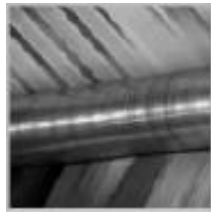


# Article



## **Digital Technology Transforming the Book Publishing World**

*By: Ralf Schlözer*

The book publishing industry in Europe has a production value of almost €23 billion and employs about 135,000 people. About 515,000 new titles were published in Europe during 2009, making this a sizeable business by any means.

Book publishing has a very long tradition. Johannes Gutenberg invented the printing press, inks, and moveable type to pull the production of books and pamphlets out of the hands of scribes. In addition to replacing

a slow and expensive process, this enabled a much greater audience to buy and read books. In the 50 years following Gutenberg's invention, an estimated 8 million books were produced. This volume was greater than that of all the books that

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had been produced in the previous 6,500 years since the discovery of writing (including all parchments and papyri). Typesetting machines and the progress in printing technologies have since made books much more affordable and enlarged distribution.

Today's books are more affordable and widespread than ever before in history.

Today's changes in technology are heralding the next stage in the evolution of book publishing. Once again, the ways in which books are produced, distributed, and read will be completely transformed. e-Books are posing the first real threat to the printed book in its long history. Electronic readers and multi-purpose tablet computers enable users to read documents in an easy-to-use format, unlike the mostly unsuccessful earlier trials in e-publishing (namely CD-rom publishing). While printing technologies continue to evolve, the latest generation of digital printing devices is expanding the possibilities of print to a whole new level. The new inkjet continuous-feed printers are creating new opportunities for publishing on demand.

It should first be mentioned that using digital printing technologies for book printing is nothing new. Black & white toner devices have been employed in book printing for many years now, especially continuous-feed machines. The introduction of the cut-

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sheet monochrome duplex printers toward the end of 2006 and the beginning of 2007 opened up even more markets.

The most widely used printers of this type are the Océ VarioPrint 6000 series and the Xerox Nuvera 288. Even a few digital colour toner printers are predominantly used for book printing, including some Xeikon installations.

Nevertheless, the biggest game-changer in printing equipment and volume produced promises to be the ultra-

high-speed continuous-feed inkjet printers.

Inkjet web printers take productivity to new heights. With the latest generation of devices producing speeds of up to 4,000 A4 images per minute, productivity is substantially

higher than cut sheet digital colour printing and well within the ranges of offset printing. In fact, inkjet printers easily surpass the speed of black & white continuous-feed toner printers. The new inkjet printers also offer wider widths of up to 76 cm with more opportunities to imposition pages.

At this time, it seems that HP is leading the fray into high-volume book printing on inkjet devices. Although HP entered the web-fed inkjet market later than other vendors, its T300 marked the company's push into direct mail and book printing. By end of 2010, there were 13 T300 production lines in book manufacturing worldwide, with five of them in Europe. CPI, Europe's largest book printing group, is the heaviest user with three installations.

Kodak has the longest history in high-speed inkjet printing with its Versamark products, but its focus has historically been on transaction, direct mail, and utility documents. Now, Kodak is picking up steam with the current introduction of its Prosper Press. Because the Prosper offers a significantly improved print quality and substrate flexibility in relation to Kodak's Versamark VT and VL series products, it is opening up new possibilities, not the least in the book market. The first Prosper installations have occurred at book printers. The first machine in the world was installed at Offset Paperback Manufacturers (OPM), a Pennsylvania-based book printer, which is part of Bertelsmann Arvato and the first European installation was at SAGIM in France.

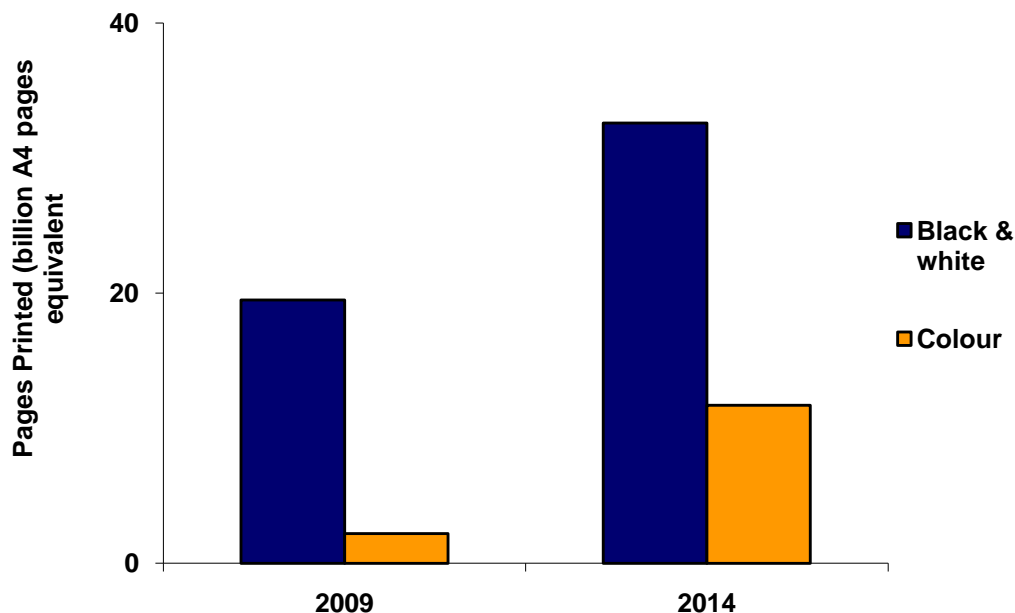
InfoPrint Solutions is one of the more established vendors in the continuous-feed market. With the first generation of its InfoPrint 5000 hitting the market in 2007, InfoPrint Solutions essentially kick-started the recent rapid adoption of high-speed inkjet printers. Based on its company history, InfoPrint is more entrenched in the transaction and direct mail markets. Only some of its inkjet devices are being used for book printing thus far, and this is primarily as an additional application. With the availability of its 5000 MP monochrome inkjet model, InfoPrint Solutions expects to capture a higher share of the book printing market.

Océ believes that about 10% of its JetStream devices are used in book production to some extent. Océ is very much entrenched in the transaction printing and direct mail markets as well, and this is where many of its JetStream devices are used today. Océ has been quite successful in toner-based book printing so far with its ColorStream 10000 and VarioStream monochrome printers. The new ColorStream 3500 inkjet printer could create more opportunities for inkjet, as the device was designed to ease the migration for existing accounts using toner printers. This would allow book printers to move to inkjet without completely changing their print production set-up.

It is interesting to note that some HP and Kodak installations are black & white printers. Most inkjet printers are modular and can be installed as monochrome devices, but can be upgraded to full colour. It is especially remarkable that the monochrome inkjet printers were able to open up a market that monochrome toner printers had not been able to

reach. As a result, the growth in digital colour pages for book printing will be significant, rising from about 2 billion A4 (equivalent) pages in 2009 to almost 12 billion in 2014. In addition, black & white pages are expected to grow by two-thirds within five years. Nevertheless, this still only scratches the surface of potential pages in book printing.

**Figure 1: Pages Printed in Book Applications – Western Europe**



What exactly is on demand publishing? There are two strategies: short run printing and true on-demand printing with a run of one. Short run printing using digital on demand printing is very much an extension of the traditional printing and publishing processes. The publisher determines the demand and commissions the production of a certain number of books. Then the publisher or a wholesaler puts the pre-printed run in a warehouse before they are sold off over a period of time, and surplus copies are pulped. Digital printing enables the cost-efficient production of much smaller runs. Lowering the threshold is a very important step in extending the market opportunity for books. In times of margin pressure and economic uncertainty, book publishers are keen to avoid bound capital and the risk of unsold books. Considering that the average print run in countries like Italy and Spain is currently in the range of 3,500-5,000, one can imagine how much an increased efficiency for short run books can benefit publishers.

The book publishing market actually has the potential to become much larger. More than 80,000 new titles are published in Germany each year. This figure corresponds to only about 10% of all manuscripts submitted; the other 90 % have little chance of finding an established publisher. In the past, books without an established publisher simply had no chance of being produced. Today, e-books and digital printing enable very short runs and self-publishing. Print runs of one take short-run printing to the extreme. Although moving to a run of one completely changes the paradigm of book publishing, the same production hardware is used.

**Figure 2: Book Publishing Business Models**

	Long Run Printing	Short Run Printing	Run of 1	E-Books
Production Type	Conventional Printing	Digital Printing		e-Publishing
Customer Group	Professional Publisher	Professional Publisher	Self Publisher and Professional Publisher	Self Publisher and Professional Publisher
Distribution Model	Wholesale & washhouse	Wholesale & warehouse	Direct	Direct
Business Model	Product – Store - Sell	Produce (small amount) – Store – Sell	Sell - Produce	Sell - Produce

There are dedicated devices for a print run of one. One example is the Espresso book machine, which can be placed at a vending location. This standalone machine prints, binds, and trims on demand at the point of sale, generating perfect-bound, library-quality paperback books from an electronic book file repository. These books even have full-colour covers. A 300-page book can be produced in four minutes. Still not every location will be willing or able to install a book production machine on-site. That said, dedicated printers are not necessarily required for runs of one. Essentially any digital printer would be suitable, possibly with an adapted print file processing and finishing set-up. It should be noted, however, that the print production logistics (especially shipping, administration, and accounting processes) would need to be adapted to handle single books. Furthermore, these challenges do not stop at the doorsteps of printing companies; publishers would also need to change their processes to allow for runs of one. Most of today's publishers would find it a struggle to efficiently handle runs shorter than 50 copies with their existing processes, even after streamlining them. While the hardware for the run of one is available, many obstacles remain in setting up a pure on-demand distribution flow.

Pure on-demand book distribution presents benefits as well as drawbacks. Readers would benefit from a greater variety of books. More authors would get published, but there would also be more competition from content providers. Publishers might save money, but they may also lose their role as gatekeepers. The losers—used book sellers, logistics firms, and suppliers for long-run equipment—are easier to determine.

Book publishing is leading the on demand printing revolution. Where are other publishing products? On-demand printing for magazines is virtually non-existent. On-demand printing for newspapers is seeing its first implementations, but adoption is very slow. Océ, Screen, and Kodak announced several high-profile installations. All cases focus on niche application like printing newspapers for a very small region (e.g., on an island) or producing overseas newspaper for an expat community. Unfortunately, alternative

concepts for digitally printed newspapers are still struggling. The first individualised printed newspaper, which was printed on an Océ JetStream, just stopped shipping. All this makes it difficult to predict the impact that print on demand will have on the book publishing market's supply chain, which is already in upheaval largely because of the Internet. It is unlikely that true on demand printing, especially for runs of one, is going to take over. Production economics for bestsellers will remain in favour of offset for a very long time. Nevertheless, the latest efficiency gains in inkjet printing are shifting the cost threshold to encompass a large share of runs that are typical today. In addition, the overall market opportunity continues to grow, particularly when one considers the authors that have thus far not been able to publish as well as being able to print specialty or backlist books.

### ***About the Author***

*As Director of the On Demand Printing & Publishing Consulting Service Europe, Ralf Schlözer is responsible for all service related publications and research in Europe. He is responsible for market trend analysis and forecasting, event or client driven research projects and creating presentations, newsletters and analysis reports. Mr. Schlözer has over 20 years of experience in the Graphic Arts and Graphic System Manufacturing industries. Before joining InfoTrends, Mr. Schlözer spent 5 years in the Research & Development and Digital Printing Business groups of MAN Roland in product planning and system integration for direct imaging presses and xerographic OEM printing systems. Mr. Schlözer has extensive knowledge of traditional and direct imaging presses as well as non-impact printing technologies. He is the author of several conference papers, trade press articles, and presentations. Mr. Schlözer graduated as Diplom Ingenieur in Printing Management and Technology in Berlin, Germany and also holds an M.S. Degree in Graphic Arts Systems from the Rochester Institute of Technology (R.I.T.) in the United States.*

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