Printing Digital Books and Newspapers with Inkjet

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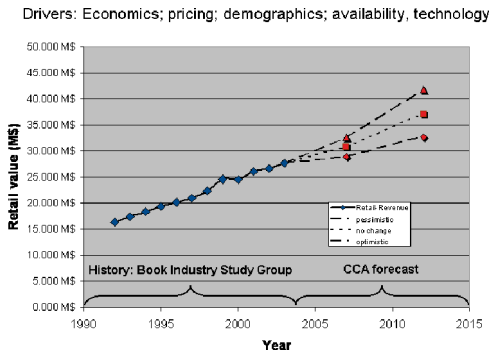
Markets

The standard classical book printing market is one of the biggest and most stable segments in the print media industry. The overall retail value of the printed goods is rated in the range of 35B$ and is still growing. Driving force for the growth in this segment is increased education, which leads to more and more sophisticated demand for books and overall population growth. The competition with virtual media is there, but it is predicted that this won't have a significant effect on the overall growth rate before 2012 because of lack of technology and acceptance. Recent events in digitalization of content (f.e. Google provides 1.5 M titles over the web) will additionally fertilize the transition to digital high volume printing. Trends for book printing are:

Trends in book printing (source: CAPV)

The predicted market development in the major country US can be seen in the graphic. It should be noted that the revenue for the printer of this retail value is in the range of 15.5% of that value. Excluding the paper portion of the value proposition reduces the share of the printing in the value chain to app. 8% of the overall retail value. This still leads to world-wide 2.8 B$, a significant value.

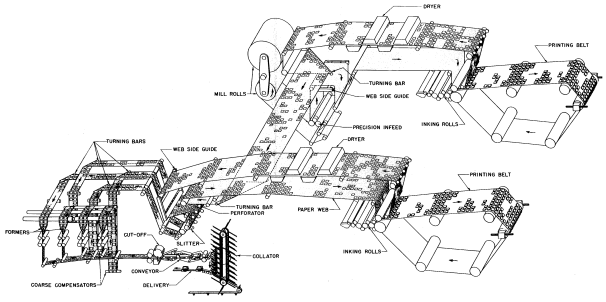
Regardless new emerging solutions exploiting the virtual media even the classical book printing market is still seen as growing. Predictions for the US expect a 40B$ market in 2012:



US market expectation (Source: BISG,CCA)

Technology

Establish the background, from which all digital book printing development emerges, it is worth describing briefly the Cameron Belt Press, a remarkable machine for printing and binding books of various lengths without multiple print runs. This machine, of which there are only a few dozen in existence, uses polymer relief plates arranged in an enormous chain (rather like a bicycle chain, only on a grand scale). The number of plates on the chain can be varied according to the length of the book. Each plate is printed in turn, one copy of the book for each complete circuit of the chain. The press has associated inline binding equipment, so a completed book emerges with each loop of the chain.



The Cameron concept

The Cameron Belt Press has relatively low quality and relatively high plate costs. The search for a solution to these shortcomings led to the Offset Cameron Press (formerly Book-O-Matic). This uses an enormous offset plate cylinder—about 3m in circumference and 1.5m wide—to print a book of reasonable size with each revolution. Again, binding is inline. But this approach has obvious limitations.

In fact, the ideal book-production system would obviously combine the inline binding facilities of existing Cameron presses with high-speed, non-impact printing. Optimal for such a solution would be to use the low cost water based continues inkjet from Kodak Versamark, which offer both: Highest speeds at the most compatible cost position. This is the idea of the "Digital Cameron Press" will most likely first be solved by combining inkjet possibilities with classical offset printing machines. In deed first approaches have been seen the last DRUPA combining high speed web offset presses from Müller-Martini with 1000fpm inkjet technology from Kodak Versamark.

A variety of digital printing approaches could fit into the Digital Cameron model, but most of the customers would prefer a process that doesn't use toner. Toner can be a problem for bookbinding: It sits on the surface of the paper, creating a slightly raised image area. In a book of several hundred pages, the increased thickness of the image area (compared with the non-imaged binding margin) causes the book to splay open and it can be difficult to get a good-looking book. The Kodak-Versamark ink-jet system is by far the best fit of all available digital printing systems. It has the necessary speed, allows for an area of heads and it doesn't use toner.

The binding technology is available and proven; what is needed is a high-speed, web-oriented printing process ahead of it.

In order to succeed in that market place it is needed not only target to optimize the entire production workflow but also target the cost per book position of an standard roll-feed Lithographic press over the entire run-length.

This mid-term goal is targeted by the increased development efforts from various inkjet manufactures. Once reached, this technology will change the rules of printing in this specific market place.

Biography

Markus Pahler is Director of Strategic programs for Kodak Versamark, Inc. He is responsible for key accounts and strategic programs with special focus on the graphic arts market. Before joining Kodak Versamark Dr. Pahler was Director of Business Development for Heidelberg AG. He is a member of the VDD (Verein Deutscher Druck-Ingenieure).