

Today's three Ps for printing media packaging

Price and performance are no longer enough of a basis on which to choose print technology, George Cole learns

When it came to choosing print technology it used to be all be about the '2Ps' – price and performance. But now, there's a third 'P' to consider – protecting the environment. The growing awareness of energy conservation, carbon footprints, recycling and packaging reduction means the spotlight has now turned to print technologies. So how has all this affected manufacturers of print equipment?

In the optical disc industry, several print technologies are used for the disc and/or packaging. Thermal printing uses a polymer-based ribbon to transfer text or graphics. Offset printing transfers an inked image onto a printing surface, while screen printing involves pressing UV curable inks through a fine mesh screen, with colour produced by a four-colour process (cyan, magenta, yellow and black) or a Pantone colour marching system for finer colour reproduction. Digital printing uses tiny droplets of ink, which are deposited by a large print head.

So is one print system more environmentally-friendly and are we seeing a move towards it as a result?

Steve Woods, managing director of Copytrax, thinks so: "With offset and screen there's a lot of pre-print work, which involves films and screens and chemicals. During the printing process you often find lots of ink being spilt around the machines, and after printing, there's a lot of washing down with solvents. Goodness knows how many old rags soaked in solvent have to be disposed of. Digital is a much cleaner technology and the power consumption is lower."

Keeping up

At Primera Technologies, Mark Strobel, vice president, sales and marketing, says, "There is definitely a move towards digital as content gets more specialised with shorter runs. In particular, inkjet technology is making great strides versus other digital technologies. Inkjet simply sprays ink on to surfaces. There are no wasteful and difficult-to-recycle polyester ribbons, as with thermal transfer technology. Inkjet also enjoys the benefits of new waterproof inkjet-printable surfaces,



Shorter runs requires faster changeover in printing

producing better than offset print quality with all the durability required by virtually any application."

Strobel adds that with inkjet, the ink cartridges are the only by-product. However, these can be recycled and re-used through various means. For example, Primera's Bravo-Series ink cartridges can be returned to

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Lexmark, where they are sent to a recycling company for recovery of the plastic.

Thomas Wuebbens, sales director, optical disc, for Werner Kammann, says: "We see a significant move to low quantities for print runs and more changeovers per day. Digital printing technology provides a faster changeover time and fits perfectly with this

trend. A 'greener' print technology can be achieved with lower power consumption (LED-curing, which also has no ozone emission) and using fewer printing consumables, as it is with digital printing."

Leonard Beckmann, new market development manager at Epson Europe, says deciding which print technology to use depends on many factors, such as the quantity, reliability, environmental/storage conditions and so on, but adds: "If you only look at energy consumption, inkjet is the greenest."

Other considerations

Dave Hill, Tapematic's director of UK operations, is sceptical about how important environmental issues are when it comes to choosing a print technology: "We've not seen environmental considerations as part of the decision on what technology to use in any way, shape or form." Ron Goodwin, Tapematic's vice president worldwide marketing, agrees: "The choice of the printing process is based on many factors, as far as I am aware; being green would be the last on the list. Nevertheless, digital printing is becoming widely used because it allows small run quantities to be produced without the need of screens or plates and therefore lower costs; being greener is a side issue. Also, ink wastage on smaller runs is much less."

But other companies involved in more than one printing technology have noticed a demand for greener technology, as Primera's Strobel explains: "We are hearing more often about inkjet being preferred over thermal transfer due to the problems in recycling polyester-based ribbons. Ribbons also have the disadvantage of leaving a less permanent record of what's printed onto discs."

Beckmann at Epson also thinks that the trend is towards greener technologies, although he notes that demand is not there yet: "But this will increase. The key is to print on demand! Think about tons of brochures and media that are thrown away because they were not distributed and are now out of date."

Green production methods

There's no doubt that general concern over the environment has led to many companies to examine their production methods, and in some cases change them or redesign their machines. "All European manufacturers are under very strict control in regard to disposal of waste and general working conditions machinery made outside Europe may not meet such stringent controls including the green ones," notes Goodwin.

"We recycle a fair amount of plastic and other waste products that result from our production," says Strobel, "We don't really try to publicise this activity; it's really more of a corporate culture that encourages us to be as environmentally sound as possible. Our products also meet all requirements for European, Chinese and

California RoHS (Reduction of Hazardous Substances) programmes."

Kammann has a newly designed digital printer and offset printer, which have lower noise emissions (another environmental concern) and Wuebbbers adds that the company has changed its production processes with lower ink consumption, less scrap material generated during production, and lower power consumption.

At Epson, there is now five-point plan for environmental responsibility which aims to create and provide environmentally-friendly products. These include a drive to transform all processes to reduce the burden on the environment; recover and recycle used products; share environmental information and contribute to regional and international conservation efforts, and continually improve the company's environmental management system. Beckman adds that government tenders now include stiff environmental clauses, which is another incentive for companies to embrace environmental issues.

Nothing or everything

Packaging is another issue, as Goodwin points out: "If printing is 1% of the issue, packaging is the other 99%. While we put a 16g disc into 1kg of packaging, you will never have a green product!" But although consumers say they are concerned about the environment and want less waste, they still expect their CDs and DVDs to include elaborate packaging, says Hill: "You could print a lot of information on the case



Dave Hill of Tapematic

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itself – there's no need for a paper insert. But consumers still want paper. The consumer seems to want nothing or everything."

The nothing Hill refers to is the growth of music downloading, where users get the music file without any packaging. Figures from the music trade body IFPI show a rapid growth in downloading over the past couple of years, thanks to the rise of legitimate online music stores like iTunes, the spread of broadband and the fact that many music companies are either abandoning or relaxing their use of DRM technology. In 2006, world download sales rose by 85% to \$2.1 billion, while physical sales were down 11% to \$17.5 billion.

It's too early to predict the demise of the physical disc – CDs still account for 95% of music sales, but the trend is for this market to shrink over the years. So how will this affect demand for printing? Strobel says: "It's forced us to become more adept at finding niche and specialty markets and applications who continue to require physical media. Many of these applications require long-term archival of files, such as wedding videos, medical images and consumer photos."

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Copytrax: going green with digital saves money

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The HD formats Blu-ray Disc and HD DVD use a smaller form factor than DVD when it comes to packaging, but no one has noticed either format reducing the demand for printing or packaging at this stage. That said, both formats are niche markets, partly because many consumers have held off from buying

Primera has not passed on any of the costs of becoming greener to its customers. For example, its wholly-owned circuit board assembly facility had to purchase and install a substantial amount of new equipment and procedures to meet the RoHS specifications.

Tapematic's Hill says that with margins so tight, it's often hard for companies to

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while the format war continues (although Warner's recent decision to support Blu-ray exclusively could change the picture over the coming months).

The green cost

Going green might be a good thing, but there is often a cost, so are customers willing to pay a premium for greener products, either in terms of higher costs or less elaborate packaging? “It depends,” says Beckmann, “sometimes customers will accept simple grey packaging, but sometimes they require full colour cartons. The trend is clear: the bigger the tender is, the more a green image is acceptable.” Strobel says

invest more than the minimum required to reduce their carbon footprints, but Woods at Copytrax disagrees.

“Will a consumer faced with two DVDs on the shop shelf – a standard DVD and another with green packaging, pay extra for the greener product? Probably not. But companies in the printing business could save themselves lots of money by changing their printing technology. I'm sure that if someone sat down and calculated how much offset or screen printing was costing them in terms of chemicals, wastage and energy, they'd soon see how much they could save by opting for digital technology. Going green really can save you money.” ●



Mark Strobel from Primera Technologies