

Adding value with finishing

you can



In Canon's Insight Report *Corporate Reprographics: Trends and Opportunities*, author Professor Frank Romano urged CRDs to 'focus on the finishing – it's where the value is.' He explained why as follows:

"The value of the printed product is in its finishing. Customers do not want a stack of sheets – they want a booklet or stapled report or binder of material. They want a finished product. The major opportunity for CRDs lies in the expansion of finishing options."

In recent years this message has been taken on board by a printing industry striving to avoid the commoditisation of print and seeking opportunities to add value. No longer the 'Cinderella' stage of the printing process, post-press is not only going to the ball but has been catapulted from Z-list to A-list on the technology guest-list. This was apparent to anyone who visited drupa 2012, where finishing took centre-stage with a raft of major developments from post-press manufacturers.

For such a critical stage in production, finishing has waited a long time to capture such attention. According to some estimates, as much as 40% of the cost of a product (excluding raw materials) is incurred in the finishing, where poor finishing can destroy all the value created up to that point. It owes its new-found attention to several factors, particularly the drive over the last two decades to automate the printing process. Accelerated by the advent of digital printing and the Internet, this is reaching its fullest realisation in print-on-demand environments, made possible with sophisticated web-to-print (W2P) solutions. Demand for short runs and fast turnarounds, coupled with the special characteristics of digital output, galvanised manufacturers into developing a new breed of finishing solutions. High-cost, large-footprint lines calling for highly-skilled operators have been joined by compact automated systems featuring operator-friendly touch-screen control for fast makeready, improved accuracy and reduced waste.

The global downturn provided further impetus by focusing attention on the ROI of scarce resources. Investing relatively small sums in finishing can yield significant improvements in productivity coupled with reduced costs.

Greater control

For the CRD, however, the most important argument for bringing more finishing in-house is the added control it gives you. A key component of your strategy to grow the in-plant's value to the organisation is to increase your share of corporate and departmental print, and to do this you must remove the reasons internal customers have for using outside printers. The more aspects of a job that you control, the more you can offer customers a total print solution, and the more they come to regard you as their preferred supplier. This is especially true if you implement true web-to-print, because controlling finishing gives you the all-important flexibility you need to make it work. W2P provides a steady but often unpredictable flow of short-run on-demand jobs for your digital presses, jobs that you cannot send out but have to complete in-house.

This guide will help you understand and harness the latest developments in finishing. After explaining how digital printing has shaped new finishing workflows such as in-line and near-line, we examine what is involved in several important finishing operations that you can easily handle in-house – bookletmaking, folding and perfect binding. Finally we look briefly at a non-mechanical aspect of finishing – how to apply special finishes using digital presses to add value and increase impact.

Our advice comes with two important provisos, however. The first is that, while strategically it's in the CRD's interest to handle as much of the finishing process as possible, there are limits to what you can accomplish alone. In recent years dedicated finishing houses may have watched work migrate in-house, but they have not stood still. Many have developed expertise in specialist processes that can make products really stand out, and almost all have taken steps to build commercial partnerships with print providers based on more or less exclusive agreements to handle overload or especially sophisticated work. Given the plethora of finishing techniques for adding value to your print, it makes sense to explore what a partnership with a local specialist can offer.

The second qualification is that the choice of finishing equipment can depend on the printing process, because of the different characteristics of the printed output. So it may not be possible to use your existing litho-capable equipment to finish digital print work. It is always worth checking in advance that output from the digital press can be finished as required. When considering different finishing options, you need to take into account the actual finishing requirements, the security and data integrity of the printed application, and the production workflow, such as on-demand or personalised printing, as well as the actual printing process.

In-line, near-line or off-line

The new finishing workflows associated with digital printing are in-line, near-line and off-line.

An **in-line** workflow is the most automated solution. The press and finishing equipment are directly connected and closely integrated, with the press's front-end controls managing the latter. This is the ideal solution if you're producing a defined range of products in standard formats – reports, booklets, proposals or manuals, for example. The productivity of in-line finishing is determined by the efficiency of the finishing equipment, so it must be able to keep up with the digital press that feeds it.

In an **off-line** workflow there is no connection between the press and the finishing equipment, so you can feed this equipment from a range of presses, although more operator intervention is required, which increases labour costs. Sometimes the higher speed of off-line finishing equipment will more than compensate for the increased operator intervention. It all depends on the type and quantity of jobs you need to finish.

In contrast to in-line and off-line, **near-line** is more flexible. There is no physical connection between equipment, but the finishing line 'understands' the requirements of each job, either by using OMR (optical mark recognition) technology to read markings printed on the sheets or through an electronic interface to the print server, such as JDF (job definition format). This enables the line to handle the output from multiple presses and also makes features such as audit trails possible, adding a level of accountability that suits near-line to personalised products.

So which approach is right for you? Unfortunately, there's no straightforward answer, because each approach has its advantages and its drawbacks. As a result, there is an ongoing debate among manufacturers and print providers about the relative merits of each workflow, which itself testifies to the complexity of the subject. However, everyone agrees that choosing the right approach will depend on understanding not only your workload, but also how you can apply different finishing solutions to improve efficiencies and add value through new products.

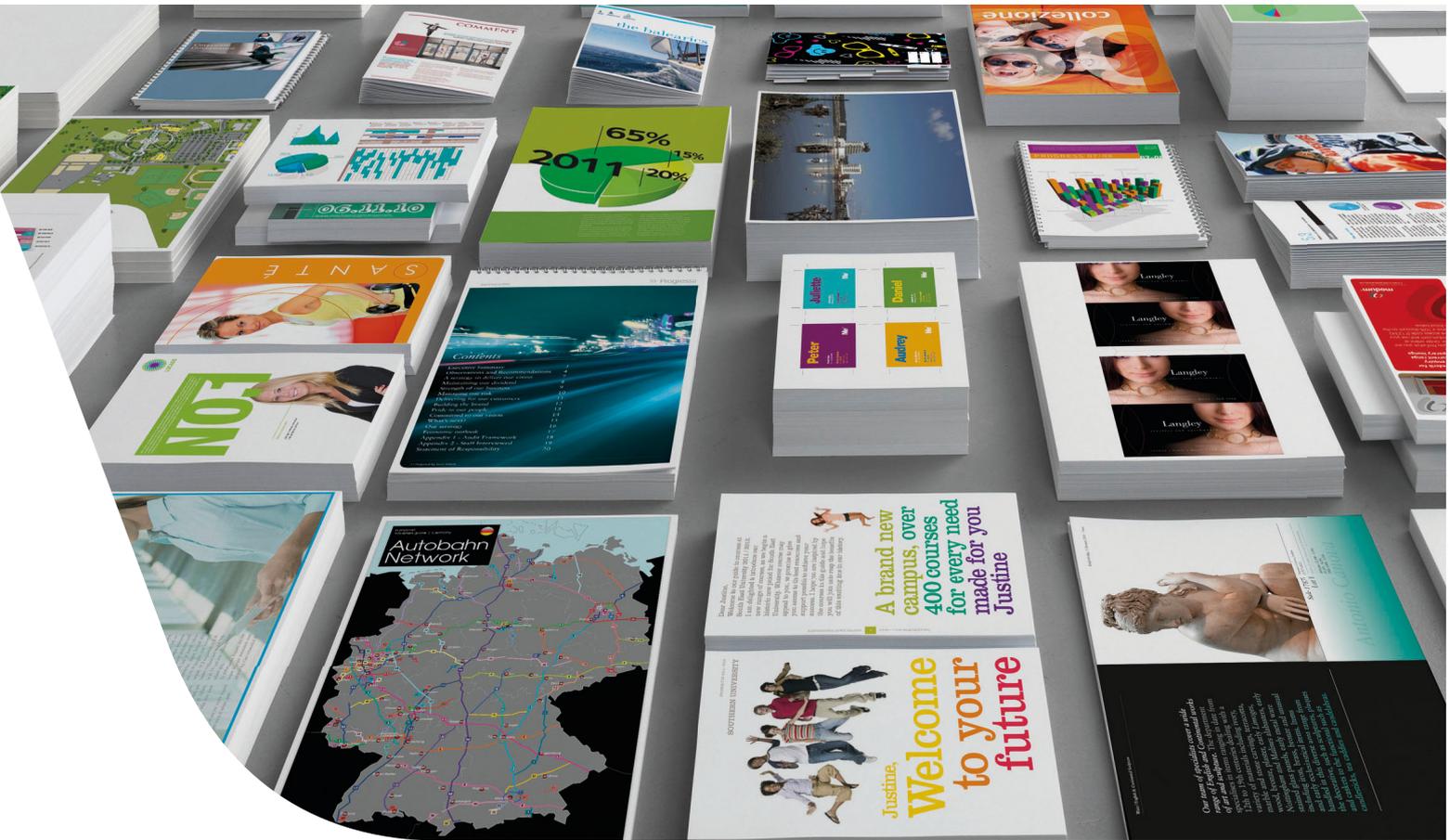
Finishing covers a variety of activities, including cutting, collating, folding, reasing and binding, but we will concentrate on three processes that finishing technology has brought within reach of digitally-capable inplants: bookletmaking, folding and perfect binding.

Bookletmaking does exactly what it says on the tin, automating a number of operations – collating, stitching, folding and trimming – to turn that 'stack of sheets' Professor Romano mentioned into a finished report, presentation, brochure, and so on. A range of models are available, defined by their capabilities; a high-end bookletmaking system, for example, features touch-screen entry of job parameters such as format, size, etc, as well as miss/double feed detection.

A number of factors will influence your choice, such as stock handling – the system must handle both the contents and heavier covers – and ease of set-up – essential for short-run, fast-turnaround jobs. Many print providers are also specifying in-line three-knife trimming to trim the top and bottom of the booklet as well as the fore edge. As explained earlier, the choice between in-line and other configurations depends on what you print.

Folding, along with cutting, are the most common parts of the finishing process. Even the simplest product is likely to involve at least one fold, while more complex folding combinations provide the opportunity to add value, interest and impact to promotional products. Of the two dominant technologies, knife folding and buckle folding, the former is commonly used on larger sheet sizes. Buckle folders are capable of high speeds, and fitting multiple buckle plates allows a large number of folds. Modular solutions are available that allow you to expand the folder's capabilities in line with changing demand.

Today's folders feature a high degree of automation to speed set-up and changeover. The parameters of regular jobs can be stored and recalled at the push of a button, automatically setting the feeder, lays and side lays, fold plates and roller pressures. That said, folding is one process where you still need a skilled operator versed in the characteristics of particular papers and how they react to the folding operation.



Perfect binding adds a level of professionalism and quality to publications, delivering rigid products with a squared-off spine that you can print on. Once the preserve of specialist finishers, it can easily be handled in-house using the latest systems, which feature push-button automation for fast makeready and ease of use. For a relatively small outlay, perfect binding is a big improvement on stapling, and although wire and comb-binding are fine for short runs and create a reader-friendly, lie-flat product, they can't handle large paginations, and cost and productivity prohibit longer runs.

Before deciding to bring perfect binding in-house, there are a few issues to consider. Take covers, for example. A wrap-around cover looks good, but you'll need to print it at more than twice the size of the finished document to allow for the spine and for trimming, and creasing will be necessary to enable the cover to lay flat. Some toner-based digital printing systems involve a layer of silicon oil that helps the fusing process, but can also repel the EVA (ethylene vinyl acetate) binding adhesive. If you print on recycled stock, be aware that the fibres are shorter and provide a weaker foundation for the binding adhesive.

Which brings us to the important decision you have to make between EVA and PUR (polyurethane) adhesive. EVA is the most common adhesive in book binding, which is melted and physically pressed into the surfaces to be bonded. However, it is often not strong or durable enough for stocks that have been exposed to silicon oil. PUR produces a strong bind by creating a chemical reaction that allows the adhesive to penetrate the layer of fuser oil, and is thus more forgiving. While it costs more, you need less adhesive, which in turn reduces glue seepage and improves the finish. PUR is also easily recycled and needs lower temperatures than EVA. On the other hand, PUR can involve more maintenance – the traditional 'open tank' configuration, for example, requires emptying and cleaning after every shift. To avoid this, manufacturers have developed sealed units, although these are more expensive.

Applying the finishing touch

As print providers strive to create print that stands out from the crowd, more attention is being paid to applying special coatings to increase the products' visual and tactile appeal. This is an area where offset has an established pedigree and offers a wide range of finishes and effects, from lamination and varnish coatings to foiling and embossing. While recent developments such as inkjet varnishing make it feasible to do some of this work in-house, the more ambitious effects are readily available from specialist finishing houses.

There is, however, a lot you can do on your digital press through the relatively simple medium of clear toner. Applying a spot gloss coating enhances images and text, a spot matt coating creates contrast, and an all-over matt coating protects output from scratching and minor water damage. Clear toner with a light CMYK halftone creates metallic characters on business cards, for example, while for a cost-effective security measure you can use the toner to print watermarks on vouchers and tickets.

Finishing – a new beginning

As we noted earlier, in part finishing owes its new popularity to the fact that until now it has been the least automated stage of production, and digital printing demands automation. But it's also benefiting from the dawning realisation that as technologies such as variable data printing become more common, they lose some of their edge. As consumers begin to take targeted products for granted, printers will have to find new ways to grab their attention. Creative finishing is one way. It also enables you to highlight print's great advantage of digital media – its physical appeal to the senses. This is why starting to make the most of finishing signals a new beginning for the CRD.

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