shares. Resulting in major cost savings and increased possibilities in ordered production in the P&P industry.

Case Characteristics	
Full name of the company	Finepress Oy
Location	Turku, Finland
Sector	Publishing and Printing
Year of foundation	1945
No. of employees	30
Turnover in last financial year	4 Million EUR
Main customers	Advertising agencies; industry organisations, mainly in the national market
Most significant market	Finland
E-Business Focus	
Production Efficiency – cost savings and faults management	***
Pricing and Customer Expectation Management	**
* = in implementation stage; ** = used in day-to-day business; *** = critical business function	

Background and objectives

Finepress Oy is a well-established Finnish printing company with almost 60 years of experience in the P&P market. The main single customer group to the company is advertising agencies. These agencies use Finepress Oy as a sub-supplier in their advertising solutions for public and business customers. As much as 33% of Finepress Oy's orders come from advertising agencies. The other 67% are direct customers – typically industrial companies that use print services for direct mail campaigns, marketing material, brochures, large batches of mail, etc.

Intense competition and high expectations to quality, responsiveness to customers and production time are current characteristics of the print market. Consequently, efficiency in production and general focus on costs combined with flexibility towards customer needs for tailor-made print jobs is vital to survival in the sector. Generally customer demands are changing from standardised orders to order production with changes in layouts, colours, formats, etc.

Considering Finepress Oy's strategy and the above market conditions, the company decided to invest in a new industry-specific workflow system that could also work as a Management Information System. Purchase motivation is based on the company's ambition of cost savings and improved machine efficiency. The Managing Director explains:

"We have been in the business for almost 60 years. When we moved to new production facilities we were forced (in a positive way) to change to more modern machines and production systems. There was no discussion about it. The new machines are 3-10 times more efficient than the old ones. At the same time these printing machines have all the necessary functionalities for linking up with a Management Information System. Online and instant information about orders, print status, production processes, etc. will give us a competitive edge in the years to come".

E-business activity

Finepress Oy chose to implement an industry-specific solution called Prinect. The Prinect system is a Management Information System developed by Heidelberger Druckmaschinen AG in Germany. Heidelberger also supplied the new printing machines to Finepress Oy in 2004. Prinect is Heidelberg's complete solution for workflow administration. It registers and optimises press-specific work processes from prepress to production and job finish. The system integrates all levels in the workflow. It is a modular, scaleable, and open ended system that can be flexibly expanded following the needs of the company. 'Prinect' marries the two words 'print' and 'connect'.

The system is compatible with Microsoft products and is used by Finepress simultaneously with the Microsoft officepack on a Windows XP operation system. Beside this, Finepress Oy has installed a Linux operation system on an Apache server that runs the company's webpage. According to Managing Director Timo Laurikko, the Prinect solution provides integration of planning, maintenance, production and financial management with CRM and marketing tools, and it provides on-going management information. It integrates and optimises the workflows of the print shop - all the way from management to production and from prepress to finishing. The finely tuned interaction of the various Prinect components boosts the efficiency of production workflows, offers greater process transparency and thus accelerates the entire job flow. Prinect makes a major contribution to helping companies fully realize their potential for rationalization and optimisation, thus enhancing the performance of the print shop and achieving greater profit margin.

Finepress Oy is the first company in Europe to use the system as a Management Information System covering not only production and connected processes (the 'machine park') but the whole company including information on invoices, CRM, product development, etc. The system was implemented in 2004 and is now fully operational. All information is online, including technical information from each machine in the machine park.

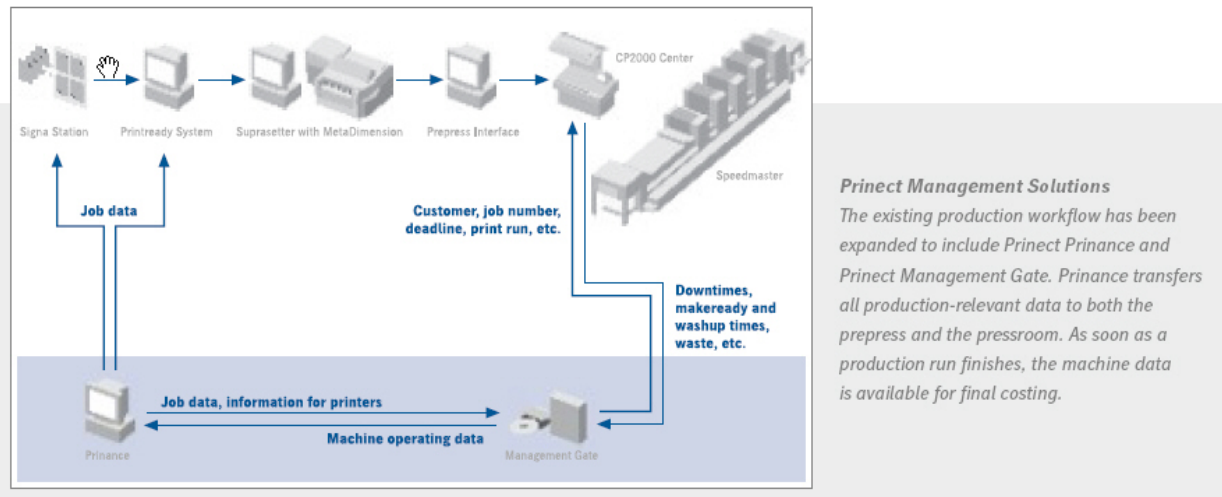
Functionality and use Prinect MIS

The system makes it possible to systematically gather and sort information about everything from invoices, sales status and general CRM to print status and errors in the chain of production. This means that it becomes possible to follow the exact work in progress of print jobs in the production including.

The Prinect management information system works as follows: the programme asks for product-specific details and guides the user step-by-step through the process of costing prepress, press and postpress work. With Prinect Prinance, you can maintain a

clear costing overview of complex print products with different options, colours and papers where production involves several different presses. With the support of the press library supplied, production parameters are automatically calculated from the product definition. Quotes issued are also passed to the relevant sales personnel in the Microsoft Outlook calendar application so that they can be followed up properly. This ensures that jobs never go missing in the hustle and bustle of day-to-day operations.

Exhibit 2-1: Prinect MIS Integrated Workflow system



Improved job preparation: Production starts with the administrative aspect - namely job preparation. Prinect MIS determines all the production steps required for the job, which means that each stage in the process is pre-structured. This gives a precise picture of which steps need to be taken in which order, at which cost centre and with which key deadlines. The job-related data is packaged into an electronic job ticket and passed to the Prinect Data Control production planning and control system. Additionally, the components are pre-configured in the production workflow, i.e. Prinect Signa Station and Prinect Printready System for prepress, Prinect CP2000 Center in the pressroom and Prinect FCS100 in the finishing stage. The overall effect is that error-prone and time-consuming repeat entry operations for job numbers, customer names and the like are eliminated. What is more, this data remains consistent throughout the business and production processes. Overall, this considerably reduces the risk of having to carry out cost-intensive post-processing because of incorrect instructions.

Transparent order processing: offers precise overview of the current status of quotes, orders, invoices at all times and in all stages of the job preparation process. This means that you can be assured of complete transparency in real time. The integrated capacity planning function will also let users know immediately whether a job is going to be produced to schedule, allowing you to respond quickly.

Production planning and control: All the information relating to the status of a print job and its planning status is automatically relayed in real time from the networked workstations to Prinect Data Control. This gives a precise picture at any time of exactly what stage a job is at and how far away it is from completion. Greater transparency also means that capacity reserves can be identified at an early stage and available potential can be fully utilised. A wide range of reports accurately log precise performance and event data during each press shift to provide a clear overview of the production process.

Precise post-costing: Prinect Management Solutions also ensure effective cost control. Each job is evaluated, and the results are presented in a clear and simple format. This gives users reliable figures, so that they can tell how profitably they are working at all times. Operating data can be captured either manually by entering the job slips for the day or through automatic import via the interfaced components. Prinect provides users with precise and reliable information such as comparisons of targets and actual performance, product group analyses or cost centre productivity analyses.

The integration between production processes and IT-system gives Finepress Oy a number of benefits. Timo Laurikko, Managing Director of Finepress Oy, explains:

“Lets say that a customer has ordered a print of 3000 brochures and then want to change this to 5000. Typically he will call and ask for the sales person – who might not be at work. Because Prinect is a database-based system any relevant person in Finepress can search the order and access a full status of the order processing. Further, he or she can do correction of the order in both the pre-printing and the pro-printing phase of the order execution. Any step of the production can be accessed via the database. If the order is under execution in the printing phase, a correction in number of entities will automatic be updated without abruption of the printing process”.

This example illustrates how the system maximizes flexibility in production and minimize Finepress Oy's response-time to changes. Further, the system allows entrance into a new market segment, as in-house start-up costs are reduced significantly. This means that Finepress Oy can make a business of even very small orders and serve its customers and special needs no matter, if the single orders might be small.

Customers do not have on-line access to the system (although this would be technically possible). The main reason is that customers seldom understand the nature of the print production process and Finepress Oy feels that this could lead to potential misunderstandings.

“Customers would be able to see where in the production their print job is. But sometimes they would not be able to find their specific print job because it is running as part of a different production process. This could worry some customers even though their print job is fully running” - Timo Laurikko, Finepress Oy.

On the supply-side, paper suppliers are not given access to databases and the rest of the information system. But Finepress Oy does use online communication when dealing with price and quality with the suppliers. The system was implemented in August 2004 by external consultants from Heidelberger Druckmaschinen AG. Due to the short time of operation it is still early to estimate the overall savings of the Prinect system as well as ROI (Return of Investment). As the acquisition of the Prinect-system was an integrated part of a great investment in new production facilities, buildings and equipment, Finepress Oy can not state the exact price of the system.

Impacts and lessons learned

The digital integration of management, prepress, press and post-press can result in a marked reduction in the fixed cost of processes. However, it is as yet too early to verify overall cost savings. The biggest challenge of implementing and using the system was that Prinect has not been used before in such an extended way. Getting the system up and running turned out to be a process of trial & error. The system is extensive and it is particularly challenging to implement it across all the business processes of the company. It was an advantage to implement the system in connection with a move of company premises, as it became just an addition to a larger change process.

The Managing Director of Finepress Oy, Timo Laurikko, points to the importance of developing and maintaining system knowledge inside the company upon purchase and implementation of such an extended system:

“There are never ending possibilities for functionality in different areas and it is vital to be clear about ones needs in terms of management information. For that reason the detailed knowledge about print processes, the production chain, and decision processes of the company must be communicated to the supplier for maximum benefit of the system investment. Similarly, detailed knowledge of the possibilities in how to use the Management Information System should be inside the company because the system becomes pivotal to daily production”.

References and acknowledgements

This case study was, conducted by Rambøll Management A/S on behalf of the e-Business W@tch.

- Interview with Timo Laurikko, Managing Director of Finepress Oy, 24 Jan. 2005, and 9 Feb. 2005.
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Print-on-Demand

Digital print's growing market share is based on cost-effectiveness for short print runs, coupled with the ability to change the content of individual pages printed and thereby customise them to individual user needs (personalised printing, print-on-demand). Digital print offers opportunities for print-on-demand either as 'tailored print', as customisation or as versioning. Tailored print provides personalization whereby details such as name and address are changed between each document printed. Customisation is where substantial amounts of content, for example in brochures and catalogues, is altered to match the preferences and interests of readers. Finally, versioning is used where larger runs of a generic document are broken down into a number of slightly amended shorter runs.

The market is rapidly becoming more receptive to the advantages of digital print. For example, there is a move to 'one-to-one marketing', which creates materials tailored to small groups of, or even individual, consumers, based on data about their preferences and past purchases. The following case study can be considered a best practice print-on-demand e-business solution for commercial print.

CASE STUDY: CARDCORP.CO.UK, PRINT YOUR BUSINESS CARD ON DEMAND

Abstract

Cardcorp.co.uk Ltd. is a successful print-on-demand company that was made possible by solutions in online ordering and auto-file to print technologies. By this, Card Corporation Ltd. has enabled to meet customer needs that were not met by the traditional printing industry. Being a small company, it aimed to deliver short-run custom-made business cards, stationery and point-of-sale materials designed by the customer.

Three important aspects contributed to the company's success: developing a system that enabled the delivery of short series of prints on time and at reasonable cost, empowering customers by allowing them to design the products that they want as well as giving them information on production progress, and encouraging both employees and clients to be innovative in cooperative ways.

Case Characteristics	
Full name of the company	Card Corporation Ltd.
Location	Leeds + offices in London, UK
Sector	Printing and publishing
Year of foundation	1996
No. of employees	15
Turnover in last financial year	(no data)
Primary customers	Consumers and other businesses
Most significant market	National
E-Business Focus	
E-business model 'Print-on-demand'	***
Online selling	***
Digital printing	**
* = in implementation stage; ** = used in day-to-day business; *** = critical business function	

Background and objectives

Describing itself as 'the only true interactive printer', the Card Corporation lets customers design, edit and order templates of letterhead, business card and cards for every occasion from baby arrivals to moving house.

Card Corporation Ltd. started in 1996 by Ivor Jacobs to exploit new market opportunities made possible by the internet. The founder, together with his small team (Ivor Solutions Limited) then developed an innovative IT solution that allows customers to design their desired product and send it directly to the printing machine. The software had been exclusively licensed to Grasmere Digital Imaging Ltd., a co-founding company that provided initial working capital and production facilities. The company Web site was set up for business customers in 1998, with a site for private customers following in 1999.

Since then, Card Corporation Ltd. has developed into a print-on-demand provider of business (business cards, labels, complement slips, letterheads) and private (announcements, greeting cards, contact cards) stationery. By offering do-it-yourself

print designs, it enables the customer to interactively create business cards and stationery online. Using an internet connection, customers, regardless of size or location, can order and customise printed products 24 hours a day, 7 days a week.

A decade ago it was difficult to imagine that one could order, agree on a design and have it delivered in short-run orders of prints in 3 days. The customised, high-quality design was costly for a printer company and for the customer. Over the years, technology (e.g. fax machine, computers, screen-based typesetters) has streamlined the interaction between customer and printer. The arrival of the internet, together with digital print technology, has brought bigger possibilities and has in many ways changed the working of the printing industry. CardCorp Limited has been a pioneer in developing new relationships between customers and the printer, giving customers the benefit of immediacy & convenience and print suppliers much needed accuracy.

The challenge was to obtain small and well-designed print orders on time and at reasonable costs and to provide these to clients demanding more personalised and customised services. With the internet and specific IT solutions, it became possible to transform the way the small order print industry worked. The ability to electronically control administration, workflow, design and production processes created new opportunities. Sophisticated networking technology emerged just as digital printing was being introduced. Combined, they created the possibility of a complete automated digital workflow from start to finish. By taking this holistic approach, Card Corporation developed a new and original business model. It is true to say that the internet made the company's existence and success possible.

E-Business activity

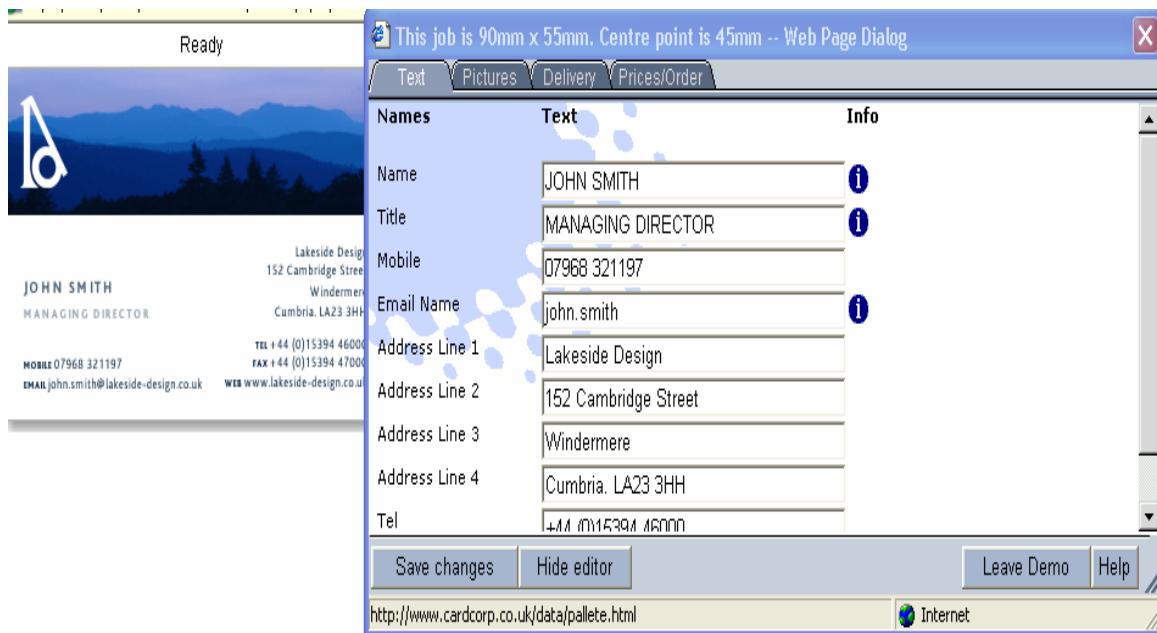
Stakeholders

One of the most important differences to the conventional way of doing business was handing control over from the company to the customers. The customer is empowered to design his individual product, access automated job tracking, use simplified reordering and comprehensive order activity reporting. These are just some of the benefits gained from the e-commerce application.

By offering virtual print ordering systems, the company involves the customer in the production process from the very start. The service is accessed by customers through a standard web browser with no additional software or skills are required. Customers log on to a remotely located server using a password to access templated solutions to place an order.

On screen, there is a floating palette together with a WYSIWG (What-you-see-is-what-you-get) interactive display, which changes as the details are changed. The palette allows customers to change text, colour, layout, typeface, bold, etc. By changing the x and y figures, the text lines can be moved to any position on the page. Online instantaneous proofing is available instantaneously. The software does not use PDF files but individually field automated matrix to generate dynamically interactive, flexible and positional text and graphics that can be automatically linked to their high resolution equivalents. Fonts are rendered on screen exactly as they will print, thus providing a true WYSIWYG interface.

Exhibit 2-2: Cardcorp's interactive web page for designing the business card



The challenge was to give visitors an interactive learning experience before they start to compose their own work. The step-by-step tutorial included on the website, together with helpful staff on the phone line, have proven a successful support to the learning process and empowered the customers, who admit having learnt quickly and effortlessly. Customers need to spend five minutes learning the basics of the full application that they are given access to, prior to designing their own work.

Furthermore, what seems to have had a great impact on the company's success is that almost all customer/supplier misunderstandings have been eliminated. The customers virtually control the entire workflow, up to the press stage, fully interactively. There is little room for things to go wrong because communication errors have been minimised.

Many people who understand the technologies and directly see the benefits of a more virtual approach to printing are customers and those in customer services. Customer's feedback has been very important for the organisation and is immensely helpful in improving the way the company operates as well as providing credibility to an internet based company. The firm also maintains a small call centre that functions as the hub of its activities.

The Systems Solution – Print Evolved

In the times when Card Corporation was founded it was virtually impossible to buy an off-the-shelf solution that would meet the needs of the newly created e-business company. Thus, the operational system has been developed by Ivor Jacob's team of graphic arts specialists in conjunction with GDI to manage short-run and personalised print over the internet. This cost in excess of 60,000 man-hours over 6 years. Print Evolved is based on a remotely hosted ASP software engine that uses the internet as a technology platform. It is accessed via a link on the website that activates the Print Evolved software, ready to begin the print ordering process securely online. It also enables repeat print jobs such as business cards, stationery, point of sale materials and greeting cards to be stored and accessed time and time again. Firstly, the company designed its internet site. Subsequently, Card Corporation moved to production of customised sites for individual clients, where the look resembles their corporate sites and returns visitors to the main customer site, not the one of Card Corporation, when the ordering process has been successfully completed.

The design and ordering process

The design programme, that uses QuarkXpress extensions, enables customers to create personalised templates and to add variable data and graphic images. The programme has been written using a mixture of HTML, Javascript and Java language. Therefore to use this application all that is needed is a connection to the internet using the Explorer 5 (or above) browser that is Java enabled & has Javascript turned on. As most of these features are enabled within internet explorer 5+ by default, most users do not encounter any problems. The process allows print data to be created online and orders are processed through the Print Evolved engine instantaneously.

When the design is completed, an order is placed and payment is made usually by credit card through a third party banking service. The orders are automatically sorted into print queues and delivered to the printers as consistent and standardised formulated data. Unlike many print management technologies, Print Evolved doesn't use non-interactive PDF documents to display template-based information, instead, it uses interactive small XML format, which means the resulting downloaded batch files are just 2KB when compressed.

At any stage all (or individual) orders can be checked in full or partial detail. The employees know exactly when orders were placed and what the delivery expectations are. The files that are transferred from the web server contain both graphic and administrative information. Subsequently, they are uniquely referenced so always match up. All administrative data is run into and stored in the offline database and provides all the back up information.

Printing and despatch

All jobs are checked and then made up into files ready for the printing process. This process has turned out to be the most difficult aspect of the software. The goal was to fully automate the process and this was eventually achieved through hugely complex calculations.

Professional printing requires that only the highest possible definition graphics and type be used. Thus this stage of production takes the low quality web files and swaps them out for their high quality matches. A special case are the corporate customers who have logos in the first place and thus have no need to use one of the template designs. First their files are taken in and then necessary quality adjustments are made before the orders are published to the web.

For printing the company uses a number of processes. Indeed the system is not dependent on any single printing device. Though using exactly the same software and front-end interface, customers are able to design and order many different items including rubber stamps and T-shirts.

The printing method used by the Card Corporation Ltd is referred to as digital offset. This means that a traditional lithographic printing chassis is utilised, incorporating cylinders, blankets and plates together with a feed mechanism that allows printing on a variety of materials, including the best business card boards available. The difference between digital offset and traditional lithographic printing is that the plates are electronic and are dynamically produced with each revolution of the printing machine. Electronic inks are used which combined with the dynamic plates allow the consecutive printing of up to four colours and full colour. The digital offset system is part of company's one million pound investment program towards better services o customers.

All company's products are packed in Visiboxes, which are also its own packaging product and have become firm's hallmark. The end-product is of top quality received by the customers within the days.

Impacts and lessons learned

In the case of Card Corporation, e-business became the **integrator**, the co-ordinator of all the firm's departments and provides the tactical link between all activities and an overall marketing strategy. But even more so, it seems that there can no longer be rigid departmental structures or hierarchies. There is specialisation, such as in a printing department. But every action taken by someone can be electronically recorded and provides an immediate knock-on parcel of information to another part of the company or even directly to a customer or supplier. Everyone, staff, customers and suppliers are then better informed and errors are scarce. Also, decisions can be made almost immediately which greatly speeds up the work and delivery times.

The technology has also had a huge influence on the company's employees and their role in the company. Probably the hardest part in the integration of the system was on the human level. The company's team had a challenging time developing, testing, implementing and re-testing the technology whilst at the same time running a busy enterprise that had to satisfy its day-to-day commitments to demanding customers. As a result, employees are well informed of the detail of day-to-day activities as well as the customer perceptions of the firm. They are then in a better position to absorb new developments that, together with the clients' suggestions, enable them to act flexibly and innovatively. The technology is partly responsible for creating the environment that provides motivation and development of novel ideas from employees.

Overall **impacts** are listed as follows:

- The printers can extend their business offering by providing unique online print ordering services to their customers.
- The print buyers and print management companies access a controlled ordering solution to support the purchase and management of print on a daily basis.
- By using the internet as an effective print creation and ordering tool, organisations save costs and significantly reduce turnaround times and eliminate heavy administrative tasks.
- By defining and providing an online print ordering process the company channel and control its workflow cutting down administration tasks and saving costs.
- The costs of revision control, ordering and storage is greatly reduced.
- New opportunities and market have arisen such as promotions to capitalise on news items, better security, production of unique, and therefore traceable, documents or packages.
- Through Card Corporation and Print Potential technology, Grasmere Digital Imaging has profited from an average of almost 1,000 orders a day.

References and acknowledgements

This case study was conducted by Aneta Herrenschmidt-Moller on behalf of the *e-Business W@tch*.

References

- Interviews with Ivor Jacobs, Managing Director of Ivor Solution Ltd and CardCorp Ltd and Sarah Wadsworth PR Account Director, January and March 2005.

Conclusions

- Workflow and print management systems are a key issue in printing.
- These new IT systems integrate and optimise the workflow in print shops.
- The support systems are integrated all the way from management to production and from prepress to finishing.

The **Finepress Oy** case study on implementing an integrated workflow system in digital printing shows that to create new business value through IT needs careful planning and consideration of cost-efficiencies and business process integration. It is imperative in taking the investment decision and in the ensuing technology adoption to understand impacts on organizational change.

The **Cardcorp.co.uk** case study illustrates the business success of a print-on-demand company. Three important aspects contributed to the company's success: developing a system that enabled the delivery of short series of prints at reasonable cost and on time, empowering customers by allowing them to design the products that they want as well as giving them information on production progress, and encouraging both employees and clients to be innovative in cooperative ways. This case has thus offered valuable information on profiting from value webs in e-business markets.

2.2 Electronic Trading in the Book Industry

Introduction

Electronic trading of print-on-paper books is a key area of e-business in a sector where book publishers continue to use the internet mainly as a marketing channel for conventional printed books rather than to deliver digital products²¹.

A key business development affecting online book trading is the adoption in the book industry of standards for electronic data interchange, initially those based on EDI and EDIFACT.²² The introduction of EDI in the book industry is being facilitated by EDItEUR group, the Pan-European Book Sector EDI Group, which was established to co-ordinate the development, promotion and implementation of EDI in the books and serials sectors. EDItEUR is recognised by the European Commission, the Western European EDIFACT Board, and supported by the European Federations of Library, Booksellers and Publishers Associations.²³

Another key development is the introduction of extended address space product coding known as ISBN-13. January 1, 2005 saw the book industry start the conversion to the 13-Digit ISBN along a road-map such that by January 1, 2007, retailers and suppliers are required to have the ability to read, process and store 13 digit ISBNs. The introduction of ISBN-13 will enable the book industry both to resolve the pending shortage of unique ISBNs and to integrate systems using ISBN with those based on other Global Trade Identifier Numbers (GTINs), including the UCC/EAN-14.

E-business developments are changing the nature of market pressure on the various sector actors in book publishing. Barriers to entry into publishing production are getting lower as capital costs are decreasing, to a point where anyone with a PC can control a publishing process and in that sense set up as a publisher, strongly increasing competition for this segment of the value chain. In the case of educational textbooks, for instance, a good teacher might become his/her own – albeit focused – editor or publisher. However, entry into distribution channels, particularly for specialist publications, remains more difficult. Schools' publishing, for example, has especially high barriers to entry, needing large amounts of working capital invested over a long period to meet the particular requirements of the sector.

Distribution and marketing of books is not made easier through long-term challenges to book reading in the form of proliferating demands on leisure time and consumer spending, making closer knowledge and profiling of, and a closer relationship with end customers increasingly important.

As a result of these characteristics of demand, the value chain for printed books is highly complex, and there are pressures both towards rationalization and towards specialization and increased scale of operations. Yet, in spite of considerable consolidation in the last two decades, publishing remains a fairly fragmented sector, as does bookselling.

The consolidation and rationalization pressures are aggravated by the growing availability of digital competitors, especially print on demand and e-books. These technologies and services provide disintermediation in the value chain, meeting new marketing requirements by connecting publishers more directly with end customers, but also generating new competitive substitutes, having the potential to connect authors directly with readers. Though

²¹ Cf. European Commission (2004): Publishing Market Watch. Sectoral Report 2: Book Publishing p. 62.

²² EDI (Electronic Data Interchange) supports direct communication of trading messages between computer systems both nationally and internationally, using telecommunications networks, and EDIFACT provides international EDI message standards.

²³ For more information, see <http://www.editeur.org/>.

demand for e-books is as yet marginal in mainstream markets, the development of this kind of on-screen substitute for print is well established and growing. Increasingly, to remain competitive, publishers of books must hold content in a reusable form and both arrange for it to be distributed through multiple physical and electronic channels and customise it for different groups of users.

Case studies

In the following, two case studies on ICT-induced changes in the book industry in Europe are presented to illustrate successful B2B e-trading in the book industry.

Both cases are best practice and exemplify key technology trends and business challenges affecting the book industry in a B2B context. Secondly, both cases offer insights into latest technology trends affecting the book industry as a whole as well as insights into supply chain efficiencies through application of e-business technologies.

CASE STUDY: NIELSEN BOOKNET – E-TRADING FOR BOOKSHOPS

Abstract

Nielsen BookNet is a provider of e-business services to the book trade globally and is the market leader in the UK. The company supplies order routing and EDI services through its own, and other, Value Added Networks (VANs) as well as providing protocol translation and integration services.

Nielsen BookNet is currently working with a number of system suppliers to develop integrated EDI solutions. For those publishers unable or unwilling to invest in IT, Nielsen BookNet also provides web services for both bookshops and publishers, enabling them to join the electronic supply chain without having to make investment in new systems.

Case Characteristics	
Full name of the company	Nielsen BookNet is part of Nielsen BookData (a VNU company)
Location	Woking, Surrey, UK
Sector	e-commerce and data supplied to the book trade
Year of foundation	2002
No. of employees	100
Turnover in last financial year	3 million £ (BookNet)
Primary customers	Publisher, Distributors, Booksellers and Libraries
Most significant market	UK and International
URL of company	www.nielsenbooknet.co.uk
E-Business Focus	
TeleOrder routing service, EDI integration service	***
FTP services	**
Order tracking and other web services	*
* = in implementation stage; ** = used in day-to-day business; *** = critical business function	

Background and objectives

Nielsen BookData was formed in July 2002 following the merger of Whitaker Information Services, first Edition and Book Data. The three companies have served the book industry for more than 140 years. Following the merger, Nielsen BookNet was formed to combine the electronic trading services of Whitaker and first Edition. The company is now a leading provider of electronic trading services to the UK and international book markets.

Nielsen's trading partners include leading distributors, booksellers, and wholesalers in the UK. Nielsen also has a strong user base in the public library sector. Further, Nielsen specializes in supplying electronic trading services to international partners who include many leading European booksellers.

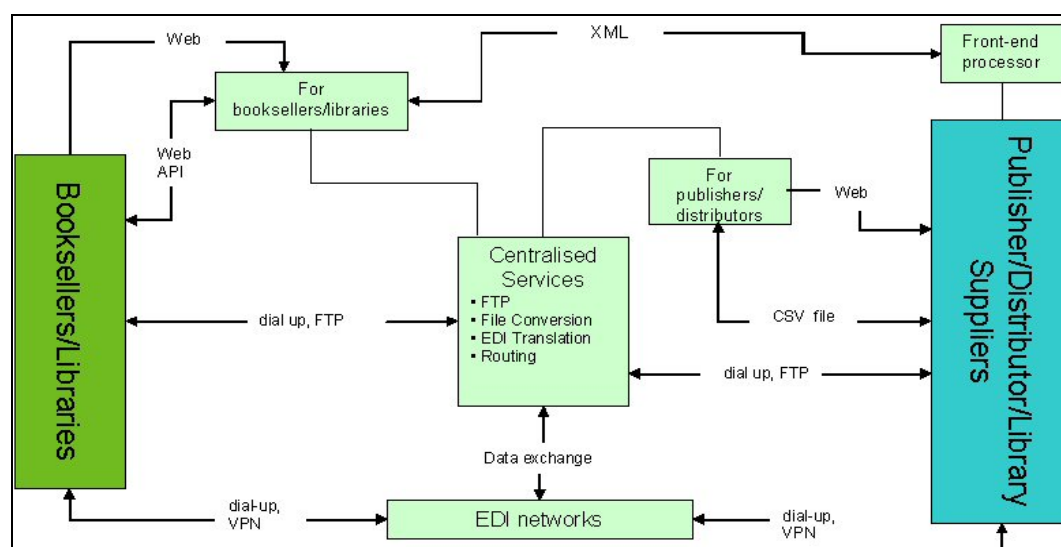
The UK book industry has been relatively slow to recognize the benefits of electronic trade. Apart from the major publishers, bookshops and distributors there has been little progress in the development of electronic trading for many years. Outside of the major players there has been little penetration by IT into the supply chain process which remains largely manual and error-prone.

This picture is beginning to change due mainly to the efforts of major retailers like Waterstone's and W H Smith. Waterstone's has declared its intention to remove paper from the supply chain by insisting on full EDI trading with its suppliers. Those wishing to trade directly are being further incentivised by the introduction of charges for paper invoice processing. W H Smith's on the other hand has simply pushed the majority of its smaller suppliers through wholesalers.

There is also significant growth in international e-trade with new trading partners in the USA, Belgium, Spain, Scandinavia and Germany having recently joined the Nielsen BookNet community. The challenges here are in ensuring that clients at each end of the supply chain send and receive data in a form they can understand. Historically, the UK has used TRADACOM as its preferred format whilst the rest of Europe uses EDIFACT. The USA tends to rely on ANSI X12 as its preferred protocol. As shown in Exhibit 2-3, Nielsen provides a simple mailbox-based EDI network, supported by file and protocol translation services, that enables all of these disparate groups to trade.

Nielsen's unique selling proposition to the market is that it can connect anyone in the book trade to the electronic supply chain. The various means by which this can be achieved are illustrated by the following exhibit:

Exhibit 2-3: Supply chain map of Nielsen BookNet



Users of services include:

- Booksellers – Ottakar's, Waterstone's, Blackwell's, Books Etc., Borders and others.
- Publishers and distributors – Macmillan Distribution (MDL), Oxford University Press, Random House (TBS), Littlehampton Book Services, McGraw Hill etc.
- Wholesalers – Bertram Books, Gardners, THE etc.

There is general acceptance among the major players of the benefits that electronic trading can bring. The real challenge facing the industry today is to bring those benefits to a wider market.

E-Business activity

Nielsen BookNet services in the UK and international book market include the following:

Order routing: A unique service for bookshops that allows them to identify and order titles without needing to know who distributes the item. Orders are sent electronically to the Nielsen BookNet network where they are unpacked electronically, the supplier identified and the order onward shipped either electronically (as an EDI order or in native TeleOrdering format) or via fax or mail.

BookNet Web for Booksellers: By using this web interface booksellers gain access to richer functionality. They are able to track the progress of their orders, receive acknowledgements from their suppliers and in some cases receive up-to-the-minute information on price and availability. Using the web service enables booksellers to search for titles online before placing their orders on Nielsen's database. Those with more sophisticated EPOS systems (like Blackwell's) can also link directly to the database through an API.

BookNet Web for Publisher/Distributors: is available at two levels. For the very smallest, Nielsen offers a level which allows them to collect all their orders electronically. It is not a solution for those wishing to trade with Waterstone's for example, since it does not allow them to return information in EDI format. For those with this capability offers a higher level of product, the only web based solution offering the full range of electronic message capabilities required by the major retail chains.

This is a completely stand-alone web-based solution to electronic trading using standard EDI messages. Although not offering integration with the back office it nonetheless enables the smaller publishers to trade on the same terms and in the same way as their larger cousins. In short it levels the playing field.

Full EDI integration services: Nielsen BookNet works with system suppliers to develop the EDI capabilities of accounting systems in use in a wide range of publishers, distributors, libraries and bookshops. Systems output flat files of data from locally held data which are translated into EDI by Nielsen BookNet provided software and passed over a network (by FTP or dial-up – or through a VPN) where it is routed to another mailbox (possibly on another network) for collection. Data sent through the network is also used to supplement the web products, e.g. by updating the status of orders. The most sophisticated of these implementations also allows the bookshop to interrogate the real-time data held by their distributors to discover price and availability information and optionally place their orders directly into the suppliers' database.

BookNet Web services thus allow to access the following functionalities:

- Online order collection
- Information can be used to generate electronic documentation
- View, print and export orders
- Improves client satisfaction by accelerating supply times
- Reduces time spent dealing with customer queries
- Uses well established business standards
- Global trading

Impacts and lessons learned

Electronic trading in the book industry worldwide is essential in order to reduce costs and increase efficiency in the market. Nielsen BookNet not only provides economic solutions to the book community but is working with industry experts BIC (Book Industry Communication) to develop **international standards** which levels the playing

field and enables smaller companies to achieve the same efficiencies as their larger competitors.

Francis Bennett, Managing Director of Nielsen BookData, commented: *“BookNet is in a unique position at the centre of the industry and is therefore well placed to create a trading hub – a central service that can enable all companies, regardless of size or technical expertise, to enjoy the benefits of e-trading. We believe we are able with BookNet Web to help the process. This is an area where we are fully committed to help the industry move to electronic trading and for this reason we are supporting the BIC initiative e4books project and working closely with the industry to bring real efficiencies to the trade”.*

References and acknowledgements

This case study was conducted by Paul Murschetz (empirica GmbH) on behalf of the e-Business W@tch.

References

- Interview with Mick Fortune, Nielsen BookNet, Head of Technical Support and Service Development, February 15, 2005; and Mo Siewcharran, Head of Marketing, March 7, 2005
-

Supply chain management in the book industry

E-business innovations in the book industry affects a complex set of supply value chain propositions. In the following, the focus is on new state-of-the-art supply chain management (SCM) as e-business enterprise applications between companies (B2B). SCM applications will then be exemplified on the basis of case studies and business examples in the book publishing industry.

In the present context, focus is on e-business practices in the context of supply chain electronic trading. E-business, for the purposes of this key application area, includes B2B communications and incorporates more traditional e-business services such as electronic data interchange (EDI) and TeleOrdering as well as new online and web services which offer B2B communications and business transactions. The following case study on **PubEasy.com** exemplifies supply chain efficiencies in the book marketplace.

CASE STUDY: PUBEASY.COM – ENHANCING SUPPLY CHAIN EFFICIENCY IN THE BOOK MARKETPLACE

Abstract

PubEasy is an B2B-service for booksellers to connect to their suppliers - publishers, distributors and wholesalers 24 hours a day, 7 days a week. The PubEasy service uses the internet to give booksellers access to order placement, order tracking, title, price and availability data from all participating Affiliates (suppliers). PubEasy helps to reduce the time and resources spent on contacting individual customer service departments by consolidating ordering, back order status, delivery status and more in one service. By this, PubEasy provides booksellers with a competitive edge: it leads to networking with other players in the supply chain which results in increased sales, reduced inventories, and lowered transaction costs.

Case Characteristics	
Full name of the company	PubEasy
Location	630 Central Ave. New Providence, NJ 07974 USA
Sector	Publishing and Book Retailing
Year of foundation	1999
No. of employees	n/a
Turnover in last financial year	n/a
Primary customers	Book publishers, wholesalers, distributors and retailers
Most significant market	Publishing
E-Business Focus	
B2B e-commerce	***
Ordering	**
Price & availability enquiry	***
Order tracking	***
Bibliographic research	*
* = in implementation stage; ** = used in day-to-day business; *** = critical business function	

Background and objectives

PubEasy.com was originally developed by VISTA Computer systems, a supplier of enterprise solutions to the publishing industry. This initiative was launched in 1999, in step with a small group of publishers that wished to leverage the Web for further efficiency in their routine dealings with bookstores. VISTA established a new service called PubEasy.com, which is an internet enquiry and ordering service, provided publishers distributors, wholesalers and booksellers with business-to-business e-commerce tools that reduce the cost of routine enquires, speed access to the status of orders and account information.

Bowker, North America's leading provider of bibliographic information, has taken over PubEasy as of January 2003. Under Bowker's control, PubEasy has grown to represent over 16,000 booksellers in 110 countries thousands of publisher imprints.

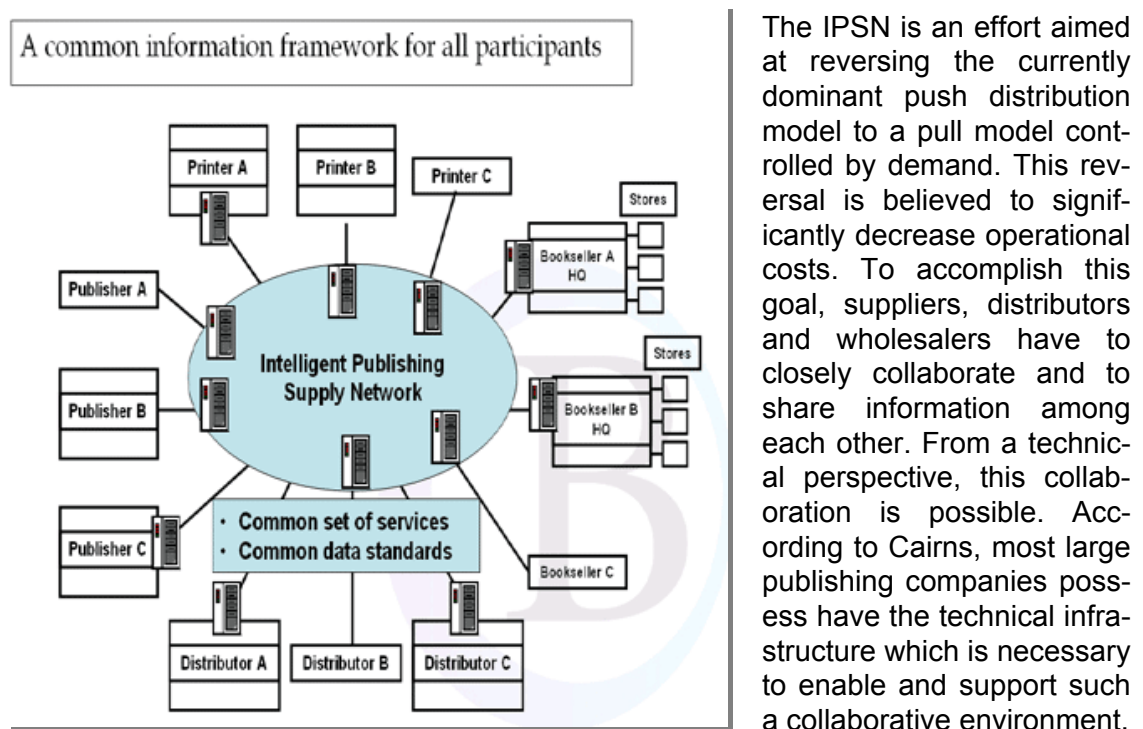
PubEasy offers publishers, distributors and wholesalers exposure to a large universe of potential clients, while increasing the ease with which booksellers can conduct

business with their suppliers. Bowker has since put forth a strong vision for advancing efficiency and effectiveness of the publishing supply chain as marked by Bowker's President, Michael Cairns, in his 2003 Frankfurt address.

Cairns pointed at the industry's strategy to maintain profit margins by continuously improving internal efficiency. However, many firms of the sector have already reached a very high level of in-house efficiency, thus there is little room for further improvement. This results in a search for new opportunities, for example by focusing on supply chain processes with business partners. *"The supply chain is the next frontier for operational improvements"*, proclaimed Cairns. *"Creating efficiencies in the supply chain is the only area where sustainable expense and cost savings could be found [moving forward]."*

Following this strategic approach, PubEasy has introduced an idea aptly named "The Intelligent Publishing Supply Network" (IPSN).

Exhibit 2-4: The Intelligent Publishing Supply Network by PubEasy.com



E-Business activity

Rationale and activities

The publishing industry has long suffered from problems with the supply chain. The retailer often does not know if book prices are accurate or if a specific book is available. At the other end of the chain, publishers are concerned with bookseller's lack of information about their products.

As more than 70% of calls to publishers' customer service centres are about price, availability and the status of individual orders, PubEasy decided to address this information gap and set up a system, which would make the whole process a lot simpler. Additionally, the system allows for personal pricing views specific to bookstores' specialized trading terms with publishers. So not only are they shown the right price, but the right price per their special trading terms.

Fall 2003 and early 2004 marked the release of PubEasy Central Services with further improved service functionality. Before Central Services, bookstores were limited to making enquires and placing orders with one affiliate (i.e. publisher, distributor or wholesaler) at a time. Now, with technological enhancements, Central Services allows member bookstores to make these same enquiries and order placements across all North American and UK affiliates at one time via the World Wide Web. This increases the efficiency and accuracy of enquiry and order entry processing for booksellers.

PubEasy continues to expand its service by integrating Batch.co.uk Invoice and Returns features for all UK members. This will tighten the links between the two services and offer booksellers greater speed and efficiency of use. Since 2005, users of PubEasy have been able to link directly into the Batch Returns service. Developed from the industry returns initiative, Batch Returns offers an online channel for retailers to electronically submit return requests and receive back authorisation of those requests within hours.

Most recently PubEasy has also integrated Bowker's "Books In Print" functionality to the website offering basics bibliographic and ordering contacts for titles not listed with current PubEasy Affiliates.

The business model

PubEasy offers two service levels to supply the aforementioned services, accommodating business of all sizes, priced on a tiering method. These are:

- PubEasy Exchange Service offers small to mid-sized suppliers with limited technology resources, a totally hosted online self-service solution with lower costs than those typically associated with launching a B2B e-commerce website. Booksellers can access a suppliers' site to check current titles' price and availability; place direct orders; create custom e-catalogues; and access comprehensive bibliographic information 24/7, from anywhere.
- PubEasy Full Affiliate Service offers mid-sized to large suppliers with advanced back office technology, the ability to virtually link their back office systems to PubEasy via web-based APIs. This allows for the real-time exchange of information from the supplier to PubEasy bookstores, including an order tracking ability, not offered in the Exchange Service.

Impacts and lessons learned

Innovations in electronic business could significantly affect a complex set of supply value chain propositions in the book industry. PubEasy is an example how e-commerce enhances supply chain processes in bookselling globally.

Although transactions have increased steadily since the acquisition of PubEasy by Bowker, challenges remain. A major obstacle for the further diffusion of electronic supply chain systems such as PubEasy is to overcome **initial scepticism on the side of booksellers**. Although retailers receive the service for free, it is not easy to convince future users of the system's advantages before they have actually used it. As with many technologies, the applications need to be practically experienced before the benefits are fully understood and accepted.

Traditionally, order and book information inquiries are conducted by phone, with booksellers speaking directly to customer service representatives from the publisher. Thus, there are **longstanding personal relationships**, and booksellers often feel reassured that they have received the best possible deal because they are working directly with the publisher. Switching to automatic ordering and replenishing therefore

requires a **learning curve**. Especially during peak selling periods, however, electronic supply chain management has clear advantages over traditional channels such as ordering per telephone or fax.

PubEasy regularly conducts **user surveys** to highlight areas where the site and service can improve. In 2005/06, the company plans to introduce a new facility specifically aimed at smaller publishers. This facility will further integrate PubEasy functionalities with bookstores' EPOS²⁴ and inventories systems in both the UK and the US markets.

References and acknowledgements

This case study was conducted by Paul Murschetz (empirica) on behalf of the *e-Business W@tch*.

References

- Interview with Mike Donoghue, PubEasy.com, Marketing Manager, Publisher / Retail Division, R.R. Bowker. March 7, 2005, and Janet Feeney, July 27, 2005.
-

Conclusions on case studies

Though the industry is increasingly adopting e-business innovations, the book industry as a whole continues to be slow to embrace electronic trading technology. Rates of adoption clearly relate to scale of operations, so that apart from the major publishers, bookshops and distributors there can be said to have been little progress in the development of electronic trading in most businesses in the sector in recent years.

The two cases depicted serve as best-practice examples for leader innovation in the B2B supply chain management segment of the industry. There, e-business includes a variety of new business opportunities and incorporates established services such as electronic data interchange (EDI) and TeleOrdering as well as innovative online and web services which offering B2B communication and supporting business transactions. Both cases illustrate a number of ways of using e-business to reduce costs and increase efficiency in the market. The following tables present comparisons of the range of services and functions (Exhibit 2-5) and business benefits (Exhibit 2-6) offered by BookNet Web and PubEasy.com.

These comparisons show how both providers adopt ICT for e-business as integral part of their operations and strategies. The success of services is in both cases attributable to **maintaining user growth through the integration of improved functionality** and featured enhancements, ensuring global reach, and an increase in system affiliates. Smaller companies, in particular, will only enter e-business domains if the level of investment is not too high and they are confident that their investment will pay back.

The success of both systems suggests there is now **clear return on investment**. Another key driver for implementation is **reach**: PubEasy, for example, enables small/mid-size publishers and distributors to offer a PubEasy website to booksellers worldwide. Such service is needed in order to roll-out e-business to smaller publishers.

²⁴ EPOS = Electronic Point Of Sale, the bookshop till system used for sales data and stock control.

Exhibit 2-5: Comparison of e-services offered by BookNet and PubEasy

Function	BookNet	PubEasy
Order acknowledgements / delivery notes for small publishers	Yes	No
Advanced bibliographic search	Yes (if full data subscription)	Yes
Place orders	Yes	Yes (with affiliates only)
Sales Ranking	Yes	No
Links to Batch.co.uk	Currently being progressed	Yes
BIC Subject Search	Yes	Yes
Extended descriptive content	Yes	No
Jacket / cover images	Yes (500,000 if full data subscription)	Yes (via the virtual catalogue)
Kirkus Reviews	Yes	No
Order Tracking	Yes	Yes
My Price / discount	Yes	Yes
Simple bibliographic search	Yes	Yes
Express/Urgent ordering	Yes	Yes
Virtual catalogue	No	Yes
Order history	Yes	Yes
Price & Availability – updated daily	Yes	Yes (affiliates only)
New Titles – updated weekly	Yes	Unknown

Exhibit 2-6: Comparison of benefits offered by BookNetWeb and PubEasy features

BookNetWeb	PubEasy
Chargeable service, but allows orders to be placed with any one of 42,000 publishers, distributors and wholesalers.	Free to retailers, but limited to those affiliates registered on the PubEasy site.
Enables smaller publishers to send order acknowledgements, delivery notes and invoices to retail customers – effectively levelling the EDI (Electronic Data Interchange) playing field for these publishers	Only available to those affiliates joining PubEasy.
API (Application Programme Interface) to enable customised access	No API (Application Programme Interface) access available
Currently the four major distributors signed up as BookNetWeb partners – MDL, TBS, HarperCollins and OUP. Likely adopters in 2005: LBS and Hodder and in discussion with a number of other key distributors	PubEasy has 14 affiliates signed up, including all major trade distributors. Only one major academic publisher, CUP, is signed up thus far. Bertram's has joined recently.
TeleOrdering routing service, which underpins the BookNetWeb service, is unique. No-one is capable of routing orders to as many publishers.	Orders can be sent to those affiliates on the PubEasy service. The remainder have to sent by other means.
Nearly 400,000 orders were sent via BookNet Web during 2004	Order volumes via PubEasy are not known.
The TeleOrdering service is widely used. In 2004, in excess of 33 million order lines were routed via TeleOrdering.	No figures available

Conclusions

- Although the book industry is increasingly adopting e-business innovations, the industry as a whole continues to be **slow to embrace electronic trading** technology.
- Rates of adoption clearly relate to scale of operations
- There has been little progress in the development of electronic trading in most businesses in the sector in recent years.
- Innovations in supply chain management between book publishers and booksellers offer a **significant potential** for improving B2B process efficiency.

2.3 Digital Workflow Management in Newspaper Publishing

The following analysis applies specifically to business activities covered by the NACE group 22.12, i.e. publishing of newspapers. Sector Report 1 of the European Commission's "Publishing Market Watch"²⁵ analyses the European newspaper market. Research confirms that the internet has been both an opportunity and a risk for newspaper publishing. Missing out on internet opportunities has had negative impacts on advertising revenues and credibility for some businesses in the sector, with a major risk of losing young readers in particular.

The importance of ICT for the future of the sector has been further underlined by the World Association of Newspapers (WAN)-project 'Shaping the Future of the Newspaper', which set out to analyze operational and strategic developments in the press industry. Among the current issues identified as affecting the future of the industry as a whole, digitization and the use and application of ICT play a major role.²⁶

Among the applications of e-business in the sector, workflow management is playing an increasingly critical role. A number of publishers have recently embarked on introducing digital workflow management systems to manage their content workflow. Workflow management is expected to speed up the publishing process and maximise efficiency in creation, processing, storage, and retrieval of all types of digital data. These parameters are key to cost effective and timely production of content in news-driven publishing environments and hence to the competitiveness of businesses in the area.

However, the introduction of workflow into complex organisational systems is not without risks and requires attention to a range of non-technological issues if further progress is to be made. Jim Chisholm, strategy adviser to the WAN-project, pinpointed problems newspaper companies can be confronted with when introducing a digital workflow management system as follows: *"Convergence in Europe was all the rage four years ago and many publishers embarked on a journey toward an integrated newsroom serving newspapers, the internet, television and radio. Yet, for three reasons, in most cases these journeys have at best slowed, and in many cases stopped. The first was that the digital and subsequent economic downturn forced many companies to abandon their more ambitious plans. The second was that while many publishers and editors had impressive visions of what their newsrooms would become, few really took on the cultural issues of the newsroom that stood in the way of flexibility and change. This remains a colossal barrier. The third was that all the ambition and vision in the world was not going to deliver the central requirement of any media concept, namely a viable audience model"* (Chisholm, 2003).

The following extended business example about the implementation of a publishing workflow system is presented to illustrate the impact of ICT-induced changes in the newspaper industry in Europe. This example would help to assess whether the use of digital workflow management systems in newspaper publishing can hold its promise to radically improve the efficiency of and of processes in news publishing including resource usage, content creation and management, editorial processes, advertising handling and output formatting.

²⁵ The EC's "Publishing Market Watch" was launched to identify and study the main issues affecting the publishing industries' competitiveness and ability to modernise and innovate. More information, including sector reports on the various segments of the publishing industry are available at www.publishing-watch.org (May 2005).

²⁶ see www.futureofthenewspaper.com

Business Example:*Berliner Verlag – implementing a new integrated newspaper publishing workflow system*

The German regional publisher Berliner Verlag GmbH & Co. KG decided to automate its publishing workflow system with a solution called “printnet digital publishing workflow”. printnet was developed by ppi media, a subsidiary of MAN Roland Druckmaschinen AG. The objective is that all production steps in the advertising, editorial, prepress, and press departments can be jointly planned, controlled, and supervised. By this move, Berliner Verlag aims at achieving higher efficiency in workflows, lower costs in production and personnel and higher flexibility in production structures.

The technical modules to be installed are PlanPag (editions planning), AdDispo/WebDispo (ad space reservation), AdMan (ad production), AdPag (ad pagination) and ProPag (page assembly). printnet will integrate all the production areas, enabling end-to-end digital workflow.

A key objective is to drastically improve the current ad workflow - parts of which are still manual - with printnet. “The Berliner Verlag has entered a significant stage in the modernisation of its ad workflow,” says Oliver Rohloff, managing director of the Berliner Verlag. “printnet’s open system architecture allows us to integrate all our production areas according to our own ideas and to make them more transparent and efficient”.

With AdPag, ppi’s automatic ad pagination system, ad pages can be paginated automatically before the ads are produced. This makes it possible to release the page planning process, and, as a result, to configure the press at a very early stage. All the produced ads, ad part-pages and ad pages will then be automatically assembled by ProPag and forwarded for imaging.

Berliner Verlag is a 100% subsidiary of the German publishing house Gruner and Jahr. It publishes two daily subscription newspapers with regional geographic reach: Berliner Zeitung (with a reach of about 450,000 readers) and Berliner Kurier (about 340,000 readers). printnet’s publishing workflow will be applied at both dailies.

Source: Documentary material from Robert Friedrichs, ppi media, March 2, 2005. www.ppimedia.de (February 28, 2005).

Conclusions

The World Association of Newspapers (WAN)-project 'Shaping the Future of the Newspaper' confirmed that there are manifold e-business issues affecting newspapers in the digital era. Key issues described include:

- 'profiting from digital', i.e. digital media **strategies** that are delivering success to newspaper publishers
- 'the **mobile** opportunity', i.e. business opportunities arising from deployment of mobile publishing technology,
- 'strategies in a **converging** world', i.e. corporate responses to the rapidly changing technological and market environment,
- 'internet strategies for **newspapers** revisited', i.e. models and future scenarios for online communications and transactions through the developing medium internet,
- 'successful Customer Relationship Management (**CRM**)', i.e. ways to employ CRM to decrease customer churn and strengthen loyalty, and
- 'the **tailored** newspaper', i.e. newspapers tailored to the specific needs of readers and its technological implications (e.g., sections-only newspaper, niche-content newspaper).

Further, digital workflow management solutions, i.e. the efficient creation, processing, storage, and retrieval of all types of digital data, are key to cost effective and timely production of all manner of publications, promotional material, and other forms of print, as well as to the ability to "multi-purpose" such data for the use on the web or for syndication purposes.

The **Berliner Verlag** business example has shown how implementing a new publishing workflow system will become necessary for strengthening market position. By implementing a digital workflow management system, this newspaper publisher will be able to organise work processes in more resource-efficient and cost-effective ways, particularly in servicing advertising customer demands.

2.4 E-Selling Models for Publishing

Introduction

Publishers today must apply a wide range of business models in order to survive financially and stay in the marketplace. New ICT and e-business solutions have introduced a variety of new online business models. Professor Rappa from North Carolina State University has systematised online business models,²⁷ some and/or combination of which are also applicable to the publishing industry (cf. also Annex 1).

Publishing companies may, for example, benefit from leasing software, making use of ASPs (application service providers) and replacing investment by subscription (Rappa's "subscription" model). Or they may profit from models whereby archived newspaper articles are sold to users on a per-use or subscription basis (Rappa's "utility" model). Or they may try to improve customer satisfaction through leverage of customer loyalty programmes (the "community" model). Overall, publishers can achieve business growth from expansion into the following new online selling channels:

- Information on important news such as classifieds for housing and cars, special offers, finance information which are sent via email or SMS.
- Archives with background data to specific topics of interest.
- Content bundling from different sources otherwise not accessible to the public.
- Transactions with discounts.
- Intelligent search tools.
- Offers of text based services, such as alerts, sports, scores, news headlines and, with the advent of MMS and soon UMTS²⁸, games and video clips.
- Streaming media offers.

The following two cases illustrate how publishers of newspaper and book-type publications have successfully applied the internet and e-business solutions as selling and revenue-generating tools, as well as a loyalty-improving and community-building communication channel.

²⁷ See Rappa, 2004 (<http://digitalenterprise.org/models/models.html>).

²⁸ MMS = Multimedia Messaging Service, an enhanced transmission service that enables graphics, video clips and sound files to be transmitted via cellphones; UMTS = Universal Mobile Telecommunications System, a technical standard for wireless telecommunication service delivery, defined by the International Telecommunications Union (ITU).

CASE STUDY: HTTP://DERSTANDARD.AT – INTERNET SUCCESS IN NEWS PUBLISHING

Abstract

DerStandard.at was set up in 1995 as the first German speaking newspaper on the internet. Its constantly developing website has set standards in Austria. Incorporated in 1999 as a separate entity, it became profitable in 2004 with revenues of 4,1 million EUR. Online advertising and online classifieds are most important and represent almost 90% of total turnover. Given the increasing market share of online in advertising and classifieds, further growth with double digit rates is assured for the next few years.

Case Characteristics	
Full name of the company	Bronner Online AG
Location	Vienna, Austria
Sector	Publishing
Year of foundation	1995
No. of employees	70
Turnover in last financial year	4,1 Million EUR
Primary customers	919.000 unique users (Source: ÖWA März 2004)
Most significant market	Online advertising and online classifieds
Full name of the company	Bronner Online AG
E-Business Focus	
Online advertising and classifieds	***
Content management solutions	***
* = in implementation stage; ** = used in day-to-day business; *** = critical business function	

Background and objectives

Austria's daily quality newspapers with nation-wide distribution are represented by four newspapers: *Der Standard*, *Die Presse*, and the *Wiener Zeitung*, all of them published in Vienna, as well as the *Salzburger Nachrichten*, which is published in the region of Salzburg.

It is the traditional media who dominate Austria's web community. The internet offer of the quality daily of *Der Standard*, <http://derStandard.at>, is the leading online quality medium and its constantly developing website has set standards in Austria. Second to move was the ORF, who created ORF-ON as their web brand, which is now the most visited online site in Austria.

<http://derStandard.at> started back in 1995 as the first German-speaking newspaper on the internet. In 2003, the printed version reached 5.8% of the Austrian reading population, i.e. 390,000 people (Austrian Media Analysis, 2003). Its online version was able to attract more than 830,000 unique users, 4.5 million visits and 32.3 million page impressions (Austrian Web Analysis – ÖWA, May 2005). Meanwhile, derStandard.at is constituent part of the Austrian digital information culture landscape, offering a broad scale of services. *derStandard/Web* is visited most frequently, with the channels *derStandard/Politik* (politics), *IPanorama* (chronicle), and *IInvestor* (economy) are the runners up. The sectors sport, media/advertising, culture, and science follow neck and neck.

E-business activity

Value propositions in the advertising market

70 employees of <http://derStandard.at> achieved a turnover of 4.1 million EUR in 2004. Ten years ago, 230,000 people were using the internet in Austria on a regular basis. Today, there are more than 3.1 million users, making the internet significantly more important for advertisers. Having a broad and attractive user base, DerStandard.at can benefit directly from the growth of online advertising and online classifieds markets.

Exhibit 2-8: <http://DerStandard.at>

From revenues of 4.1 million EUR, online advertising accounted for 60% of overall turnover, online classifieds (mainly job advertisements) accounted for 28%, and the business field 'Content solutions' for 12% (see below).

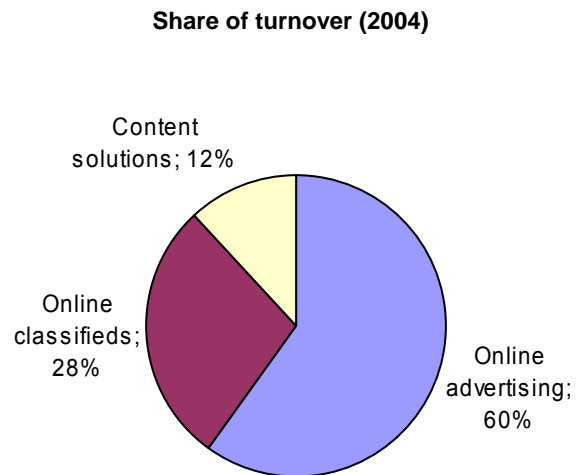
derStandard.at employs the whole range of online advertising forms such as dynamically placed banners, skyscrapers, rectangle, big-size banner, and pop-ups, static buttons, advertorials, site link, content ad, newsletter, or topic add-ons. Ad placement allows for optimal spread of its campaigns and perfect target-marketing to achieve optimal media effects.

In the classifieds market, derStandard.at/ *Karriere* (career) has a leading position in the online job market. Targeting the upper end of the market, it is one of only a few newspapers internationally which is able to compete successfully with pure online plays in the job market. Furthermore, derStandard.at operates in real estate (derStandard.at/Immobilien), automobiles (derStandard.at/Autos) and dating (derStandard.at/ ZuZweit).

Content solutions

In terms of content, derStandard.at offers two channels: the 'Newsroom' channel A: *Politik* (politics), *Investor* (investment), *Web*, *Sport*, *Panorama* (weather, miscellaneous), *Etat* (media), *Kultur* (culture), *Wissenschaft* (science), and the 'Livingroom'-channel B, offering *LeichtSinn* (fashion, literature), *Reise* (travel), *Karriere* (jobs), *Immobilien* (housing), automobiles, chat, and *ZuZweit* (dating). This kind of contextual advertising can be used to track an individual user's surfing behaviour. All forms of advertising are smoothly integrated with editorial content provision.

derStandard.at/ContentSolutions started in 1999. In the beginning, this business field dealt with selling web content from DerStandard.at to commercial customers such as banks, insurance companies, telecommunication companies and internet service providers. Today, derStandard.at/ContentSolutions also exclusively produces prime content for business customers and offers its mature web experience as Application Service Provider (ASP) to third party customers on a licence basis. DerStandard.at thus offers long-term know how in web publishing, applications developed over time, generated content, and technical infrastructure.



There are three components of its ASP solution:

- (1) Content Management System;
- (2) Content Presentation System;
- (3) Content Hosting System.

Data input and content management is achieved by a web-based editorial system with a reporting and statistics tool, content presentation runs via a web-based database to generate content dynamically. Hosting runs via a SQL database and web-servers. Successful examples for ASP content solutions of DerStandard.at are www.cyberschool.at and www.ecaustria.at.

Mobile services: derStandard.at offers PDA and WAP versions, both of which comprise the newsroom channels of DerStandard.at. Additionally, DerStandard.at offers SMS and MMS news, supported by increased internet and mobile media bandwidth to deliver multimedia content. These services are offered for a subscription fee. The fee is payable with the monthly invoice from the mobile carrier.

derStandarddigital.at is a product bundle consisting of an archive (some 250,000 articles since October 1996), the newspaper web edition, the e-paper edition and the Avantgo-version, the last three of which are different digital newspaper versions. Subscription is only open for the entire product bundle. E-paper, the web edition and the Avantgo-version use advanced processing software by Comyan. Newspaper data is taken directly from the editorial system and converted into these three editions. The presentation of the web edition and the archive were developed in-house.

Email services: derStandard.at posts a variety of email newsletters. There are some 100,000 newsletter subscribers, receiving some 150,000 newsletters. In total, the service comprises three weekly newsletters, eight daily newsletters (containing a news overview of all news channels) and an ad-hoc breaking news service. The newsletters also contain advertising and as such are part of online advertising.

Forum: Here, derStandard.at was highly innovative and in 1999 attached forums right to the article where the users could post their comments and opinion. This resulted in total postings of 700,000 in 2004. Another technical innovation concerns automated classification of postings. This project has been developed co-operatively with the Austrian Institute for Artificial Intelligence. DerStandard.at moderates the chat rooms to keep editorial quality on high levels and to avoid legal problems. Formerly, the moderation was done manually – i.e. each posting was read by the editorial staff and then published or cancelled. Now, software preselects postings and only 30% of all postings have to be processed manually. This saves time for the editorial staff. Furthermore, 70% of all postings are published immediately.

User demand: As far as user demand for online provision of editorial content is concerned, target groups of online content offers are to be differentiated alongside sex, age, education, job, purchasing power, and disposable income. In this context, up-to-date media data for our case study derStandard.at has revealed the following: more males (6.1%) than females (4.7%) are reached by its online offers, the 30-39 year olds are reached in greatest numbers (24.6%), its majority have higher education levels (34.7% with higher education, 27.3% with university education) and are more affluent, showing higher disposable income levels (3.000 EUR and more per month).²⁹

²⁹ 'Media Daten', DerStandard.at, available at: <http://derstandarddigital.at/?url=/?ressort=Intraprintneu>. Data are based latest empirical findings from 'Media Analyse 2004' and 'ARGE Media Analysen'.

Impacts and lessons learned

The annual result of <http://derStandard.at> has turned **positive** for the first time in 2004. It is one of the first online media to achieve a positive result. Defying the economic crisis battering the newspaper industry, DerStandard.at was able to improve revenues from 1.7 million EUR in 2000 to 4.1 million EUR in 2004.

Georg Zachhuber, Board Member of derStandard.at, commented as follows:

- *“well established and well managed online media are profitable,*
- *due to the increasing market share of online advertising and online classifieds, online media can achieve double digit growth rates for at least the next few years,*
- *fears that online would ‘cannibalize’ print have not come true, since each of the two media covers distinctive users demands, and*
- *being an independent company was a prerequisite for DerStandard.at to unleash its full innovative power”.*

References and acknowledgements

This case study was conducted by Paul Murschetz (empirica) on behalf of the *e-Business W@tch*.

References

- Interview with Georg Zachhuber, Board Member, <http://derStandard.at>, February, 25, 2005.

The ‘Community’-model for e-selling content

New ICT and e-business solutions have introduced new online business models which are well applicable to publishers (also see, Annex 1). The following case study provides insights to the viability of the so-called ‘Community model’, a new online business model in e-selling which is primarily based on user loyalty. Cornerstones of this model are that internet users show high investments in both time and emotion. Revenue can be based on the sale of ancillary products and services or voluntary contributions. The case shows the importance of customer support and servicing as **loyalty-building tool** in book-selling over the internet.

CASE STUDY: GRADA PUBLISHING – WIDENING THE CUSTOMER BASE THROUGH ONLINE SELLING

Abstract

Grada Publishing, one of the largest publishing companies in Czech Republic, has successfully integrated internet-based sales with its internal editorial system. The main objectives were to shorten the supply chain and thus to improve customer service by fastening the flow of information. This was achieved by using a catalogue system, supplemented by enhanced functionality such as book browsing, information about authors, or book reviews. The company reports increased sales and customer satisfaction.

Case Characteristics	
Full name of the company	Grada Publishing, a.s.
Location	Grada Publishing,a.s., U Průhonu 22, 170 00 Praha 7, Czech Republic
Sector	Publishing (mainly book series)
Year of foundation	1991
Primary customers	Consumers
Most significant market	National and international markets (mostly in Czech and Slovak Republic)
URL of company	www.grada.cz (www.literatura.cz)
E-Business Focus	
Online sales	***
Customer Relationship Management	**
* = in implementation stage; ** = used in day-to-day business; *** = critical business function	

Background and objectives

Grada Publishing, A.S., was established in the Czech Republic in 1991. Since then Grada has developed into the largest publishing company in terms of sales, numbers of newly marketed publications and the extent of business operations in both the Czech and Slovak Republics. The company has published almost 2,500 books (titles) with a total print run of about 10 million copies. On average, Grada publishes more than 250 new editions in about 20 professional fields every year.

In 2000/2001, the company's management decided to refocus its business on online services. The strategy was to use the internet as a supplementary distribution channel in order to support direct sales of all products. Business objectives were to attract more customers, improve internal information flows, enhance the quality of customer service, and gradually move from traditional book selling towards the more efficient online model. With this strategy, Grada hoped that it could also address new customer segments that have a preference for buying books on online and for online shopping in general. The company anticipated that this was an important trend in the book market, and that customer behaviour was moving in this direction.

E-business activity

Implementation

Based on these objectives and considerations, Grada Publishing started in 2000 to work on its own internet-based business portal. While the design of the sales system, particularly of the site structure and functions, was done internally, the development of the shop-system itself and web hosting were outsourced to external providers. The software solution was developed in close cooperation between Grada and the IT service provider.

The development of the underlying system needed about three months, with an additional three months used for testing and implementing the required changes. All the necessary modifications were identified through usability-testing with end-users, taking into consideration their suggestions and comments. The portal was finally launched in 2001.

Implementation costs

The outsourcing model was selected because of lower set-up and maintenance costs, and because of the need to comply with strict security standards. This required the expertise of an ICT service provider. The costs for the portal development were about 120,000 CZK (about 3,500 EUR in 2000), and annual updates cost about 30,000 CZK (about 950 EUR in 2004). These costs include the integration of the company editorial system with the business portal.

The catalogue product database was developed on the platform of MySQL. The main requirement was to achieve maximum independence and simplicity for portal updating or modification to be executed by the GRADA employees. This was achieved by integrating the web portal with the editorial system. The external company was in charge of adapting the web site's structure. All modifications were uploaded directly to the server by the GRADA employees. The web site is updated (i.e. new editions, information on new books published, etc.) and new newsletters are sent to registered users every week.

Since Grada Publishing only wanted to create an additional distribution channel, no organisational and technological changes had to take place within the company. The whole project fit into the existing system.

Extended functions: added value for customers

Further modifications were then implemented during the operational phase of the system, either as a result of the internal experience with the system (e.g. improvements proposed by Grada employees) or in response to customers' feedback. Thus, the portal functionality has been further extended. One of the most important modifications concerned new offerings for customers, providing added value to the mere ordering of books: customers can browse books (or parts thereof) electronically, and the site offers background information, for example about authors.

The marketing department of Grada is the main internal user of the new electronic sales system. Marketing is responsible for providing and updating the content for the website. Of particular importance in this context is the seamless integration of the portal with the editorial system of Grada Publishing, since a substantial part of the content is directly available from this large database and not specifically collected and edited from other sources. The integration with the editorial system facilitates the regular updating of the content in an easy and straightforward way.

Users of the website: consumers, advertisers

There are two main user communities: consumers and advertisers. Consumers (who consider buying a book) are certainly the main users of the site. Their feedback has a big influence on the portal's further development. For companies or organisations that consider to be advertised in a book to be published by Grada, the website is also important and helpful, as it informs about forthcoming opportunities and conditions. Book advertisement is a part of the Grada business model.

The Grada business portal is based on user registration for CRM purposes. Currently, the portal offers the following **functions and services**:

- The electronic reporting system: it provides the company with information on the number, total price and specifications of orders, customer loyalty, customer segmentation, increases in the number of new customers and their orders, turnout monitoring. This system has been generating monthly reports since 2002.
- Electronic catalogue: a list of books with detailed information on each product, for example on the possibility of book browsing. Customers are informed about new releases. At present, 50% of all book titles available are sold online, which is approximately 870 titles. Of these, 482 can be browsed electronically on the website. The catalogue is enhanced by a high quality search engine, which combines key indicators (different areas, categories, etc.). An additional functionality is the option to download files with cases, examples etc. related to the content of a given book, e.g. tables in PDF, calculation models in XLS, etc.
- Suggestions for further reading: similarly to amazon.com, a list of recommended books (from the same author, on the same topic etc.) is attached to each product
- Information on the author and her/his books.
- Advertising: possibility of publishing advertising messages in the books.
- Contacts: possibility of sending questions to the Grada Company using web forms.
- Promotion activities: e.g. price offerings, competitions, sales.
- Sellers' support: information on prices and contracts for retail sellers.
- Buyers' support: purchase information, complaint policy and customer care.

Enhanced functionalities **under consideration** or development are:

- Discussions with authors about their books and issues presented or covered in the books.
- Authors' audio presentations: implementation has already started and is planned to become available by late 2005.

Impact and lessons learned

Impacts

Grada Publishing is very satisfied with the outcomes and impacts of introducing internet-based sales. In particular, the system has helped to increase sales and improve customer service:

Increased sales: The company reports that online-sales have increased annual sales by 45% and the number of new customers by 40% a year. These growth rates are

regarded as a clear proof of the trend towards substituting printed catalogues by online presentation of the offer in the book market.

Improved customer service: Grada maintains that the online shop, which went operational in 2001, was key to significant improvements in customer service already in the period from 2002 to 2004, although enhanced functionalities, such as background information on authors, were added only later on. Moreover, online-feedback from customers has developed into a highly valuable instrument to "measure" customer satisfaction. Feedback and comments also help to adapt and further improve the system.

The following facts and figures further indicate the positive return on investment:

- The average order value has increased from 400 CZK (about 13 €) in 2002 to 600 CZK (about 19 €) in 2003, and 750 CZK (about 24 €) in 2004.
- The number of "returning customers" (those that order more than once) has increased by about 20% per year.
- The annual internet sales turnover in 2004 was 9.5 million CZK (about 300,000 €), which represents an increase of 35% compared to the year 2003.

Grada argues that communicating with customers and doing business over the internet has not only improved customer satisfaction and customer loyalty, but also increased the efficiency of information exchange (e.g. when dealing with special requests or questions), reduced delivery times, and decreased the effort for processing and publishing information material.

Lessons learned

Added value instead of reduced prices: Once the portal had been launched, the company management had to decide whether to use special price offerings or not. Despite the fact that many competitors initially made substantial use of special offers, it was decided not to offer any price reductions on the internet. Grada says that this turned out to be the right decision, and points at observations that most of its competitors that used special offers a few years ago have stopped doing so. It appears that companies would rather lose money by reducing margins through special online offers than profiting from increased sales volumes. Grada is convinced that added value for customers (in terms of convenience and service, for example by offering book reviews and book browsing, or by providing background information on authors) is the key to success and not reduced prices. These added value services cannot be offered by any traditional wholesale seller.

Customer expectations and the internet: According to Zdenek Jaros, Grada marketing manager, the most important lesson learned was that doing business online has become critical for customer satisfaction. Today, customers increasingly expect that a vast amount of information about products, sales conditions and where to get help is available on the web. To meet customer expectations, Grada tries to regularly update and upgrade the functionality of the website, and the way how the content is presented. Innovations reflect customers' preferences and expert opinions. Grada has conducted usability studies involving users of the site and external experts since 2004 in order to assess requirements and opportunities for improvement.

Threat of spam: Another lesson learned from some negative experience relates to the protection against spam and unauthorized use of e-mail addresses. All e-mail addresses on the website have been replaced by web forms.

References and acknowledgements

This case study was conducted by Radoslav Delina (radoslav.delina@tuke.sk), Technical University of Kosice, on behalf of the *e-Business W@tch*.

References

- Interview with Ing. Zdenek Jaros, Head of Marketing Department, January 24, 2005.
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Conclusions

Main conclusions to be drawn from the case studies on electronic selling models presented in this chapter, and from desk research and interviews with industry representatives on related issues, are:

- Many newspapers are still **experimenting** with the integration of online channels into their portfolio of services and products. However, there are already some examples of newspapers realising profits from e-selling activities.
- In book publishing, online is likely to become a **major distribution channel**. This applies to B2B (between publishers and book sellers) and B2C book retail.
- In the long run, it can be expected that online delivery will increasingly lead to "**mass customisation**". This refers to new options which customers are being given to configure their services and products according to their preferences.
- However, when selling over the internet or wireless technologies, establishing **viable business models** lies at the heart of e-business operations and strategies of publishing companies.

Multi-channel e-business transactions can take various forms: advertising, content selling, promotions, or customer support.

- The **derStandard.at** case has illustrated why online advertising and online classifieds could be a viable business opportunity for newspaper publishers in the future, provided that content – the core asset of publishers- is innovatively matched to the demands of online customers.
- The **Grada** case has highlighted the importance of online advertising and promotional activities as marketing tools in internet selling of book products. Book publishers can establish closer reader relationships through customer support and servicing as loyalty-building tools.

The case studies indicate that the use of online channels for distribution and sales can have important implications for customer relationship and marketing. Customers become directly integrated into market research, design and product development activities. This helps companies to improve products for more customer satisfaction, and possibly to identify new sources of revenue. In a way, the role of the customer is changing from a pure consumer of products or services to an equal partner in a process of adding value – consumers are becoming co-producers and co-designers.

This development is referred to as "*value webs*" in literature: the value path to the customer is losing its similarity to a chain and it is being replaced by more flexible relations - the value webs in which e-business partners are tied together (Reichwald et al., 2004).

Exhibit 2-23: Main conclusions from evidence featured in this chapter

Application area	Highlights
Chapter 2.1: Digital Workflow in Printing and Print-on-Demand	<ul style="list-style-type: none"> • Workflow and print management systems are key issues in printing. • New IT systems integrate and optimise the workflow in print shops. • The support systems are integrated all the way from management to production and from prepress to finishing.
Chapter 2.2: Electronic Trading in the Book Industry	<ul style="list-style-type: none"> • Though the industry is increasingly adopting e-business innovations, the book industry as a whole continues to be slow to embrace electronic trading technology • Rates of adoption clearly relate to scale of operations • There can be said to have been little progress in the development of electronic trading in most businesses in the sector in recent years.
Chapter 2.3: Digital Workflow Management in Newspaper Publishing	<ul style="list-style-type: none"> • 'Profiting from digital', i.e. digital media strategies that are delivering success to newspaper publishers, • 'The mobile opportunity', i.e. business opportunities arising from deployment of mobile publishing technology, • 'Strategies in a converging world', i.e. corporate responses to the rapidly changing technological and market environment, • 'Internet strategies for newspapers revisited', i.e. models and future scenarios for online communications and transactions through the developing medium internet, • 'Successful Customer Relationship Management' (CRM), i.e. ways to employ CRM to decrease customer churn and strengthen loyalty, • 'The tailored newspaper', i.e. newspapers tailored to the specific needs of readers and its technological implications (e.g., sections-only newspaper, niche-content newspaper).
Chapter 2.4: E-Selling Models for Publishing	<ul style="list-style-type: none"> • Many newspapers are still experimenting with the integration of online channels into their portfolio of services and products. However, there are already some examples of newspapers realising profits from e-selling activities. • In book publishing, online is likely to become a major distribution channel. This applies to B2B (between publishers and book sellers) and B2C book retail. • In the long run, it can be expected that online delivery will increasingly lead to "mass customisation". This refers to new options which customers are being given to configure their services and products according to their preferences. • However, when selling over the internet or wireless technologies, establishing viable business models lies at the heart of e-business operations and strategies of publishing companies.

3 Business implications and outlook

The analysis and case studies featured in the previous chapter provided some insights into how firms in the P&P industry apply ICT and e-business solutions today. This chapter draws conclusions on ICT related business opportunities and risks for small and medium sized enterprises (chapter 3.1), and presents a brief outlook into likely future ICT developments that are expected to be important for this sector (chapter 3.2).

Readers are asked to note that this is the first of two sector reports on e-business issues in the P&P industry to be published by the *e-Business W@tch* in 2005. The conclusions and business implications discussed in this chapter should therefore be considered as preliminary. Statistical results from the e-Business Survey 2005, which was conducted in January / February 2005, will complete the analysis. These results will be published in the forthcoming report (September 2005) on this sector, leading to consolidated conclusions on the basis of qualitative and quantitative analysis (i.e. taking into account the insight from both the case studies and the statistical picture).

Dynamic ICT adoption in publishing and printing

Findings presented in this report provide evidence of intensified and dynamic adoption of ICT and e-business solutions both in publishing and in printing. ICT systems have been successfully used to integrate and optimise workflow and to create new business value. Nevertheless, in the investment decision and ensuing technology adoption, it is clearly imperative to understand impacts on organisational change.

- The print-on-demand case study provides information on how companies can profit from establishing value webs with customers in e-business print-on-demand markets. However, this market is as yet small and profits can only be expected from niches within it.
- The best-practice case studies for advanced e-business use of SCM systems between companies (B2B) in the book sector have shown how adopting ICT for e-business can be integrated into business operations and strategies. The success of these services resides in increases in user numbers, the integration of improved functionalities and feature enhancements, global reach, and an increase in system affiliates. The growth of both systems shows that clear return on investment (ROI) is offered.
- The case of innovative publishing workflow system in the newspaper publishing domain has brought to the fore greater efficiency in operations. Adopters of these e-business solutions need to understand the requirement for follow-up investment and the issue of skill development for journalists (e.g. multi-media competencies).
- The best-practice cases in newspaper and book-type publishing show how internet and e-business solutions can be successfully applied as selling and revenue-generating tools as well as a loyalty-improving and community-building communication channel.

This discussion of e-business models in publishing has shown found that publishers can profit from an internet *advertising* model if content is innovatively directed to the specific demands of online customers.³⁰ This discussion has also shown that business growth can be achieved by using a *community* business model, in which publishers intensively support customers to gain their loyalty.

³⁰ Cf. Chapter 2.4 and Annex 1 of this report.

Enhancing process efficiency as a driver for ICT adoption

The enhancement of efficiency of existing processes and operations is a key driver for P&P firms to engage in e-business. In fact, e-business solutions may enhance efficiency, i.e. ways of improving the utilization of the organization's capacity, through a reduction of operating costs and reduced production times. Further motivations to engage in e-business are improved service levels, as well as reduced order and delivery times.

- As illustrated by the **Grada** case study, communicating with customers and doing business over the internet has not only improved customer satisfaction and customer loyalty, but also increased the efficiency of information exchange (e.g. when dealing with special requests or questions), reduced delivery times, and decreased the effort for processing and publishing information material.

On the sell-side, entirely new business opportunities have arisen which require the development of new strategies. Printers can offer print on demand or small-scale printing, and publishers can diversify into content syndication or e-commerce. The adoption of e-business has opened business opportunities to differentiate existing products and create new ones, to target new customer segments, and to increase loyalty and trust among consumers. Further, the development and adoption of new business models has improved value generation possibilities.

- The case study on **derStandard.at** is a good example to demonstrate that, in order to fulfil changing customer expectations and requirements, internet offers need to be more complex than print products and offer a clear value-added to consumers.

Trends in user demand remain a critical issue

Demand for traditional media, as well as for new information services, tends to be organised around a set of general preferences and variables concerning price for services and time budgets of users. Books face increasing competition from other media that consumers now have access to, as do newspapers and magazines: "*Although the internet has become the most high-profile competitor in recent years, it is television that takes most of the time that consumers allocate to media use*".³¹ According to a latest survey on the UK, for example, print (i.e. magazines and newspapers) exhibits the lowest involvement levels (referring to allocation of time spent on media), with the majority of readers spending less than 5 hours per week reading (see, EIAA, 2004).

In the online services market, competition has also become very intense, since traditional media companies as well as new entrants have launched their own online services which now compete for audience attention. As shown in the case study, in Austria, **derStandard.at** is successfully providing editorial content (84%) with more than 830.000 unique clients and 4,5 million visits (ÖWA, May 2005). By comparison, however, the online provision of content (52% editorial content) of the Austrian PSB ORF (Austrian Broadcasting Corporation) has more than 2,45 million unique clients, thus being the strongest online medium in Austria. Indeed the same also indicated in a recent article in the Economist,³² highlighting why and how 'traditional' newspaper publishers can not compete with the BBC on the web, due to the latter's significantly larger availability and variety of resources collecting news from all over the world, at any time and in different 'forms' (e.g. films, sound, pictures). Also, actual user demand for derStandard.at has shown that its online offers are dependent on sex, age, education, and disposable income.

³¹ Cf. Publishing Market Watch (2004c), based on a media consumption study conducted by Millward Brown.

³² "Newspapers struggle online", The Economist, 16 June 2005.

Interviews with publishers carried out for this study indicate that customer demands made on newspapers have increased rapidly during the past years. **Berliner Verlag** (see business example, chapter 2.3) states that readers expect more up-to-date reporting, and ad customers want more colour options, later deadlines as well as stronger targeting of their ads in more zoned editions. In short, it appears that ICT enabled possibilities and customer expectations are reinforcing each other: customers are quick to expect improved service and conditions which are enabled by technological advancements.

3.1 Opportunities and risks for SMEs

From the analysis of key issues, and from case studies presented in previous chapters of the report at hand, some conclusions on e-business opportunities and risks for SMEs in the sector can be drawn. It is likely that dominant players in major European P&P markets may consolidate their economic strengths by moving into new e-business fields. Likewise, e-business developments may also offer new revenue opportunities for smaller niche players in selected quality e-business segments. Grasping these opportunities, however, is not without risk (Exhibit 3-1).

Exhibit 3-1: Comparison of e-business opportunities and risks for SMEs

e-Business Opportunities for SMEs	e-Business Risks for SMEs
<ul style="list-style-type: none"> • Improved cost efficiency • Facilitating co-operation • Profiting from digital by compensating for losses in traditional (print) markets • Developments in the software market • Improved collaboration in value webs • Extending market power • Improved customer relations 	<ul style="list-style-type: none"> • New competitors threaten incumbents • Dis-intermediation: pressure on traditional retailers and intermediaries • Economies of scale and scope: Intensifying the power of size • Concentration through e-integration of the value chain • Technology management is vital

E-business related opportunities for SMEs

- **Improved cost efficiency:** SMEs benefit from improved cost efficiencies arising through the use of e-business applications in many commercial transaction domains. In the online book industry, for example, players can greatly reduce market transaction costs such as search, information, contracting, decision, and controlling costs. Cost reductions may also arise from efficiencies in the use of workflow and business process management, and management information systems (as illustrated, for example, by the case study on *Finepress Oy*). This is a major driver for e-business adoption, in both the P&P industries with their complex supply chain processes and organisations.
- **Facilitating co-operation:** One of the strategies for SMEs to counteract their size disadvantage compared to large companies is to establish networks of co-operation with other SMEs or larger competitors. ICT and e-business can be both grid and backbone for such co-operation. ICT enable SMEs to make joint bids, communicate and exchange data efficiently, jointly promote their services through an online platform, and to achieve better prices by cumulative procurement processes. The case study on *PubEasy* exemplifies this co-operative approach. Here, SMEs can gain in size and importance through enhancement of Supply Chain Efficiency in B2B trading activities.

- **Profiting from digital:** The central issue is how to profit from digitisation. According to the *Publishing Market Watch*, the newspaper industry has been struggling to find viable business models to counter the threat of online news services and the erosion of advertising income. Although display advertising has not provided a sustainable business model for many websites, it still has the potential to erode enough conventional newspaper advertising to be of concern to traditional publishers (see *Publishing Market Watch*, 2004). However, the case study on *DerStandard.at* shows that newspaper publishers can reach profitability in online advertising and other value-added services.
- **Developments in the software market:** Providers of e-business software solutions used to target the large company market. There used to be a lack of affordable packages and modules which perform the same function for smaller companies. Recently, since growth rates in the large company segment have decreased, even the large software suppliers have increased their efforts to better cater for smaller companies, for example by offering downsized modules of their established SCM solutions. The case study on *Finepress Oy*, which employees 30 persons, shows how industry specific software systems can help small printing companies to digitally integrate business processes. Companies like *PubEasy* and *NielsenBooknet* (see case studies) focus on developing software solutions and platforms specifically for this industry, not only for production processes, but also for distribution.
- **Improved collaboration in value webs:** e-business practices allow SMEs to reduce market disadvantages by looking for improved collaboration in value webs or nets. New publishing systems embody new forms and combinations of content, providing users with increased choice, control and new levels of interactivity. However, full-scale network effects resulting from value webs will only emerge if customers are actively involved in and integrated into the e-business processes of publishing. The case study on *Cardcorp.co.uk* (15 employees) shows that this concept is already a reality in the business model of some SMEs. Here, the customer is empowered to design his individual product, access automated job tracking, and use simplified reordering and comprehensive order activity reporting.
- **Extending market power:** Although it is not the main objective of e-business in most cases, e-commerce can indeed be the opportunity for smaller companies to extend their sales area. Certain types of SMEs, in particular, have been found to benefit from this opportunity, such as:
 - SMEs which are already well established and successful in their local/regional market(s) and are now trying to expand their sales area by using the internet as a marketing and sales channel.
 - SMEs that have specialised on marketing their services and products entirely through the internet.
 - SMEs which have specialised on providing/manufacturing very specific services/products within their industry, selling to a geographically disperse market ('niche players').
- **Improved customer relations:** Excellent customer service is often a key success factor for SMEs to compensate structural disadvantage compared to large firms, for example in retail. E-business software tools can help to further improve customer service and customer relationship management. This applies, in particular, to service sectors and sectors dealing with consumers. The case studies on *Finepress Oy* and *Cardcorp.co.uk* (both are small firms), and on *Nielsen Booknet* (a medium-sized company) are illustrative examples how customer relationship is influenced and intensified by doing business electronically.

E-business related risks for SMEs

- **New competitors in the online arena:** Convergence of distribution channels for publishing products changes the competitive scenario, particularly for small and medium-sized publishing companies. As the business of 'publishing' is no longer entirely print-based, but can involve online distribution, publishers are confronted with new competitors. The substantial online services of public-service broadcasters, for example, are powerful competitors for publishers on the internet, in terms of audience attention and advertising. This has long been a cause for debate and complaints by publishers.³³ The challenge the extension of public service broadcasting is to 'broadcast' but not to be extended to the internet.
- **Dis-intermediation – Pressure on traditional retailers and intermediaries in publishing:** The publishing industry exhibits some of the most extreme forms of dis-intermediation (i.e. the by-passing of business functions in the value chain), including C2C (Customer to Customer) copy-sharing of music files in peer-to-peer networks. Possibly equally damaging to the business of publishers are originator-direct-to-consumer delivery pathways. Other dis-intermediation processes offer new business models to publishers, for example by exploiting publisher-direct-to-consumer relations. The case study on *Grada Publishing*, one of the largest publishing companies in Czech Republic, indicates that the internet will cause major changes in the value network of book publishers and retailers. For small publishing companies whose sales rely heavily or entirely on traditional bookshops, a crisis of traditional book retailing due to dis-intermediation effects could become a problem.
- **Economies of scale and scope – Intensifying the power of size:** As with other business functions, large enterprises tend to profit from economies of scale, which cause the average cost of producing a commodity to fall as output of the commodity rises. Large companies in printing and publishing can afford to license disproportionately more powerful ICT solutions and achieve higher returns. Economies of scale apply to the P&P industry, for instance with regard to investments in digital printing technology, or when operating sophisticated online services. Therefore, small publishing or printing firms face barriers to entry into new markets, which may translate into an inability to offer suitable packages to advertisers and / or to obtain finance at rates available to larger publishers. The business example of *Berliner Verlag*, a regional publisher that introduces a comprehensive digital publishing workflow system to integrate processes from different departments (editorial, advertising), is a good example. A smaller publisher can hardly afford such an advanced system and will thus face competitive disadvantages.
- **Concentration through e-integration of the value chain:** P&P markets have an inherent tendency towards concentration of ownership and vertical integration. As media firms enlarge to exploit economies of scale and scope, journalistic quality may suffer and plurality of outlets decrease. Consolidation appears to be warranted and desirable on grounds of increased efficiency and market power. Vertical integration is manifest in publishing markets. Large companies forward and backward-integrate their business operations by means of e-business solutions alongside the value chain
- **Technology management is vital:** Some printing companies, particularly the smaller ones, have yet to recognize the importance of technology management. The situation in larger companies is different and reflects their generally more extensive incorporation of management knowledge. Technology management is essential to minimize risks and enhance business opportunities, improving competitiveness by

³³ It is debatable whether and to what extent the role and function of 'public service broadcasting' should be extended to internet offers.

effectively employing the right technology at the right time. Technology management is about identifying relevant technologies and market developments, planning technology implementation in the organisation, adapting existing technology infrastructures and systems to new requirements, and co-ordinating technology implementation in the context of the organisation as a whole.

3.2 Outlook on future developments

The four stages of e-business evolution in publishing

Theory proposes four stages of e-business evolution (channel enhancement, value chain integration, industry transformation, and convergence - The Seybold Report, 2004d; 2003). Channel enhancement is most typically accomplished by means of a web site offering read-only information about the company and its products. This is a critical stage, in that it establishes a platform for web-based customer contact. Value chain integration makes the internet a means for electronic interaction within and among producers, their customers and suppliers. There, the web is used to communicate and coordinate a growing proportion of the players that have a role along the value chain. Online ordering, combined with real-time tracking of order status, is a common service offering of companies in the value chain integration stage.

The industry transformation stage is characterized by dramatic restructuring of the traditional value chain. This may involve eliminating existing intermediaries or conversely, a shift in ownership of the customer relationship in favor of a new entrant to the industry. Convergence is the fourth stage in e-business evolution. Companies will find themselves able to participate across industries after achieving a tight coupling with their customers and virtual integration with all contributors to their value chain.

This report has found evidence that companies in the P&P industry are adapting e-business solutions at different speeds and intensity. Empirical evidence drawn from the case studies in this report has revealed that some firms in the sector yet enhance their traditional value chains while others advance into higher levels of integration. Stages of industry transformation or even convergence are as yet not evidenced.

Toward network-based publishing

As e-business penetrates further into the industry, business strategies, processes, platforms, media channels, and infrastructures will be transformed. A key feature of this landscape can be expected to be new kinds of processes, in particular, integrated networked-based P&P processes that span end-to-end value chains, deliver content across multiple media channels and are implemented using shared-resource architectures (Seybold, 2004c). Future developments include:

- Process representation, which helps an organisation to better understand how ICT can facilitate business processes, by modelling all relevant steps in a process. For example, a supply chain consists of many processes, including transportation, warehousing, and manufacturing activities. For optimisation of the entire process, the software should – ideally – simultaneously consider all the related activities and their interfaces.
- Shared resource architecture for process implementation, including business process management (BPM), web services, service grid, and internet standards.
- Rich media, mobility, proliferating media channels and devices, and “*anytime / anywhere*” delivery of content and media.

- Create once, publish everywhere' content workflows.
- Total process integration, including application-to-application integration (A2Ai), business-to-business integration (B2Bi), business-to-customer integration (B2Ci), and content and publishing integrated with enterprise processes.
- Data transmission technologies: The P&P industry is greatly affected by issues of data compression, which as it does not only assist in lowering memory requirements but also affects the distribution of enriched content in efficient ways. For example, using JPEG image compression techniques can dramatically improve performance as compressed images take much less time to print.

In the evolution of offering products online, and in the wake of the online purchase of books and magazines, the publishing industry is already turning to the sale of magazines and books in electronic format online such as e-books, personalized books and self-publishing. However, many of these initiatives are at the emerging stage. Successful business models are yet to be defined.

4 Further issues and possible implications for policy

This chapter indicates areas where ICT and e-business induced developments could have implications for policy, including media policy in the broad sense.³⁴ Furthermore, there are issues arising from e-business developments in the P&P industry which have not been discussed in this report in detail, but are closely related to topics analysed in this study and should also be considered in terms of possible business and policy implications.

As a result of the qualitative analyses and empirical case studies undertaken in this report, the issue of changes in skill requirements is considered as particularly relevant to the industry and could thus be taken up by policy, in order to strengthen the competitiveness of the European publishing industry. For example, changes in the production and workflow management induced by ICT (see chapters 2.1 and 2.3) translate into new skill requirements, both for management and employees. Similarly, the way how newspapers and books are typically made available and delivered to citizens could have implications on their status as "cultural goods" and on related externalities, such as their role for democracy in the broader sense.

Policy objective	Concerns and suggestions
Ensure the high quality of publishing in Europe, acknowledging the role of media in society	<ul style="list-style-type: none"> • Counteract e-business skill-shortages in the sector, e.g. by monitoring their demand and supply • Monitor and assess implications of electronic publishing developments on existing media regulation (e.g. subsidies for print media, legal status of e-books) • Carefully weigh concerns of ensuring free trade versus those about cultural identity
Ensure fair competition, counteract market failure	<ul style="list-style-type: none"> • Monitor concentration of ownership in the publishing industry, including a consideration of online services • Create an adequate framework for digital rights management • Consider impacts of possible changes in VAT regulation on the publishing industry

Conclusions and recommendations will be further validated in the second sector report (expected for September 2005), which can also draw on the results of the e-Business Survey 2005 among printing and publishing companies.

4.1 Changes in skill requirements

The adoption of e-business strengthens the trend evident for some years in the printing industry towards a declining need for unskilled labour, and to changes in the balance between physical craft skills and computer-based process control and graphics skills.

Today, shop-floor staff is being given responsibility for managing print processes, thus increasing demands on their abilities. Outside the production process, a combination of

³⁴ E-Business Sector Studies on the Media and Printing Industry, October 2002 and May 2003. www.ebusiness-watch.org ('resources')

technical skills with business acumen and editorial skills is increasingly required for roles which previously could be played with one of these three alone.

Changing skills requirements is also affecting publishing: Publishers require a wider skill base to produce both the products and support the customers. Additional skills will be needed for e-commerce, broadband and 3G mobile communications. Publishers require a wider skill base to produce both the products and support the customers (see The EU Publishing Industry: an assessment of competitiveness, 2003). This study presents issues and cases where ICT-induced changes in workflows and business processes are definite drivers for enhanced and/or changed skill requirements in the P&P industry. These may affect managers to efficiently organise integrated digital production processes, but also journalists, system managers and executives who are confronted with greater demands for multi-skilling tasks.

As a result of shifting requirements, the industry may well face skill shortages in future. Changes in skill requirements in this industry, as in others, have impacts on education, labour market and employment policy. Policy optimisation requires investment in forecasting the demand and supply of skills to properly allocate public resources. The forecasting of the shortages of particular combinations of skills requires understanding of a wide range of factors including demographics, immigration policy, demand side changes, increased participation of older people and retirees in the workforce and investment in training. Data from employers and employees must be analysed to provide sufficient insight into vocational education and training.

This study has offered sector-specific case study evidence that adopters of ICT and e-business solutions need to apply a set of infrastructure management styles necessary to effectively cope with today's business challenges. This prominently includes human resources management which, among other things, covers the issue of skill development for executive management and technical staff. Today, journalists critically depend on multi-media competencies to effectively manage e-business processes in the industry.

The European e-Skills Forum established by the European Commission's DG Enterprise and Industry addressed these issues and in its 2004 synthesis report "e-Skills in Europe: Towards 2010 and beyond"³⁵ correctly lists "e-business skills" next to "ICT user skills" and "ICT practitioner skills" and defines them as *"the capabilities needed to exploit opportunities provided by ICT, notably the Internet, to ensure more efficient and effective performance of different types of organisations, to explore possibilities for new ways of conducting business and organisational processes, and to establish new businesses."*³⁶ The Forum recognised that beyond the issue of e-skills one of the most important problem is the lack of ICT and e-business "culture" of too many senior managers and business owners. However, even this report seems to show a slight bias towards technical skills, if judged from the final conclusion and recommendation section.

A role for European policy is, therefore, envisaged in this area. Since most of these policies are developed and implemented at the level of member states or regions, however, it would primarily be the task of the implementing authorities to take these aspects into account. Within the e-Skills Forum, for example, various workshops and conferences have been carried out; In order to further raise the awareness of the discussed issues in the specific sector, it might be useful to organise a workshop focusing on not-technical e-business skills.

³⁵ European e-Skills Forum (2004): "E-Skills in Europe: Towards 2010 and Beyond".

³⁶ Ibid., p. 5.

4.2 Further issues with possible implications for policy

There are some further issues where ICT and e-business related developments play a role and which should be observed by policy, but which have not been focused on in this report. This includes the debate on the internet and its implications for the role of media in society, the debate on adequate regulations for digital rights management, and impacts of possible changes in VAT regulation on the publishing industry.

Public goods and externalities

Books and other publishing media have a dual role in the economy as both cultural and commercial products. Print products are seen as the means of offering many cultural works to the public, and take on the quality of cultural and therefore public goods by referring to values and ideas. As other public goods, printed products may convey positive external effects; in this case some externalities are plurality of opinion and pluralistic cultural supply. These are said to strengthen cultural variety and, consequently, the public spheres of modern societies. This dual role and public good property enhance the importance of the industry to public policy.

As a consequence, in a number of countries a national book and newspaper policy exists. Books and newspapers are defined as cultural items that require specific policy attention in the form of price regulation, reduced taxes or direct subsidies (The European Commission / Publishing Market Watch, 2004c). Media policy in the EU member states will have to consider whether specific regulations that are in place for newspapers and books could or should be extended to new formats, for example electronic books and online editions of newspapers and magazines. This is a delicate subject, as there are always different opinions whether or to what extent policy should intervene in the media market rather than letting the market decide for itself which products it sustains (or not).

It is widely accepted, however, that the P&P sector plays an important role in the development of the knowledge society, where information, communication and education are cornerstones. As ICT and e-business are shaping the media industry of today (the P&P sector being part of it), some of the existing, traditional instruments to ensure a healthy development of this critical industry may have to be revisited.

Digital Rights Management

The future of electronic publishing as a business will depend on the ability to manage digital rights satisfactorily. Digital technologies have transformed the copyright environment and have given rise to a potentially huge market for content. Key issues for electronic publishing are:

- interoperability requirements, including standardisation developments,
- consumer trust and confidence,
- migration towards legitimate services,
- economic viability and
- the impact of DRM on existing rights management approaches, notably the application of levies (see, CENS/ISSS, 2003).

For example, the mission of the Open eBook Forum, an international trade and standards organization devoted to establishing specifications and standards for the electronic publishing marketplace, is *"is to create an open and commercially viable standard for interoperability of digital rights management (DRM) systems, providing trusted transmission of electronic publications (ePublications) among rights holders, intermediaries, and users"* (Open eBook forum, Rights and Rules Mission Group).

An active political commitment for the protection of content delivered via DRM has been put forward by the European Commission and the Member States in the context of the Directive on the Harmonisation of Copyright and Related Rights in the Information Society and the Directive on the Enforcement of Intellectual Property Rights. Further consultations are advised as to agreeing upon standards, DRM security, and private copying levies. These consultations need to focus on striking a balance between the interests of rights holders and users, protecting the original creative investment and enabling legal or licensed re-use by others.

Taxation

The way that Value Added Tax (VAT) is applied to the products of the publishing and printing industry and collected throughout the Single Market is currently under intense discussion at both European and Member States' levels. The rates of tax for the printed press and new multi media products vary greatly from country to country and may differ considerably from their standard rates. Notwithstanding the advantages of a harmonized VAT rate for international trade, intentions to levy an EU-wide harmonised VAT rate may also have negative effects for some publishing titles (which currently benefit from lower VAT rates), possibly reducing circulation and readership, and even endanger some small niche publishers. Thus, policy will have to make a trade-off between stimulating the European market by creating a more favourable framework for international trade, and / or to promote cultural diversity by indirectly subsidising publishing products. In this context, considerations should also be made that printed books and electronic books should rather not fall under different VAT regulation schemes.

5 Background information on the sector

This chapter discusses key industry trends and business challenges and offers some background statistics on the P&P sector.

5.1 Industry trends and challenges

The European P&P industry is in a state of flux. The advent of internet-based and other ICT technologies that allow e-business are permanently changing the business environment of firms in this industry. These macro industry trends are technological, economic, and user-specific in nature. They refer to the adoption of internet-based and other ICT technologies for business, the specific use of e-business solutions, business challenges to use these ICTs to integrate internal and external processes and ICT systems, and aspects of changing user demographics and demand. A crucial question is whether and how business adoption of ICT-induced e-business can lead to business survival, revenue growth and sustainable competitive advantage. In the following, current business challenges players in the industry are confronted with are outlined.

Media substitution: The internet has slowly but steadily eaten into the role of TV and magazines as information channels for travel, jobs, and property. The traditional media hold a strong position for news and sport but will lose more share as Europeans move to broadband. The publishing industry is also mainly challenged by new media substitutes, most prominently the internet, which threatens to ‘cannibalise’ traditional print products.

Changes in the value chain: The P&P value chain is informed by a variety of different market players who contribute to adding value to information-based products and services under specific competitive and environmental conditions. A set of new access, service and technology providers have entered the scene in the P&P industry. These new providers put pressure on incumbents, some forward-integrate their businesses and thus increase horizontal supplier market power while others become vertically integrated and differentiate-out into key specialists in niche markets. On the other hand, these challenges open ways for new supply chain partnerships.

Competitive pressures: Publishers are facing increased pressures from competition through market players within the sector (e.g., in publishing through the increasing number of ‘free sheets’ in major cities) and from other sectors moving into the industry. These new competitors apply ICT to enter core publishing fields to distribute their content. Branding is an effective counter measure to churn, and strengthens customer loyalty.

Difficult economic conditions: The general economic situation greatly affects the P&P industry (see, BVDM, 2004). An economic downturn triggers a decrease on advertising spend on print products as well as on direct consumer sales and the level of circulation. Particularly the job, housing, and car advertisement markets are increasingly read online and mostly for free. This has implications for the printing industry as well, as capacity utilization in this sector follows the overall economic situation and industry advertising expenditure. Latest forecasts suggest a slow recovery of advertising demand (still lower than 2000 by 2004). However, there are significant variations between countries in the value of advertising within the economy (The European Commission, 2003). As for 2004/5, there is moderate optimism in the industry. There are signs of consolidation in the field for daily newspapers (takeovers, fusions, relaxation in merger legislation).

5.2 Background statistics

This chapter offers some background statistics on the P&P sector. size and structure of the P&P industry in Europe, based on key economic indicators from the New Cronos database of Eurostat. New Cronos is structured in nine parts ('themes'). Most of the data used in this chapter are derived from theme 4, 'Industry, trade, and services', and here from the collection sbs (structural business statistics). All statistics presented were prepared by DIW Berlin, which obtained the most recent data available from Eurostat in December 2004. Gaps in the official statistics resulting from missing data for individual countries or the respective year in the time-series of a country were imputed, based on economic calculations and estimates by DIW. The most recent official statistics available for industry-wide macro-economic indicators are those for 2002 at best. For the new EU Member States, the most recent national accounts usually date back to 2001.

There are some discrepancies in the total figures shown in Exhibits 5-1 to 5-4. These discrepancies appear because the size class distribution, figures on production and those on employment are each derived from different source in New Cronos, i.e. there are discrepancies in the official databases provided by Eurostat. As there are many missing values in the New Cronos databases for various countries, the *e-Business W@tch* filled these gaps by using an estimation procedure that assumes structural permanence from one year to another. This procedure was used both for the estimates of the size class distribution and for the production and employment tables. Consequently, the estimation procedure extrapolated the inconsistencies from the original New Cronos tables.

Size and structure of the industry (EU-25)

The P&P industries (NACE Rev. 1.1 22) comprised close to 200,000 enterprises in 2001 in (today's) 25 EU Member States. These companies provided jobs for about 1.9 million people. The two major sub-sectors are publishing (NACE 22.1) and printing (NACE 22.2), which together account for about 94% of production value and 97% of employment. Although publishing generated a higher production value than printing by about 20%, the printing industry employed more people in 2001.

97% of companies from the sector are micro and small firms, about 2% medium-sized companies and less than 1% are large firms. In terms of employment, however, large media and printing companies account for close to 30% of jobs.

Exhibit 5-1: Publishing, printing, reproduction of recorded media in the EU-25 (2001)

NACE Rev. 1.1	Activity	Enter-prises	Production value	Value Added at Factor Cost	Persons Employed
		Number	Million EUR		Number
DE 22	Publishing, printing, reproduction of recorded media	197,639	238,989	93,973	1,889,800
DE 22.1	Publishing	66,980	122,162	46,029	806,000
DE 22.2	Printing	125,554	103,457	43,518	1,038,500
DE 22.3	Reproduction of recorded media	5,106	13,371	4,426	45,300

Source: Eurostat New Cronos / DIW Berlin

Exhibit 5-2: Structure in publishing, printing, reproduction of recorded media in the EU-25 (2001)³⁷

	Total (EU-25)	1-9 empl.	10-49 empl.	50-249 empl.	250+ empl.
		in % of total EU-25			
No. of enterprises	196,763	85.0	12.3	2.3	0.5
Value added at factor cost	93,930	14.0	22.7	23.9	39.3
No. of persons employed	1,907,200	21.8	25.5	23.7	29.0

Source: Eurostat New Cronos / DIW Berlin

Production value (EU-25)

The total production value of the P&P industry in the 25 EU Member States of today was about 239 billion euros in 2001. To put this figure into perspective: this compares to about a third of the production value in the food and beverages industry (NACE 15), less than half of the production value in the automotive industry (NACE 34), but represents more than the combined production value of the textile industries (NACE 17, 18).

Within the EU, UK and Germany are the largest markets, accounting for about 43% of total production value and nearly half of the total value added. If France and Italy, the next largest markets after UK and DE, are added, these four countries account for about two thirds of the total EU-25 production value and value added.

³⁷ Totals are slightly different to those shown in Exhibit 5-1. Discrepancies appear because figures for size class distribution, production and employment are each derived from different source in New Cronos, i.e. there are discrepancies in the official databases provided by Eurostat.

Exhibit 5-3: Production value and value added in publishing, printing, and the reproduction of recorded media in EU-25 countries (2001)³⁸

		Production Value		Value Added	
		million EUR	% of EU-25	million EUR	% of EU-25
BE	Belgium	6,430	2,7	2,150	2,3
CZ	Czech Republic	1,503	0,6	352	0,4
DK	Denmark	4,692	2,0	1,971	2,1
DE	Germany	50,233	21,0	20,158	21,5
EE	Estonia	174	0,1	59	0,1
ES	Spain	14,901	6,2	5,691	6,1
FR	France	33,470	14,0	11,105	11,8
IE	Ireland	9,344	3,9	2,921	3,1
IT	Italy	25,107	10,5	8,332	8,9
CY	Cyprus	138	0,1	59	0,1
LV	Latvia	214	0,1	126	0,1
LT	Lithuania	214	0,1	75	0,1
HU	Hungary	1,370	0,6	390	0,4
MT	Malta	110	0,0	56	0,1
NL	Netherlands	13,462	5,6	5,458	5,8
AT	Austria	4,199	1,8	1,760	1,9
PL	Poland	4,608	1,9	2,632	2,8
PT	Portugal	2,479	1,0	960	1,0
SI	Slovenia	564	0,2	200	0,2
SK	Slovak Republic	397	0,2	115	0,1
FI	Finland	3,996	1,7	1,632	1,7
SE	Sweden	6,986	2,9	2,336	2,5
UK	United Kingdom	52,996	22,2	24,863	26,5
	Others	1,402	0,6	572	0,6
	EU-25	238,989	100	93,973	100

Source: Eurostat New Cronos / DIW Berlin

³⁸ Totals are slightly different to those shown in Exhibit 5-1 / 5-2. Discrepancies appear because figures for size class distribution, production and employment are each derived from different source in New Cronos, i.e. there are discrepancies in the official databases provided by Eurostat.

Employment, productivity and labour cost (EU-25)

The following exhibit informs about employment, productivity, and labour cost in publishing, printing, and the reproduction of recorded media in EU-25 countries (2001), broken down country by country. In general, the P&P sector has a relatively small role in the national economies of the EU. On average, the sector made up 5.6% of total employment in manufacturing (EU-25). However, productivity is higher than in the manufacturing industry on average (EU-25). Further, labour costs topped the manufacturing industry average (EU-22).

Exhibit 5-4: Employment, productivity and labour cost in publishing, printing, and the reproduction of recorded media in EU-25 countries (2001)³⁹

		Employment		Productivity		Labour Cost	
		persons employed	% of manufacturing	persons employed	% of manufacturing	persons employed	% of manufacturing
BE	Belgium	37,993	5.6	56,597	86.7	44,060	100.7
CZ	Czech Republic	38,689	2.8	9,106	85.0	7,895	117.6
DK	Denmark	49,808	10.4	39,574	73.9	31,376	85.3
DE	Germany	401,064	5.3	50,260	91.8	38,330	90.6
EE	Estonia	5,365	4.4	11,016	137.2	8,044	159.4
ES	Spain	147,059	5.5	38,701	98.7	27,210	105.4
FR	France	216,928	5.3	51,190	100.5	42,543	113.2
IE	Ireland	19,018	7.6	153,607	117.2	38,114	116.2
IT	Italy	173,710	3.6	47,963	114.3	33,934	117.3
CY	Cyprus	2,214	6.0	26,468	105.8	•	•
LV	Latvia	9,241	6.0	13,635	128.8	5,074	135.7
LT	Lithuania	10,310	4.2	7,284	131.5	4,389	118.3
HU	Hungary	36,951	4.2	10,563	86.9	6,678	95.9
MT	Malta	2,139	6.8	26,227	110.1	12,960	94.5
NL	Netherlands	96,894	10.4	56,329	96.6	39,179	102.5
AT	Austria	27,079	4.3	64,995	114.1	43,477	111.1
PL	Poland	•	•	•	•	10,293	133.4
PT	Portugal	38,142	4.2	25,161	127.9	17,728	140.7
SI	Slovenia	•	•	•	•	18,505	136.9
SK	Slovak Republic	11,020	2.6	10,436	111.7	6,354	124.1
FI	Finland	31,326	7.2	52,097	73.1	36,836	97.4
SE	Sweden	55,824	7.0	41,840	80.1	38,012	96.1
UK	United Kingdom	382,952	9.9	64,925	110.2	39,134	104.3
	Others	96,074	3.7	35,431	154.3	•	•
	EU-25	1,889,800	5.6	49,726	110.2	•	•
	EU-22					34,281	110.6

Source: Eurostat New Cronos / DIW Berlin

³⁹ Totals are slightly different to those shown in Exhibit 5-1 / 5-2. Discrepancies appear because figures for size class distribution, production and employment are each derived from different source in New Cronos, i.e. there are discrepancies in the official databases provided by Eurostat.

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Annex I: Online business models

This Annex summarises the main concepts of online business models. ICT and e-business solutions have introduced a variety of new online business models which are well applicable to the P&P Industry. Professor Rappa from North Carolina State University has systematized online business models as follows.⁴⁰

- **Brokerage:** Brokers are market-makers: they bring buyers and sellers together and facilitate transactions. Brokers play a frequent role in business-to-business (B2B), business-to-consumer (B2C), or consumer-to-consumer (C2C) markets. Usually a broker charges a fee or commission for each transaction it enables. The formula for fees can vary.
- **Advertising:** The web advertising model is an extension of the traditional media broadcast model. The broadcaster, in this case, a web site, provides content (usually, but not necessarily, for free) and services (like e-mail, chat, forums) mixed with advertising messages in the form of banner ads. The banner ads may be the major or sole source of revenue for the broadcaster. The broadcaster may be a content creator or a distributor of content created elsewhere. The advertising model only works when the volume of viewer traffic is large or highly specialized.
- **Infomediary:** Data about consumers and their consumption habits are valuable, especially when that information is carefully analysed and used to target marketing campaigns. Independently collected data about producers and their products are useful to consumers when considering a purchase. Some firms function as infomediaries (information intermediaries) assisting buyers and/or sellers understand a given market.
- **Merchant:** Wholesalers and retailers of goods and services. Sales may be made based on list prices or through auction.
- **Manufacturer:** The manufacturer or 'direct model', it is predicated on the power of the web to allow a manufacturer (i.e., a company that creates a product or service) to reach buyers directly and thereby compress the distribution channel. The manufacturer model can be based on efficiency, improved customer service, and a better understanding of customer preferences.
- **Affiliate:** In contrast to the generalized portal, which seeks to drive a high volume of traffic to one site, the affiliate model, provides purchase opportunities wherever people may be surfing. It does this by offering financial incentives (in the form of a percentage of revenue) to affiliated partner sites. The affiliates provide purchase-point click-through to the merchant. It is a pay-for-performance model -- if an affiliate does not generate sales, it represents no cost to the merchant. The affiliate model is inherently well-suited to the web, which explains its popularity. Variations include, banner exchange, pay-per-click, and revenue sharing programs.
- **Community:** The viability of the community model is based on user loyalty. Users have a high investment in both time and emotion. Revenue can be based on the sale of ancillary products and services or voluntary contributions.
- **Subscription:** Users are charged a periodic - daily, monthly or annual - fee to subscribe to a service. It is not uncommon for sites to combine free content with 'premium' (i.e., subscriber- or member-only) content. Subscription fees are incurred

⁴⁰ see <http://digitalenterprise.org/models/models.html>

irrespective of actual usage rates. Subscription and advertising models are frequently combined.

- **Utility:** The utility or 'on-demand' model is based on metering usage, or a 'pay as you go' approach. Unlike subscriber services, metered services are based on actual usage rates. Traditionally, metering has been used for essential services (e.g., electricity water, long-distance telephone services). Internet service providers (ISPs) in some parts of the world operate as utilities, charging customers for connection minutes, as opposed to the subscriber model common in the U.S.

Annex II: Glossary of Abbreviations and Technical Terms in Publishing & Printing

Term	Definition
Ancillary activities related to printing (NACE)	Ancillary activities related to printing (Group 22.25); refers to additional economic activities of printing such as production of other reprographic products: overhead projection foils, sketches, layouts, dummies, etc.; preparation of digital data, e.g. enhancement, selection, linkage of digital data stored on EDP data carriers; other graphic activities.
ANSI X12	The ANSI Accredited Standards Committee (ASC) X12 is the U.S. standards body for the cross-industry development, maintenance, and publication of electronic data exchange standards, based on, but not limited to X12 EDI, XML, and UN/EDIFACT formats. As the preferred standards body for defining requirements of electronic business document content, ASC X12 also serves as a key player in international forums by contributing to the universal core component work and message design architecture. Organisation: ANSI (American National Standards Institute)
B2B	Business to Business. Electronic transactions between companies.
B2C	Business to Consumer. Electronic business processes between companies and consumers.
Bookbinding	Bookbinding (Group 22.23) includes finishing of printed sheets, e.g. into books, brochures, magazines, catalogues, etc., by folding, assembling, stitching, glueing, collating, basting, adhesive binding, trimming, gold stamping, finishing of printed paper or board, e.g. for business forms, displays, sample cards, labels, calendars, advertising literature, for mailing, prospectuses, by folding, stamping, drilling, punching, perforating, embossing, sticking, glueing, laminating.
Channel	In communications, a physical or logical path allowing the transmission of information; the path connecting a data source and a receiver.
CIP4	International Cooperation for the Integration of Processes in Prepress, Press, and Postpress; based in Switzerland.
Computer-to-Film	Computer-to-Film: digital data transfer technology; output on film as pages and color prints; imaging off-press; printing method: offset.
Computer-to-Plate	Computer-to-Plate: digital data transfer technology; output on plate; intermediate steps of film production, montage, etc. are waived; imaging off-press; printing method: offset; allows for low-circulation (up to 3.000) prints (short-run color).
Computer-to-Press	Computer-to-Press: digital data transfer technology; output on plate or paper; imaging on-press; printing method: offset; allows for printing of higher circulations.
Computer-to-Print	Computer-to-Print: digital data transfer technology; output on dynamic print forms; printing method: digital print (non-impact printing method, basis: electrophotography).
Computer-to-Paper	Computer-to-Paper: digital data transfer technology; no physical output; printing method: digital print (non-impact printing method, basis: inkjet, thermography).
Computer-to-X technologies	Computer-to-X technologies – term for digital output technologies and systems, i.e. all technologies for outputting of digital information from prepress.

CRM	CRM: Customer relationship management is an information industry term for methodologies, software, and usually internet capabilities that help an enterprise manage customer relationships in an organized way. For example, an enterprise might build a database about its customers that described relationships in sufficient detail so that management, salespeople, people providing service, and perhaps the customer directly could access information, match customer needs with product plans and offerings, remind customers of service requirements, know what other products a customer had purchased, and so forth.
DAM	Digital asset management: The process of storing, retrieving and distributing digital assets (files), such as logos, photos, marketing collateral, documents, and multimedia files in a centralized and systematically organized system, allowing for the quick and efficient storage, retrieval, and reuse of the digital files that are essential to all businesses.
DI litho	Digital print method, which use a computer-to-plate (CtP) device to image a plate on press and then print through a normal litho process.
DOI	Digital Object Identifier – DOI. A DOI is a persistent identifier mechanism for use on digital networks to enable the resolution of an identifier (to URL or other data) and interoperability via declared metadata. The DOI consists of a prefix and a suffix: an ISBN can be used as the suffix portion of a DOI. The Digital Object Identifier (DOI [®]) is a system which provides a mechanism to interoperably identify and exchange intellectual property in the digital environment. It is an identifier in sense (4) above. One of the components is a syntax specification (<i>identifier (2)</i>). DOI conforms to a URI (<i>identifier (3)</i>) specification. It provides an extensible framework for managing intellectual content based on proven standards of digital object architecture and intellectual property management. It is an open system based on non-proprietary standards.
Digital print	The broad definition of digital print is printed output which is directly imaged onto a blanket, plate or substrate from an electronic file, i.e. there is no intermediate film stage.
Distributor (book industry)	Distributor are businesses (including small publishers) which distribute books on behalf of themselves or others to retailers and wholesalers. Small publishers who do their own distribution are de-facto 'distributors'.
DRM	DRM: Digital Rights Management Systems are technologies that describe and identify digital content protected by intellectual property rights, and enforce usage rules set by right-holders or prescribed by law for digital content. DRMs are thus an important complement to the legal framework.
DSL	Digital Subscriber Line. A family of technologies generically referred to as DSL, or xDSL, capable of transforming ordinary phone lines (also known as 'twisted copper pairs') into high-speed digital lines, capable of supporting advanced services. ADSL (Asymmetric Digital Subscriber Line), HDSL (High data rate Digital Subscriber Line) and VDSL (Very high data rate Digital Subscriber Line) are all variants of xDSL
EAI	EAI (enterprise application integration) is a business computing term for the plans, methods, and tools aimed at modernizing, consolidating, and coordinating the computer applications in an enterprise. Typically, an enterprise has existing legacy applications and databases and wants to continue to use them while adding or migrating to a new set of applications that exploit the internet, e-commerce, extranet, and other new technologies. EAI may involve developing a new total view of an enterprise's business and its applications, seeing how existing applications fit into the new view, and then devising ways to efficiently reuse what already exists while adding new applications and data. EAI encompasses methodologies such as object-oriented programming,

	distributed, cross-platform program communication using message brokers with Common Object Request Broker Architecture and COM+, the modification of enterprise resource planning (ERP) to fit new objectives, enterprise-wide content and data distribution using common databases and data standards implemented with the Extensible Markup Language (XML), middleware, message queuing, and other approaches.
E-Book	E-books are paperless versions of a book, article or other document. Reading device are physical appliances used to render an e-book publication. Further technical requirement is a 'reading system', i.e. the combination of software and hardware that processes e-book content and presents it to a user.
EDM	EDM (Electronic Document Management) is the management of different kinds of documents in an enterprise using computer programs and storage. An EDM system allows an enterprise and its users to create a document or capture a hard copy in electronic form, store, edit, print, process, and otherwise manage documents in image, video, and audio, as well as in text form. An EDM system usually provides a single view of multiple databases and may include scanners for document capture, printers for creating hard copy, storage devices such as redundant array of independent disks systems, and computer server and server programs for managing the databases that contains the documents. EDM may be needed in enterprises that capture and store a large number of documents such as invoices, sales orders, photographs, phone interviews, or video newsclips. EDM may be combined with or integrated into other applications. It may be combined with a workflow management approach. Capture may include document imaging and optical character recognition (OCR).
EDItEUR	http://www.editeur.org/EDItEUR is the Pan-European Book Sector EDI Group, recognised by the Commission of the European Union and by the Western European EDIFACT Board, and supported by the European Federations of Library, Booksellers and Publishers Associations. EDItEUR's brief is to coordinate the development, promotion and implementation of EDI in the books and serials sectors.
EDI	EDI – Electronic Data Interchange. A way for unaffiliated companies to use networks to link their businesses by using a common technical standard for exchanging business data. While electronic mail between companies is common, electronic data interchange passes bigger bundles that replace large paper documents such as bills and contracts. Besides saving paper, computers could save time by taking over transactions such as regular purchase orders that now require human intervention.
Electrophotography	Digital print method, in which a dry or liquid toner is deposited on the substrate by varying its electrostatic properties and then fixed by absorption, chemical reaction or heat (used in xerographic photocopiers and the Indigo and Xeikon digital print engines).
ERP	Enterprise Resource Planning. A software system that helps to integrate and cover all major business activities within a company, including product planning, parts purchasing, inventory management, order tracking, human resources, projects management, and finance.
Extranet	A network using internet protocols that allows external organisations (for example customers or suppliers) access to selected internal data. Essentially it is an Intranet which gives external users restricted access (often password protected) to information through the firewall.
Flexography	A printing method using flexible plates where the image to be printed is higher than the non-printing areas. The inked areas are then contact the material to be printed, transferring the ink from the raised areas to the material. Fast drying inks are usually used in this process. Common uses are the printing of cans and bottles and other non-flat items.

GTIN	Global Trade Identifier Numbers (GTINs): A GTIN is used to identify any item (product or service) upon which there is a need to retrieve pre-defined information and that may be priced or ordered or invoiced at any point in any supply chain. This definition covers raw materials through to the end user products and also includes services, all of them having pre-defined characteristics.
Inkjet	Inkjet print – a general designation for the large class of printers used to print computer images. Inkjet printers make use of extremely small nozzles to deliver exact amounts pigment to precise locations on the paper. Ink jet-based is a digital print method, in which a special liquid ink is sprayed either directly onto the substrate, or an intermediate blanket.
Interoperability	The technical features of a group of interconnected systems (includes equipment owned and operated by the customer which is attached to the public telecommunication network) which ensure end-to-end provision of a given service in a consistent and predictable way.
Intranet	An internal internet, that is an internal network running using TCP/IP, which makes information available within the company. Most intranets are connected to the internet, and use firewalls to prevent unauthorised access.
ISBN-13	On January 1, 2005, the book industry starts the conversion to the 13-Digit ISBN. By January 1, 2007, retailers and suppliers are required to have the ability to read, process and store all ISBNs as 13 digits. This will enable the book industry to resolve a pending shortage of new ISBN assignments and allows ISBNs to become integrated with Global Trade Identifier Numbers (GTINs), including the UCC/EAN-14.
JDF	JDF is a comprehensive XML-based file format/proposed industry standard for end-to-end job ticket specifications combined with a message description standard and message interchange protocol. JDF is designed to streamline information exchange between different applications and systems. JDF is intended to enable the entire industry, including media, design, graphic arts, on demand and e-commerce companies to implement and work with individual workflow solutions. JDF will allow integration of heterogeneous products from diverse vendors to seamless workflow solutions.
Letterpress	Letterpress – Typographic printing from movable type.
Lithography	A printing technique in which the image is drawn on a very flat slab of limestone (or a specially treated metal plate). This stone is treated chemically so that ink, when rolled on to the stone, adheres only where the drawing was done. This inked image can then be transferred to a piece of paper with the help of a high pressure press.
M-commerce	Mobile commerce. E-commerce that takes place using mobile connection devices and through data transmission via technical standards for mobile communication.
MIS	MIS: Management Information Systems is a general term for the computer systems in an enterprise that provide information about its business operations.
Offset printing	Offset printing is defined as planographic printing by indirect image-transfer from photomechanical plates. The plate transfers ink to a rubber-covered cylinder, which "offsets" the ink to the paper. Also called photo-offset and offset lithography.
Other publishing (NACE)	Other publishing (Group 22.15): generally refers to publishing of art works, software publishing, or religious publishing and all other publishing except 22.11, 22.12, 22.13, and 22.14 respectively. This study focuses on this group only peripherally and where necessary. This is because research on this group lies beyond the achievable scope of this study.

PDF	PDF – Portable Document Format. Several software applications create portable document format (PDF) files or digital paper format (DPF) files. These applications are variations of page description languages such as Postscript and employ an object-oriented structural design that incorporates vector, raster and text elements as objects and provide for portability between computer platforms and software applications. A PDF file describes the relationship of elements to one another in a device- and resolution- independent manner which greatly reduces the chance for errors when files are ripped to an output device. PDF files are small, nearly uneditable, and very transportable. Although it is in the early stages of adoption, many in the graphic arts industry are convinced that this format will be accepted as the de facto standard for digital delivery.
POS	Point-of-Sale (POS): Barcode data (sometimes called point-of-sale data) is information from barcodes that is automatically gathered as a consumer's purchases are put through a check-out. Typically, the information gathered would identify which customer bought what products, at what prices, and when and where the transaction took place. Point-of-sale (POS) terminals collect enormous volumes of such data every day. According to a report in Darwin Magazine, the Staples office supply chain collects a gigabyte of data daily from its United States stores alone. After processing, barcode data can be very useful for marketing purposes. For example, a retailer might apply predictive technology software to help them plan when or where to launch a sales campaign, or how to price an item.
Postscript	PS – Postscript is a programming language that describes the appearance of a printed page. It was developed by Adobe in 1985 and has become an industry standard for printing and imaging. All major printer manufacturers make printers that contain or can be loaded with Postscript software, which also runs on all major operating system platforms. A Postscript file can be identified by its ".ps" suffix. Postscript describes the text and graphic elements on a page to a black-and-white or color printer or other output device, such as a slide recorder, imagesetter, or screen display. Postscript handles industry-standard, scalable typeface in the Type 1 and TrueType formats. Users can convert Postscript files to the Adobe Portable Document Format (PDF) using the Adobe Acrobat product.
Pre-press	Pre-press activities (NACE Group 22.24) refer to economic and technical activities in preparing copy for printing. Originally, typesetting, page layout, the production of negatives, and plates from the negatives, were all done by hand. Computers are now used to do most of the production of camera-ready copy, and eventually may eliminate much of the pre-press stage. Pre-press now contains: page layout software; digitising / scanning; file management software (DAM, MIS); supplying files to printer (PDF, Postscript, JDF); Digital workflows / preflighting; colour management / proofing for digital print; digital print finishing (collating, binding, varnishing, laminating).
Printing	Printing refers to all economic activities surrounding the manufacturing and servicing of identical copies of written or graphic material by means of mechanical devices or digital hard- and software technologies and infrastructures. Printing includes support activities such as trade binding and finishing, plate-making, graphic services and data imaging. Support activities are an integral part of the printing process. Products resulting from these support activities (e.g. printing plate, bound book, computer disk or file) are an integral part of the printing industry. Further, it includes printing of newspapers (Group 22.21), and printing of n.e.c. (Group 22.22) which refers to printing of magazines and other periodicals, books and brochures, music and music manuscripts, maps, atlases, posters, advertising catalogues, prospectuses and other printed advertising, postage stamps, taxation stamps, documents of title, cheques and other security papers, registers, albums, diaries, calendars, business forms and other commercial printed matter, personal stationery and other printed matter.

Print-on-demand	Print-on-demand (POD). In the area of printing and book publishing, there are many initiatives to facilitate the distribution of low copy publications by enabling print-on-demand, i.e. that a book will only be printed when a customer has ordered it. Digital printing should make the production of very small volumes (possibly single-copy) and personalised printing technically and economically feasible and thus be a viable method to overcome the high first-copy costs.
Publishers (book industry)	Publishers are players that take over editorial, sales and marketing function of a publishing business as distinct from the distribution side. Their role is to commission and publish books.
Remote access	The ability of a company computer network's transmission points to gain access to a computer at a different location.
Retailer (book industry)	Retailers which are primarily booksellers through bookshops and sub-groupings including independent, chain and internet (i.e. direct sales) retailers.
RIP	RIP – raster image processing is the process and the means of turning vector digital information such as a PostScript file into a high-resolution raster image. That is, the RIP takes the digital information about fonts and graphics that describes the appearance of your file and translates it into an image composed of individual dots that the imaging device (such as your desktop printer or an imagesetter) can output.
SCM	Supply chain management (SCM). Software that helps business to match supply and demand through integrated and collaborative planning tools.
Screen	Screen-printing also known as silkscreening or serigraphy, is a printmaking technique that creates a sharp-edged single-color image using a stencil and a porous fabric. A screenprint or serigraph is an image created using this technique. Screen printing is currently popular both in fine arts and in small-scale commercial printing, where it is commonly used to put images on T-shirts and hats.
Thermography	Thermography is the production of raised image prints by the application of heat. It is a finishing process that has a similar effect as steel-die engraving, yet it is less expensive to produce because the printing process is much faster, and does not require a die.
XML	Extensible Mark-up Language is based on HTML but contains many more terms and it is used for defining message formats in internet EDI. One example of an XML format is the ONIX product set which creates terms for fields needed to describe product information.

Annex III: List of Experts Interviewed

Desk research for this Sector Study includes interviews with the following experts and industry representatives:

- **Bennett, Francis**, Managing Director of Nielsen BookData, which is owned by VNU Media Measurement & Information.
- **Chisholm, Jim**, Strategy Advisor to the World Association of Newspapers and Director of the association's Shaping the Future of the Newspaper project, www.futureofthenewspaper.com.
- **Edwards, Simon**, E4Books, private consultant, United Kingdom.
- **Finkbeiner, Gerd**, Prof., CEO of Man Roland Druckmaschinen AG, Offenbach/Main, Germany.
- **Sussman, Barry**, Consultant, Innovation International Media Consulting Group (Washington DC, USA), bsussman@his.com.
- **Toivonen, Timo E.**, Prof., researcher, Business Research and Development Group, Media Group, Turku School of Economics and Business Administration, Turku, Finland, www.tukkk.fi.
- **Wagner, Martin**, sueddeutsche.de GmbH, Geschäftsführer, München, Germany, www.sueddeutsche.de.