Digital printing versus conventional printing

This article by Geert De Proost , November 4, 2016

When it comes to making a final decision on which printing process to choose for labels and packaging, the print service provider must take into consideration quality, substrate, volume, budget and schedule. These are the requirements that typically drive the method choice.

The two primary forms of printing labels and packaging are digital and conventional: digital on digital printing devices, conventional mainly using flexo and gravure as well as offset printing press. While digital and flexo have both undergone dramatic improvements throughout the years, some significant pros and cons for each of the two technologies remain.

Before making a decision, print service providers and converters have to weigh these advantages and disadvantages of each technology against what they need or expect to achieve with the print job.

The high number of products on the shelf makes the run length of packaging and labels shrink

Short-run drives digital printing

Printers and converters have to serve the customer and meet their specific requirements. One of the most prevalent trends over the past five to eight years is declining run lengths in print. This trend is caused by a vital change in customer behavior. Simply put, the end-user wants choice. For example, consumers want to see a salad dressing in several different custom flavors on shop shelves, not just one flavor.

When you think about that in terms what it means for printing labels and packaging, where you had one product in the past, there are now 23 product variations that have to be printed. This means that also the typical run length is divided by 23: instead of one million of labels, the print buyer will order 43.000 labels for each of the 23 product variations.

In addition, special marketing campaigns designed to attract consumer attention decrease the life span of a label or a packaging. There is an increasing volume of "limited editions" of a certain product or packaging that reflects a limited time offer. This also shortens run lengths and can also affect the amount of time the printer or converter has to deliver the packaging. Another reason the demand for short-runs is rising is the ability for brand owners and manufactures to 'print-on-demand'. Due to the massive associated costs, nobody wants to keep large inventories.

Just-intime delivery, just enough to supply the demand, is the most costeffective approach. Finally, brand owners want to use realistic mockups in an early lifecycle stage of the product. This means a very low number of number of units needs to be produced to use in test marketing and approval processes. Only when the product is ready to go to market, larger volumes will be produced.

Automation removes bottlenecks

These trends will ultimately require an investment in one or more digital presses as additional printing devices to supplement existing conventionally- equipped pressrooms. However, printers should also consider the impact of the digital press on their overall business. Which new markets will these digital capabilities allow to tap into; what are the new opportunities they can bring? And how does the plant workflow cope with a ton of shortrun orders? The truth is, without appropriate automation tools to efficiently handle shorter runs, these jobs can quickly become unprofitable. You might spend an hour in customer service and an hour in prepress, which can eat up most of the profit before you get to the pressroom. The bottleneck

is caused by the limited administrative and prepress capacities that are not set up to handle an increased number of smaller jobs.

Administrative and prepress automation is the key to processing many more jobs and a necessity in order to increase and maximize capacity in general. Esko has been providing automation solutions to address these potential bottlenecks for a long time, for the obvious reasons of cost savings and increasing productivity. This applies to both digital and conventional printing methods. Implementing an MIS system can work wonders in removing administrative bottlenecks.

Automating the prepress department reduces errors and increases productivity by eliminating manual and repetitive tasks. Automating prepress and administration is critical to achieving maximum plant utilization.

Conventional print advantages, and challenges

The primary reason to use conventional printing is still long-run production for cost and productivity reasons, and sometimes quality. When producing additional units of a job that has already been printed, in almost all cases, the original printing technology is used for the reprints to ensure consistent quality from job to job. Conventional printing however requires more set-up as the color is refined during makeready and the equipment is properly calibrated to obtain the best results.

So job changeover time is among the biggest concerns when it comes to weighing whether to use conventional or digital press technologies, since there is virtually no changeover time between jobs on a digital press. Printers therefor also should be concerned about the total cost of operation, including unacceptable levels of waste of costly media as a by-product of the lengthy machine set-up.

One way to partially address these concerns is to use a fixed ink set with a fixed color palette. This helps to reduce change-over times, streamline production processes, and reduce ink room costs. Esko Equinox can be used to enable extended gamut printing and enhance quality and efficiency in conventional (flexo) printing. Extended gamut printing means that the packaging is not printed in CMYK and the necessary additional spot inks, but that the printing presses are standardized to a set of 5, 6 or 7 inks.

Typically the press will be standardized to CMYK + 2 or 3 extra inks (e.g., orange/green/blue). By adding extra colors to traditional CMYK, printers can achieve better color with fewer inks, fewer plates, less makeready time and improved productivity. At the same time, quality and consistency improved –

fulfilling exactly the needs of brand owners looking for reduced costs with no compromise in color fidelity. This process can even deliver improved print quality in many cases.

In addition to Equinox, Esko Full HD Flexo enables printers and converters to use conventional flexo for label and package printing by raising its quality to the level of offset and gravure, which has been the Holy Grail for flexo. Esko Full HD Flexo is a new process for making digital flexo plates and raises the industry standard. The improved plates are higher quality, with vibrant colors and print more consistently than standard digital flexo plates, also on lower cost substrates.