New production models for newspaper organizations

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Abstract: - Information delivery is undergoing profound changes. The established media such as radio, television, and newspapers are faced with a variety of new digital content formats. New dimensions of publishing can be exploited in the case of newspaper production. This paper investigates the changes in the production models of newspaper organizations caused by the introduction of information technology. The study is focused on distributed printing, distributed publishing, and electronic edition of newspapers.

Key-Words: - newspaper organizations, distributed publishing systems, distributed printing, electronic newspaper edition.

1 Introduction

Information delivery is undergoing profound changes. The present transformation of the communications sector marks a fundamental shift from mass broadcast media to interactive media use. The Internet is already giving consumers more choice and control of content, and offers individuals, companies and both public and private organizations the chance to produce and distribute information. As a result, Internet news is proliferating, produced by individuals, freelance experts, public relations agencies and traditional news organizations. And most of this is available for free [1].

Up until the end of the 20th century, most newspapers worldwide had for several years seen a decline in circulations. In many countries throughout Europe –including Greece - and the rest of the world they are continuing to do so. In addition to the established media such as radio, television, and newspapers are faced with a variety of new digital content formats. Collectively and individually all forms of media are competing strenuously for consumers' attention. As consumers' work and leisure patterns have changed, so their expectations for media and content delivery have also changed. That has created a changing competitive landscape for newspaper publishers [2].

The published newspaper is the net of the integrated accumulative work of a group of people. The traditional publishing systems used by the majority of the newspaper organizations limit the ability to enter the new era of conducting business. Successful organizations continually renew their basic architectures and platforms to take advantage of new technologies [3-4]. One important objective of the newspaper organization is to improve the publishing process using the technology as a key enabler [5].

The newspaper industry has also undergone a substantial change in ownership patterns. Newspaper publishing businesses have consolidated, with the result that there are fewer newspaper publishers responsible for individual titles. Most newspaper publishing companies produce more than one title and have extensive supplemental interests in regional or local newspapers. This is having an effect on circulation patterns and competitivity as large groups extend their reach into new regions and new media. The emergence of large newspaper publishing groups ought to provide substantial economies of scale for the publishers' technology investments, uniformity in production methods and centralized resource management [2].

Publishers have examined many new ways of removing cost from their production and delivery models, largely through effective deployment and automation. Production efficiencies have helped to steadily improve the newspaper industry's market responsiveness, and this too contributes to changing circulation patterns. The industry is getting closer to readerships than ever before, even though readerships have access to more content sources.

This paper investigates the changes in the production models of newspaper organizations caused by the adoption of information technology. The study discusses distributed printing, distributed publishing, and electronic editions of newspapers. The rest of the paper is organized as follows: In section 2 we discuss the transition of newspaper from the analogue to the digital format. The changes in the production models are described in Section 3. In the next three sections we discuss the issues of

distributed printing, distributed publishing, and electronic editions. Concluding remarks can be found in Section 7.

2 From Analogue to digital

Analogue printing is the major production model for the majority of the newspaper industry and only a tiny proportion of newspapers is printed on a digital press. The remote analogue model has been developed so that newspapers can reach market more quickly and in order to provide later production deadlines. However few newspapers take advantage of time zone differences in order to produce different editions for remote markets and few if any take advantage of digital networks to phase their information distribution. Content for international editions is generally published as a single edition, and it is not shaped with a view to the time zone or market in which it is to be published [2].

For the past two decades some newspaper organizations have taken advantage of digital technologies in order to accelerate production throughput, and to optimize capital investments. Electronic production is now the established model for successful newspapers worldwide [6]. In such systems there is a central information retrieval system, which effectively supports the publishing process. All information is stored in digital format. All parts of the newspaper organization are interconnected via the company's intranet. The system incorporates all the information in such a way that each user can easily access the information from a central repository. The central repository structure includes all the different kinds of information (text or image, video). An important requirement of the system is to automatically provide the newspaper online service. The use of digital typesetting, digital image capture, databases and electronic front end systems for both advertising and editorial management, has long been established practice. This is a key component to developing an infrastructure able to take advantage of digital printing technologies and variable information processing [7].

Over the last few years the rapid development of digital networks has dominated newspaper production. Digital network deployment has created a channel for delivering content to a digital press. All of the newspapers that have fully digital systems also have infrastructures theoretically capable of delivering content to a remotely located digital press. Together the development of digital data delivery and the direct to output production models have shaped current production practices. They operate within the context of larger social and technological trends affecting the newspaper industry. Today's society is highly mobile with changing expectations for media delivery. Digital delivery and the adoption of working practices to support remote content delivery enhance the newspaper industry's capacity to respond to evolving reader and advertiser requirements [2].

3 Changing Production Models

Digital production provides unprecedented control over newspaper format and content. Information technology's role in the production and distribution of news affects the printed product in different ways. While the revenue base for the printed paper might be endangered by further loss of readership and advertising revenues, at the same time many new opportunities for news production and distribution present themselves. The redefinition of the newspaper product may indeed lead to very different outcomes. The transformation of newspaper publishing from a separate and independent enterprise into one of the products of multi-media production houses, as well as the transformation of the printed product's scope and character can already be observed [2].

Digital technology provides the flexibility for content processing and distribution, but its application varies with the nature and market of individual newspaper titles. Figure 1 presents the flow of information in a modern newspaper organization. The doted line represents the work flow in a traditional non-digital newspaper.

Starting from the top the newspaper organization may be located in one geographical location or it may be distributed in several locations. The product of the newspaper organization may be produced in a paper or electronic format.

In the case of the paper format the organization can print the product locally or can deliver the edition digitally to one or several remote locations for printing.

In the case of electronic format the newspaper organization can deliver its product via the Internet in a variety of digital formats or via CD-ROM [7]. The devices that the user can use in order to access the electronic editions are standard PCs, TabletPCs, and PDAs [8].

Based on the above we can conclude that a newspaper organization that is fully digital can implement every combination of the scenarios

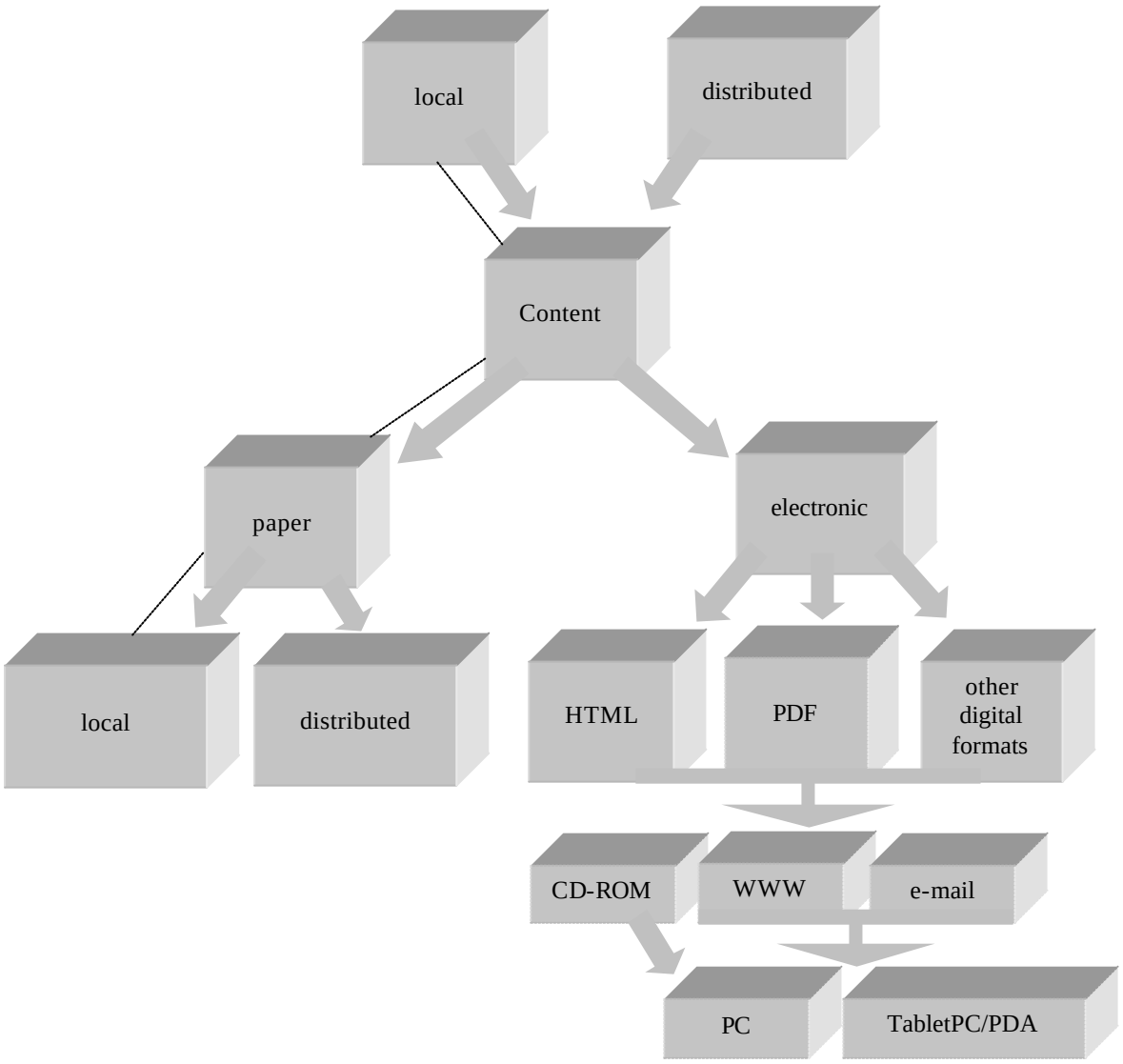

Fig. 1: The flow of information in modern newspaper organizations. The doted line represents the work flow in a traditional newspaper.

presented in fig. 1, and thus produce a variety of products.

4 Distributed Printing

In general newspapers with a substantial circulation reach do not print their products in the same location as editorial and advertising content are developed and produced. The use of digital delivery of pages to remote print manufacturing sites has grown steadily over the last few decades. Distributed printing in the newspaper industry is now commonplace, allowing newspapers to reach market more quickly, to reduce overheads through the use of secondary and tertiary value premises, and to provide optimal support to core functions. Sophisticated page pairing and RIPping technologies, plus powerful output management technologies have combined to make remote printing highly efficient and economic. The combination of digital distribution, web offset and local communications networks including roads, rail and air has developed to be extremely successful and cost effective. It is a model with compelling economics and it provides a basis on which to develop new digital printing models, including digital newsprint [1-2].

5 Distributed Publishing

In today's world many every day news have a global nature. As a consequence actual views and perspectives at many, widely distributed locations, would have to be composed into an in-depth article

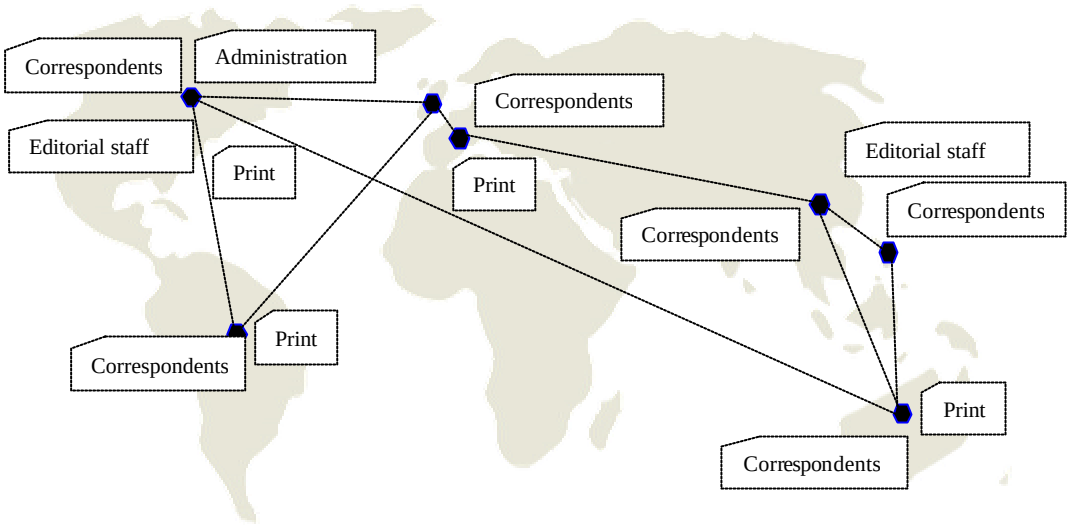

Fig. 2: A widely distributed newspaper organization.

as a group effort for which even the focus (or main thrust) would grow out of cooperative work. Instead of traditional correspondent reports groups of experts/ correspondents at different locations would have to cooperate to create in-depth articles [9]. Except for conferencing software capabilities so far unknown the different and distributed competence of the correspondents creates partial and overlapping responsibilities which have to be respected during the cooperative process of creating a competent article based on the partially competent contributions. Also some major newspapers are published (in different to some extent editions) in various geographical locations around the world. In order to achieve that newspaper organizations employ high speed internet connections supported by extensive information infrastructure [7].

A newspaper organization may be distributed in different geographical locations around the world (Fig. 2) [7]. Under the very tight time constraints of a daily newspaper production this is inconceivable without the support of efficient distributed operating system services. Usually the computer platforms used are heterogeneous. The needed distributed operating system services are realized on top of these native systems. Thus every user in any geographical locations is able to run the same applications. The platforms are interconnected through the intranet of the newspaper organization. For the writing process of an article we are faced with the following problems. Each article must be structured into sections. Among the journalists groups or correspondents groups distributed around the world one group would e.g. take responsibility for contributions to a section each while everybody else involved in this section would write text that would be included in an appropriate form. Throughout this activity everybody must have to be aware of the current status of the section. In addition he must have to learn about the current versions of the other sections as they are shaped, in order to take updates and structural developments into account, potentially resulting in corrections to previous contributions of their own. Also we must have in mind that responsibilities for a section, or a whole article, may change over time [9].

6 Electronic edition

The use of the internet for the presentation of information in multimedia format is an extremely interesting topic, especially for content providers, such as newspaper organizations. Newspaper organizations gain a lot using the Internet infrastructure, by providing easier, cheaper and faster their products to the customer. World Wide, newspaper organizations, have already created electronic versions of their newspaper using the Internet technology [10].

The introduction of an information retrieval system, in the publishing process provides the appropriate information technology infrastructure for a newspaper online service [6]. An important requirement of the system is to automatically provide the newspaper online service. The web publishing process should dynamically export the newspaper information from the central repository to the Internet. Dynamic exportation of information, customization of the newspapers' content according to the users' preferences and interaction services, are key issues of a newspaper online service, which

prerequisites a well structured information technology architecture.

The electronic version of the newspaper may include various forms. The most usual is the online newspaper (WWW) but we must also mention the possibility of sending the newspaper via e-mail in HTML or PDF format or distributing it in CD-ROM format. Some newspapers have already started producing electronic editions especially for TabletPCs and PDAs [11].

The online newspaper is an innovative service that supports many unique characteristics. Internet users are provided with the ability to search current and past issues. Also they can download articles and photographs for further study. Customization is another feature that allows the user to personalize the content of the online newspaper. The user is able to indicate his preferences about the content of the articles he is interested in, when accessing the online edition [12]. All the above indicate that the support of an online newspaper requires a well established information technology infrastructure.

7 Conclusion

Information technology had a major impact on the way a newspaper organization operates as well as the form of the products it produces. The newspaper is the basic product resulting from the publishing process. The introduction of information technology in the publishing process allows newspaper organizations to introduce new production models that enable them to produce edition in various forms, and to overcome limitations imposed by different geographical locations. Thus the model of a truly global newspaper organization is fully applicable.

The use of the Internet however allows for audience involvement and for the creation of new media products. Through its low barrier to entry, it offers newspaper organizations the opportunity to develop additional revenue streams based on their core product, the collection and analysis of information. The interactivity of the medium has proven to be attractive for many, drawing the audience away from television to return to a largely text-based medium [1]. Based on the above we can conclude that print media can be transformed into even more popular and versatile form of communication in the 21st century.

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