

Digital Printing: Increasing Short-Run Profitability

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BY JACQUES GRÉGOIRE

Publishers have always had to be resourceful, adapting to a deluge of successive new technologies that have included digital press, online editing and proofing, and repurposing of content for CD-ROMs and the Internet. Now, they're facing digital printing.

But unlike the other "new" facts of life, digital printing won't have publishers reaching for the headache pills; it has only a modest learning curve, requires little or no significant new investments, and promises a great many rewards. In return, however, publishers will have to pay attention and be prepared to rethink their business models.

The research and consulting firm Caslon & Company reports that color digital printing overall is growing at more than 50 percent a year, and monochrome at 15 percent annually. Digital color printing sales surpassed monochrome for the first time in 2006, though color still accounts for only 6 percent of the total digital-page volume.

Another industry analyst, InfoTrends, forecasts that overall U.S. revenues for digital presses in the high-volume category for one million or more monthly impressions is expected to grow from \$3.5 billion in 2006 to \$13.5 billion by 2010. A 2007 report from *The Industry Measure IM Printing* indicates that more than half of all graphic arts companies now provide some form of color or monochrome digital printing in-house.

With overall book industry sales expected to grow about 4 percent annually over the next few years, many printing and publishing professionals expect digital printing, which now accounts for less than 5 percent of total book production, to grow more than 25 percent a year.

So, what exactly is the new technology behind all these numbers? Well, it's not that new and if you have any kind of printer on your desk alongside your PC, you already know the basics. Digital printing refers to high-volume commercial adaptations of printing technologies such as laser, dye sublimation (or wax transfer), and inkjet. These devices have bigger capacities than their office cousins, and they're faster.

Quality issues relegated early digital systems mainly to lower-end, black-and-white book and manual production in short-run lengths—thought by many to be barely better than photocopies, and certainly unsuited to applications requiring any degree of print quality. While monochrome technologies continued to progress, digital color printing made a quantum leap in 2002, going from an immature technology suitable only for niche markets to a much more sophisticated and economically feasible process for higher-volume production. Those who had earlier dismissed the quality began to take notice.

Paper was once an issue, too, with a shortage of available types compared to what was on offer for



When television made its debut, there were dire predictions about the future of books, radio, and the movies; but they roared back. When VCRs and DVDs first appeared, there were warnings of doom for television and the movies. Instead, VHS vanished, to be replaced by DVDs. Television and the movies still draw millions of viewers, even as DVDs have spawned a new multi-billion-dollar market. It appears that new technology, rather than requiring the same pie to be shared between more people, actually tends to make the pie bigger, allowing for more people to make more money. At present, there is no reason to believe the same won't happen with e-books.

offset. But now, paper makers are producing a growing catalog of varieties that offers digital printers more choice than ever before. The choice still isn't quite as large but it is getting there.

Digital isn't poised to unseat offset anytime soon. For example, offset still rules when it comes to churning out 50,000 copies of the latest *Harry Potter* or John Grisham novel that distributors know will sell as soon as they hit the shelves. But as publishers also know, there are profits to be made from shorter runs, too.

In fact, digital is poised to help publishers cash in on a counterintuitive market theory first spelled out in a 2004 article by *Wired* magazine editor-in-chief Chris Anderson. Called the "Long Tail," the theory contends that the book industry's market for modest-selling titles might be bigger than the one for its hits. The modest-selling titles may only move, say, 2,500 copies a year. But they sell that every year, year in and year out—plotted on a graph, those sales resemble a long tail—whereas a hit moves a big number of copies once, and then that's it.

Anderson based his assumptions on the average mega bookstore's inventory of about 130,000 titles. Amazon.com reports that more than half its sales come from titles other than those 130,000. Anderson argued that if those numbers are true, the book market may be twice as big as previously thought, with titles not carried in bookstores constituting a potentially bigger market than those that are.

When consumers have more choices, a more accurate representation of demand emerges. Anderson believes evidence now demonstrates that demand is less "hit" dependent than previously believed.

The United Kingdom also has borne out Anderson's theory; each year, 3 percent of titles sold there account for 50 percent of sales volume, and 10 percent of titles sold account for 90 percent of sales volume. The remaining 90 percent of titles are in the Long Tail, selling modest quantities each year.

Digital printing offers a viable solution for producing quantities as modest as even one book, and it is ushering in the era of on-demand printing. Amazon, which installed multiple HP Indigo presses



On Demand Books, started by a former Random House editorial director, is beta testing its Espresso Book Machine. The device can print black-and-white text for a 300-page paperback, with a four-color cover, and bind it all together in three minutes at a cost of \$3.

in 2006, is using digital to increase the number of available titles, adding further credence to the Long Tail theory and its potential for book publishers.

Likewise, On Demand Books, started by a former Random House editorial director, is beta testing its Espresso Book Machine. The device can print black-and-white text for a 300-page paperback, with a four-color cover, and bind it all together in three minutes at a cost of \$3. *Time* named the Espresso Book Machine one of the best inventions of the year in its November 12, 2007, issue. Selling for \$100,000 each, the device has the potential to radically decentralize the book-distribution model.

Blurb.com has brought another dimension to digital printing: it offers consumers free and easy online software and templates to create their own four-color books, with prices starting at \$12.95 (plus shipping). They then upload the files to Blurb.com, and obtain a professionally printed and bound book by mail within seven to 10 days. They can print soft- or hard-covers of between 20 and 440 pages, in quantities ranging from one to whatever, on 80# coated semi-matte paper. The privately held company has two printing partners in the United States and one in Europe.

In addition to these innovative, digitally based solutions, publishers are working with independent printers to provide a comprehensive on-demand printing and distribution service for selected backlist and many out-of-print books. In these scenarios, the publisher supplies files to the printer, who produces and fulfills paid orders—generally placed by bookstores—for a book or books. The

publisher can update files from time to time if desired, but otherwise remains passive in the transaction process.

This becomes significant when you consider the explosive growth in titles and new editions published each year. R.R. Bowker statistics show that 68,175 titles were published in 1996. That rose to a staggering 291,920 titles a decade later in 2006, representing a 428-percent rise. Yet research reported by Nipson America, Inc. indicates that 50 to 60 percent of active soft-cover titles sell fewer than 2,500 copies per year.

Digital also helps to address the industry's antiquated, highly complicated, and grossly inefficient consignment model, which saddles the publisher with considerable additional costs. Although return rates vary by segment, they account for an estimated 20 percent of professional books and nearly 50 percent of mass-market paperbacks. Filling inventory requirements, especially for big-box retail customers, tends to lead to overprinting of initial runs. Inventory, shipping in and out of the distribution centers, and pulping costs can be considerable.

Digital allows publishers to print economically in shorter runs and develop more demand-based fulfillment strategies. Increasingly, publishers use digital print systems for initial runs to test the market, move to offset if warranted, and then use digital for rapid replenishment needs and end-of-life production.

The technology behind digital is versatile and getting better almost daily, but it does have some shortcomings. There is generally less dimensional flexibility with digital presses, for example, so the book must fit within certain size formats. Publishers must also consider these factors, suggested by Heidi Tolliver-Nigro in a *Digital Publishing Solutions* article:

Color Requirements: The cost of switching out special colors is high on a digital press, so few offer more than four or five colors. Metallic inks are also inappropriate for digital, though some systems can simulate them better than others.

Special Effects: Embossing and other special effects cannot be used with digital, so there are limitations with items such as book covers and jackets.

Paper: Although choices are broadening rapidly, there are still fewer substrate options than offset.

Print Quality: Again, significant improvements occurred over the past several years, but differences in print quality between digital and offset can be noticeable, depending on the resolution used.

Paper Conditioning and Storage: Digital papers have lower moisture content than offset papers and must be handled in a temperature- and humidity-controlled environment to avoid curling.

According to research conducted by RIT, it appears that, overall, there is room for product development to meet the growing potential for digital-printing applications. This imposes a significant challenge to paper manufacturers since there are currently many different press technologies with a broad spectrum of required sheet and roll sizes.

Several years ago, a wide range of new digital papers and product lines were introduced with more color options, a wider range of basis weights and sizes, and new textures and finishes. But technical issues remain, and printers and publishers will continue to look for papers with improved runnability, printability, and fitness for use in the new generation of production digital presses.

If you can see your way past the issues above, here's some good news: there is, for all intents and purposes, no barrier to entry for most publishers. Most houses already use the software necessary to generate the book files required by digital printing.

Nor is there any point to publishers acquiring the actual printing hardware themselves. Technological advances occur so rapidly that the devices must be capitalized quickly; publishers are thus better off seeking a partner whose core business is printing and who has the resources to stay on top of the technology. What's more, many publishers will find that the ideal production mix for them will be a custom blend of offset and digital, sometimes for the same titles. The need then becomes even more acute for a printing partner who has the state-of-the-art equipment that matches the publisher's custom needs.

With digital printing as an adjunct to offset, those problems can be made to disappear. Digital printing prevents overprinting, and allows publishers to print as required by demand to reduce risks. It also is possible to use digital to print quantities sufficient for test marketing without having to incur the expense of a major offset run.

As a general rule, digital has a clear cost advantage over offset in short runs, say 1,000 or fewer copies. At 3,000 or fewer, costs are comparable but digital adds value in terms of timing and flexibility. At 5,000 or more, offset tends to rule. But there may well be times when customers will cheerfully pay the higher

cost of digital in order to secure copies of obscure titles unavailable anywhere else.

Digital printing will also play a complementary role in the field of e-books, which have captured the imagination—but not yet the dollars—of the reading public.

Any one publisher now using digital printing—or any modern offset printing technology for that matter—is already equipped to make his or her titles available to the e-book market, thus creating yet another revenue stream from existing content.

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Demand for hard copies of the *Harry Potter* series, for example, won't evaporate in the face of e-books. People will still want to buy the latest John Grisham or Dan Brown in a format they can handle, smell, put in a purse, keep in the bathroom, or at the cottage.

Recent history may help us better understand the future role of e-books in the market.

When television made its debut more than 60 years ago, there were dire predictions about the future of books, radio, and the movies in the face of the popular new—and free—medium. For a time, theatre attendance did drop as people stayed home to watch television.

But the movies roared back, as did radio and books. And while all three face challenges today, they still constitute a multi-billion-dollar industry that continues to thrive alongside television.

When VCRs and DVDs first appeared, there were more warnings of doom for commercial television and for the movies. Instead, it was VHS that vanished, to be replaced by DVDs. Television and the movies still draw millions of viewers, even as DVDs have spawned a new multi-billion-dollar market worldwide.

Indeed, it appears that new technology, rather than requiring the same pie to be shared between more people, actually tends to make the pie bigger, allowing for more people to make more money. At present, there's no reason to believe the same won't happen with e-books.  IPA