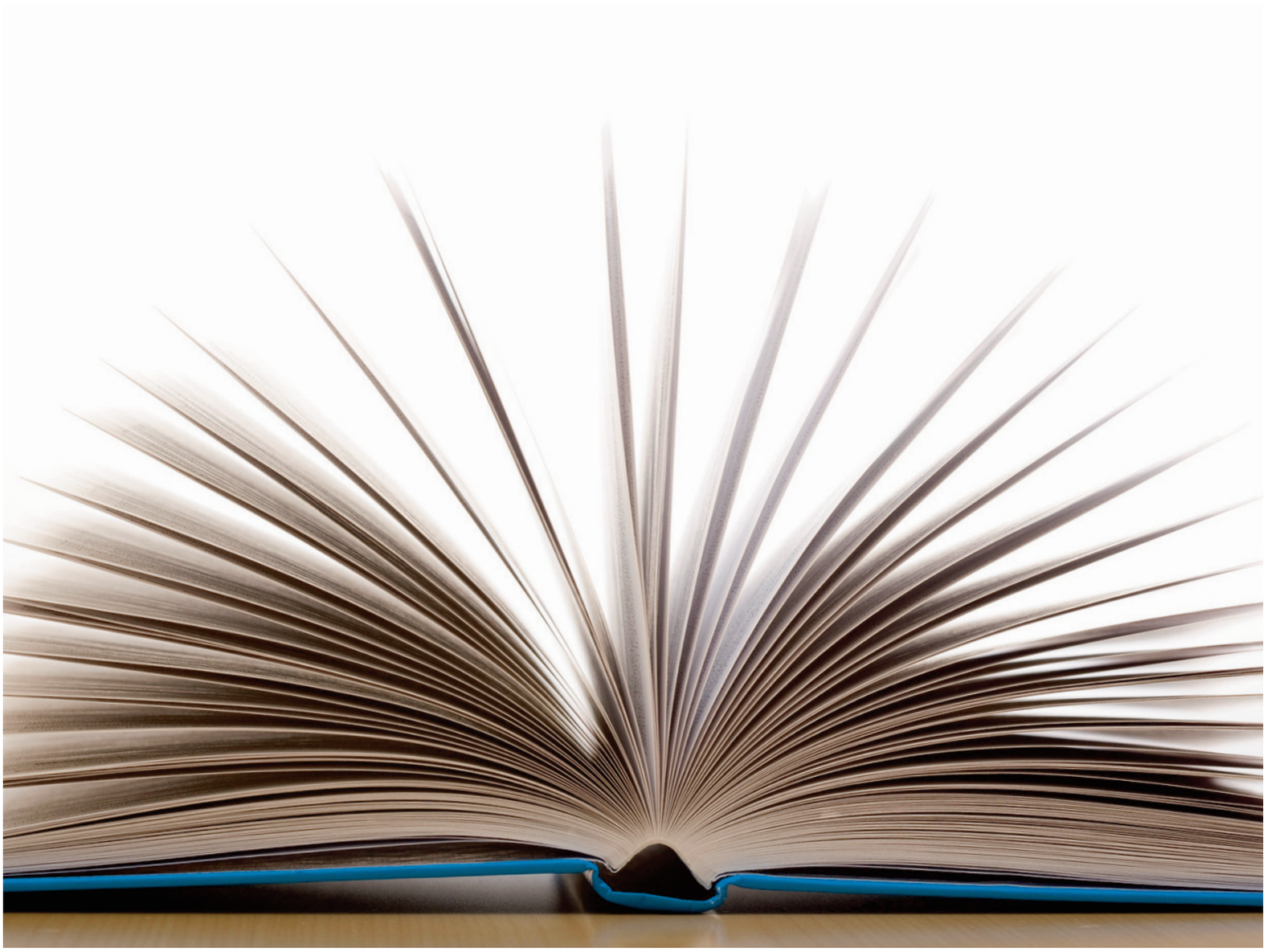
PRINT FUTURE

Finishing

Unlock the potential of higher productivity and product differentiation



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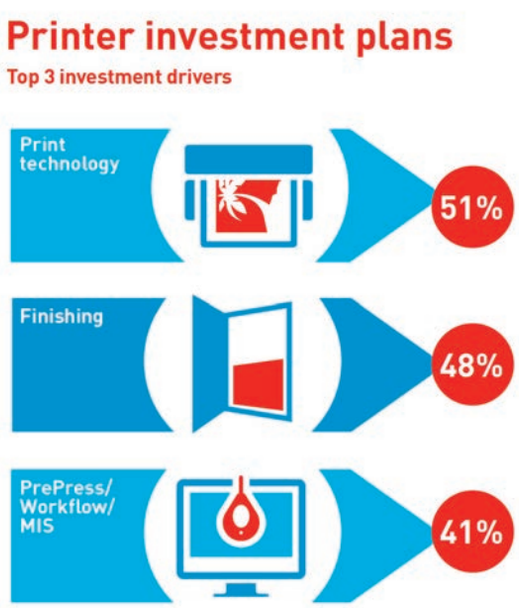
introduction

Over the last five years the printing industry has become increasingly commoditized and struggled to add value. Finishing, traditionally seen as an after thought and production bottleneck, is now being viewed as a critical stage in production and a way to differentiate products and create added value. It is not unusual for finishing to be as much as 40% of the production costs and often where all the value creation can be destroyed through poor quality control. SME printers have woken up to the fact that investing modest sums in finishing equipment can gain significant productivity improvements and reduce cost. Results from the recent drupa global trend report show that 48% of respondents are planning to invest in finishing equipment and 40% are investing to drive efficiency improvements.



Source: drupa global Trend Report 2015

The new interest and focus on the importance of finishing has been driven by more automation, inline capability with digital printing presses and specialist applications like 3D varnishing and laser die-cutting. The trend towards short run and on demand production has changed the dynamics and requirements of the finishing department.

> ***The more aspects of a print job that can be controlled internally and offered on demand will create growth and greater customer loyalty.***

For smaller printers and in-house print departments, reducing the amount of work that is outsourced gives greater production flexibility and control. A perfect example is W2P systems, providing a steady but unpredictable flow of digital short run on-demand jobs, which cannot be outsourced and have to be completed in-house. The more aspects of a print job that can be controlled internally and offered on demand will create growth and greater customer loyalty.

The choice of finishing equipment is often dependent on the printing process and the different characteristics of the printed output, consequently it may not be possible to use existing offline litho equipment to finish digital print work. 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.

which finishing workflow?

Which Finishing Workflow?

The new finishing workflows in digital printing are all about automation making in-line and near-line equipment critical. The press and inline finishing equipment are directly connected and closely integrated from the front-end management controls.

Choosing the right finishing workflow 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.

This is the ideal solution if you're producing a defined range of products in standard formats such as stitched booklets, reports, calendars and book blocks. The overall productivity of a digital press with in-line finishing capability is determined by the speed and efficiency of the finishing components, so it is essential that they don't detract from the rated speed of the digital press.

An offline finishing workflow is common when a printer has a range of digital and offset equipment but this increases labour costs. Sometimes the higher speed of off-line finishing equipment will more than compensate for the increased operator invention. It all depends on the type and quantity of jobs you need to finish.

In contrast to in-line and off-line, near-line has greater flexibility. There is no physical connection between equipment, but the finishing line knows the requirements of each job, from OMR (optical mark recognition) technology or from a direct interface with the press's print server, through JDF. This enables the finishing line to manage the printed output from a variety of presses and create an audit trail, which is critical to personalized products like mailshots or transactional documents.

Choosing the right finishing workflow 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. However one major benefit that has been largely overlooked by the printer and has not been sold effectively to the customer is inline finishing.

Fully configured digital presses with inline finishing options

It is a mystery why print providers have not maximised the opportunity of automated workflows and print output by including inline finishing to achieve a completely automated end-to-end production line. Print providers working in a busy digital colour production environment are missing out on many opportunities, firstly to improve lead times, also to reduce errors, waste and costs, but most importantly they are not maximising the return on investment in their press.

Print providers need to seriously think about the benefits of inline finishing when they are in the process of acquiring a new press.

Finishing plays a critical part in producing a high quality printed product but it is not unusual for it to be a major production bottleneck, which ends up compromising both the schedule and the quality of the final product. Consequently inline finishing is becoming an essential component for print efficiency as the trend for high numbers of low value jobs printed on demand increases dramatically.

why is inline finishing so important for digital print?

Why is inline finishing so Important for digital print?

Most print providers are under pressure to be more efficient in order to reduce their internal cost and remain competitive and at the same time provide quicker job turnaround for customers. It is difficult to achieve this with offline finishing because there will always be additional manpower and machine set ups required, which in turn takes more time and creates more waste. Print providers need to seriously think about the benefits of inline finishing when they are in the process of acquiring a new press. This is the right time to do your homework and analysis to understand the financial and productivity advantages it will bring to your business. The following criteria should act as a checklist for conducting your research:

1. **Reduce the manual touch points in processing a job**

   Take a random selection of different jobs that are regularly printed and finished. Record all the material movements and points where a job is manually transferred from one process to another e.g. moving from the guillotine to the folder to a stitching machine and maybe to a hole-puncher. It will become evident that there are often a lot of steps in the process where materials are moved from one location to another, taking up valuable time and increasing the risk of things going wrong. Calculate the potential time saving and think about how you could use that time more productively.

2. **Reduce the number of machine set ups**

   For different formats of printed product there are usually multiple set ups for all the printing and finishing tasks e.g. for a booklet there would be printing, guillotining, folding, collating and stitching. Use your selection of different jobs and calculate the number of machine set ups required for each job. Then work out the standard time and cost allowed for each set up when estimating a job. Think about how many additional jobs you could be printing without all those additional set ups and how much more profitable it would make each job.

3. **Cutting down on waste**

   At each stage of the production process there is an allowance made for waste, to cover machine set ups and any miss-feeds or running errors which may occur. Use your selection of jobs and record your standard waste

allowances for each job and add them all together. Think about what that means over all the range of products that you produce and then multiply that over a month or a years production. This adds up to a significant amount of waste material but also wasted cash, which could be added straight to the business bottom line with inline finishing.

4. Energy savings from inline finishing

Each individual piece of printing and finishing equipment can be very energy intensive and be the major contributor to a company's overall energy bill. Identify how many pieces of production equipment you have and make a rough calculation of the average number of working hours for each machine and their consumption of power. Compare this with the efficiency and ultra low energy usage of printing and finishing inline. This is not only financially beneficial but a tick in the box for your environmental credentials as well.

5. Increase scheduling and production flexibility and efficiency

Finishing is often a bottleneck in production caused by the number of

individual processes which have to be carried out. Calculate the number of production processes involved in your selection of different jobs and the time it takes to set them up and produce the final printed product for a given run length. Then compare this with the time it would take to produce the same jobs using inline finishing. Calculate the time saving you could achieve and work out how much more productive and efficient your operation could be and how easy scheduling would become when you only have to schedule for one machine as opposed to several different machines all running at different speeds. It also makes it much easier to track individual jobs and provide a customer with accurate information on job status and delivery.

6. Improve quality control – reduce reprints and quality issues

If you are a print provider you will be familiar with the phrase "there's always time for a reprint" and the most common quality control issues that cause reprints is from poor finishing. This is usually down to marking on covers, bad trimming, cracking on fold

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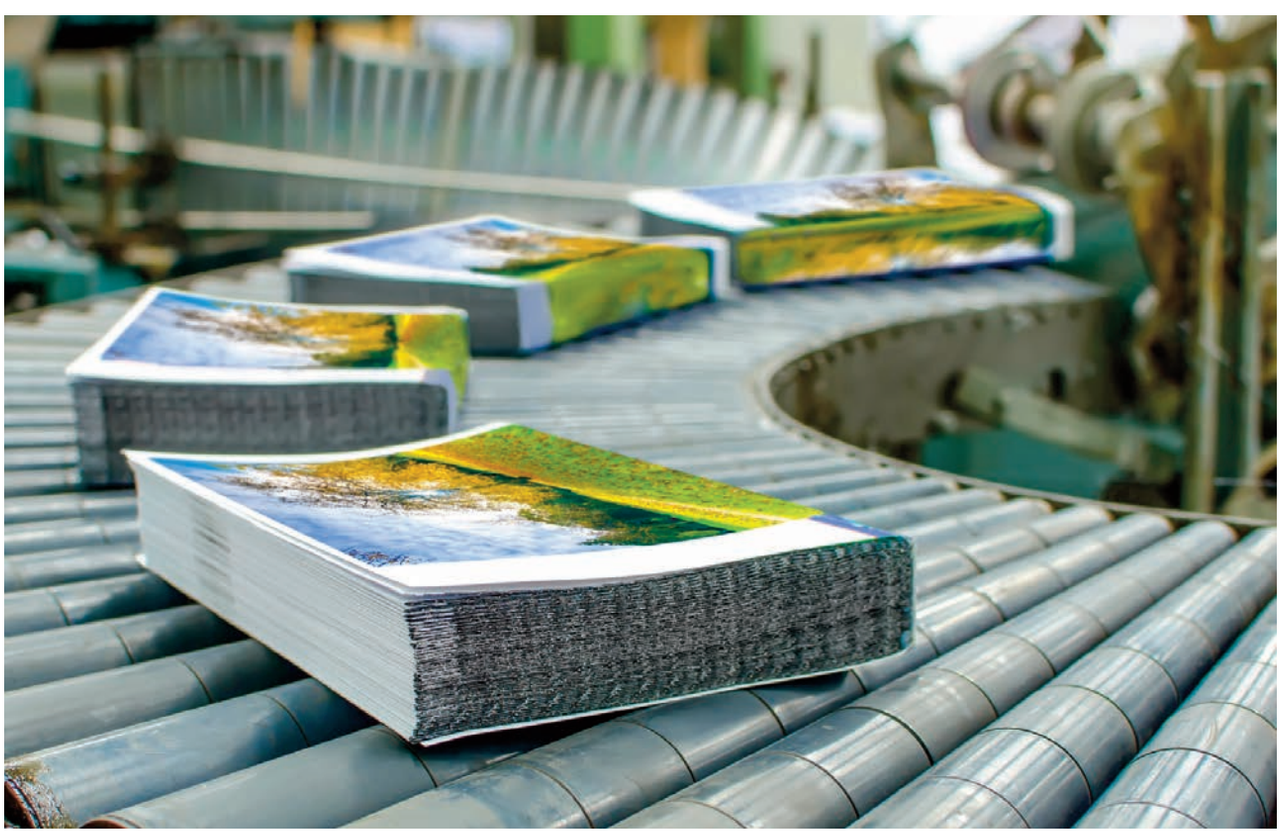
lines, stitching and collation that is misaligned. The major issue is that when faults appear in the finishing process it is often too late to rectify them and as a result substandard work slips through to avoid the job going out short or late. In such cases jobs either end up having to be reprinted to make up a shortfall or worse still get rejected by the customer and have to be reprinted. Have a look through your job logs and search for the number of jobs that have either, ended up being short on quantity and had to go back on press and the number of jobs that have ended up being reprinted because they have been rejected on quality issues. Calculate the cost to your business from the waste generated and the additional resources and machine time used. Compare this with inline finishing where you can monitor the quality of the print and the finishing operations all at the same time. Any quality issues can be dealt with in real time to ensure that you have optimum quality control and are delivering the correct quantities of a finished product every time.

7. Staff savings from printing and finishing inline and multi-tasking

Traditional printing and off line finishing is extremely labour intensive

and wasteful of resources. In the finishing environment machines are often sat idle waiting for jobs to be printed, which means that staff are often unproductive as well. Although finishing staff, are usually capable of operating several pieces of finishing equipment they can only be in one place at a time and therefore in a busy print shop staffing has to be maintained at a reasonably high level. Think about how many staff you employ in both printing and finishing and also try and work out how productive they are i.e. how much downtime there is during and between each job. Another good measure is to look at the operational efficiency of your equipment and compare the number of production hours available each week, minus the number of hours used to set up and the total hours of machine running time. This will give you a good guide as to the number of production hours you could free up and the number of staff or manning hours that could be saved if inline finishing was introduced. Digital with inline finishing saves labour and improves quality assurance.

... focus on commodity and price sensitive products to see how you can either improve your profit margins or reduce the selling price to be more competitive and potentially win more new work.



creating the return on investment

Creating the Return on Investment

After calculating the production savings and efficiencies that can be achieved by moving from offline finishing to inline finishing you now need to ensure that the return on investment is an attractive proposition. The next steps are to decide:

1. **Which job types are applicable for inline finishing?**

   Not every job is right for inline finishing, so it is important to understand which type of job will be most suited e.g. jobs which require laminating or foiling or have very high paginations and use very thick material stock would not be suitable. Jobs like booklets, which require a range of different folds, collating and trimming are ideal for inline finishing. Assess all the different job formats you produce and select those which would be ideal for inline finishing. Then divide those jobs into different types like booklets, brochures, inserts etc. and this will give you a good idea of how many jobs can be produced with inline finishing and importantly the potential cost reduction that can be achieved.

2. **Profile both your customers and the jobs that they produce**

   It is important to profile your customers as well as profiling individual job formats. This will give you an accurate idea of the run lengths, volume of pages and number of jobs, which can be converted to inline finishing and how regularly they will be produced. This will also allow you to focus on commodity and price sensitive products to see how you can either improve your profit margins or reduce the selling price to be more competitive and potentially win more new work.

3. **Investigate conversion opportunities from offset to digital**

   Take the job format data you have gathered and then decide on the economical run lengths that can be produced using digital printing with inline finishing. It will become apparent that there are longer run jobs, which are currently being produced by offset that can be converted to digital with inline finishing. This will be because of the economics and efficiency gained from reducing the number of set ups

and waste and being able to produce jobs much quicker.

4. Maintenance and re-investment

It may be obvious but a consideration, which is often over looked is the cost and resources required for equipment maintenance. Having multiple finishing machines will mean that maintenance costs will become a much higher component in the cost of a printed product. Replacement and renewal of equipment is also a significant factor, as the re-investment cost of multiple stand-alone devices will be considerably higher compared to inline finishing components.

5. Equipment Footprint

Renting retail shops or industrial premises, additional floor space in which to expand is often problematical. Having the option to print and finish inline and free up floor space from redundant finishing equipment gives them the opportunity to expand their service offering and increase overall revenues.

6. Final Assessment and planning

After taking into consideration all of the points above you should be in position to calculate the average savings from a reduction in staff, waste, machine set ups and energy to give you an overall figure to base your investment decision on. It should be clear that inline finishing provides significant opportunities to make your business more efficient and productive. When purchasing or leasing a new digital printer the inline finishing options are a relatively small investment when balanced against the huge advantages and the cost of offline finishing. Therefore it is important to decide on the relevant inline finishing components, which will be required and then bundle them into the finance package of the new machine. Installing a new press with a completely automated end-to-end production line capable of taking files in at one end and outputting a finished printed product at the other can transform the capabilities of the average SME print provider.

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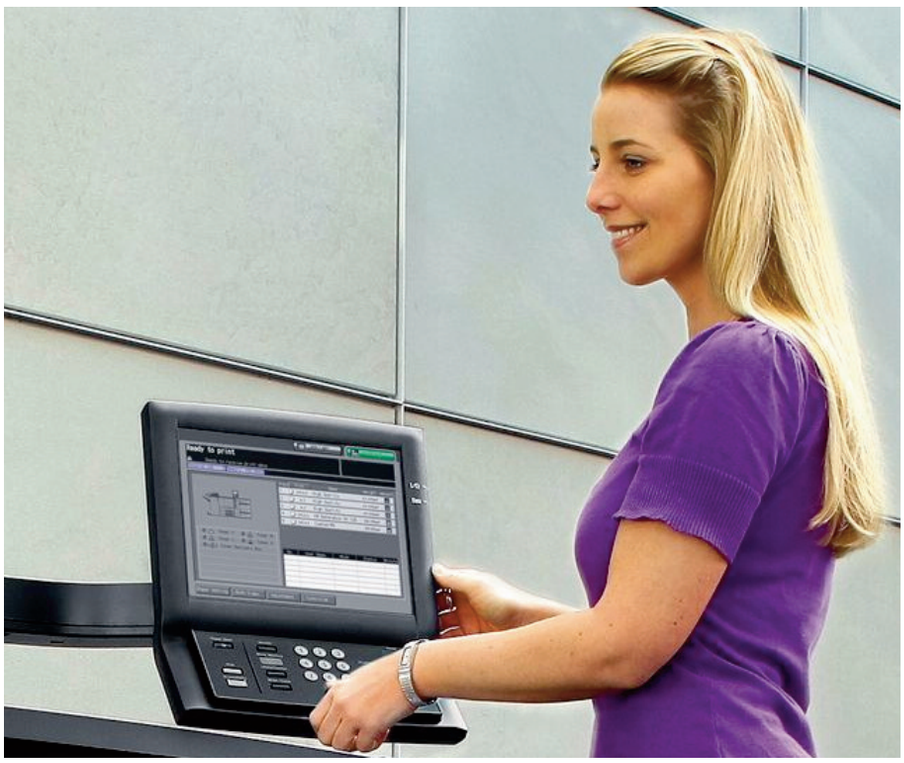

What type of finishing components to invest in

Identifying the core inline finishing components required and how they will be configured with the print engine is important; so always consult your vendor to discuss the options they have available. It is also necessary to think about your customer's requirements as they are focused on differentiating their products by producing innovative new eye catching marketing materials.

Having the capability to prodcue features like flaps and different folding configurations offer value-added benefits, when they are included in perfect bound brochures with gate-folded covers for example. Thanks to efficient inline solutions and falling unit costs, more and more printed products are frequently produced on demand with different cover designs and finishinhg options so having the capability to produce these items cost effectively is critical.

When considering which inline finishing components are required, production flexibility should be at the forefront of your thinking. The ability to perform as many tasks as possible in a completely automated way will be the key to success. Additional features such as hot folders can be created in the printer driver to save the specifications for folding and stitching etc of individual jobs. When the jobs are repeated the configurations for the inline finishing will be automatically set up along with the printing, to cut down on errors, reduce set ups and save valuable production time. The following inline finishing options are available:

When we consider the demand for increased productivity, at lower cost in shorter time frames with greater differentiation of printed products there is a good argument for having every finishing option available.

1. Inline Stapling Unit

Most multi-page document production requires some form of stapling to keep the pages together so adding a stapling unit with a range of variations from corner stapling to 2 point stapling and auto shift sorting is a necessity. It allows efficent prodcution of all the low value commodity jobs which cannot afford to be handled twice. Multi-position stapling makes an inline unit perfect for the production of manuals, reports and other document variations. Stapling can be done at

full production speed with up to 100 sheets, auto shifting and sorting is also available with an output capacity of up to 3,000 sheets.

2. Folding and Hole Punching Unit

Marketing collaterals like mailers, flyers and leaflets form a large part of the work output from quick print shops and SME commercial printers, so having a range of folding and punching options is important. Inline folding and punching units provide six different folding schemes:

- Half fold
- Letter fold in
- Letter fold out
- Gate fold
- Double parallel fold
- Z fold

This is complemented with an option for two or four hole punching and the post insertion of pre-printed sheets and covers.

3. Smart Punching Unit

The smart punching unit offers multi hole punching of sheets at full production speed in preparation for offline binding such as:

- Spiral binding
- Plastic comb binding
- Wire 'O' binding
- Ring binding

Automated Hole punching and collating allows for the quick and easy manual assembly of mechanical binding products. Eight different die sets are availbale for all the most popular punching schemes. The latest inline finishing unit for plastic comb binding will bind at 80% of production speed, producing a finished product every 7 seconds, automating the entire printing, collating and binding process. This is extremely useful for inplant production where mechanical binding is used extensively to produce publications, which are likely to be

Automated Inline comb binding

Every penny counts in business at the moment, so make sure you plan thoroughly, take advantage of every opportunity to reduce cost, be more efficient and at the same time maximise sales opportunities with customers.

updated on a continual basis. For print providers and inhouse departments who have a high demand for mechanical bound products these units will save an enormous amount of time and manual labour.

4. Booklet Making Unit

Booklets are a perfect example of where inline finishing provides maximum productivity benefits for a variety of saddle stitched and trimmed booklets by speeding up the production process and greatly reducing waste. An inline booklet maker can produce a 200 page folded and stitched booklet with auto detection to ensure there are the correct number of pages. There are a variety of additional features which can be used to create many versatile products all with automated set up for optimum efficiency.

- Booklets requiring folding and saddle stitching
- Multi half fold booklets
- Booklets with colour pages inserted during the finishing process
- Booklets with colour covers inserted
- Multi letter fold in options

For creative design agencies looking for ways to differentiate a clients marketing collaterals, inline booklet making gives them ultimate flexibility and choice at competitive pricing.

5. Perfect Binding Unit

Stand alone perfect binding equipment can be very expensive and is not widely installed in smaller print shops. Perfect binding provides a professional and high quality finish to higher value marketing brochures. An inline perfect binding unit is a great cost effective option for finishing books with up to a 30mm spine, all delivered neatly onto a trolley stacker. Perfect bound products use a hot melt glue and come in custom sizes or square format with a minimum of 10 sheets up to a maximum of 3cm spine thickness. There are several variations available:

- Binding with a colour cover insertion
- Binding with colour page insertion
- Perfect binding with z-fold insertion
- Inline cover trimming

specialist finishing opportunities

The integrated cover tray has a capacity for 1000 covers and it is possible to print titles and headings on the spine. In addition the perfect binding unit can be combined with the stapling unit to create one system.

To compliment the finishing units there are a variety of additional options which aid maximum productivity such as relay units and large capacity stacking units.

It is clear that there are a number of inline finishing options to choose from, the hard decision is which ones to choose. When we consider the demand for increased productivity, at lower cost in shorter time frames with greater differentiation of printed products there is a good argument for having every finishing option available. This also provides the opportunity to go out and sell new capabilities and printed products with shorter lead times and greater flexibility.

Specialist Finishing Opportunities

In most cases print products need to stand out and have a perceived higher quality and value. Simple applications like clear toner for digital presses can create spot varnishes to enhance images and text or watermarks for cost effective security features.

More focus is now put on coatings and decorative finishes like foiling and embossing to make the printed product tactile and visually more appealing. Here are some examples of new finishing applications, which can create efficiency and added value:

MGI's JETvarnish 3D takes digital spot UV coating to a new dimension, with flat spot UV jobs and amazing 3D raised effects. Ideal for operations with offset and/or digital presses up to 52x105 cm format, and coating runs from one to thousands, providing printers with true value-added services. Customers can differentiate themselves with customization not available through traditional and analog spot UV coating methods. The most popular jobs include book covers, brochures, business & invitation cards and packaging.

iFOIL opens the doors to digital embossing and hot foil stamping. Through a revolutionary digital process, the iFOIL eliminates the need for films, dies and make-ready, allowing you to produce hot foil stamping and embossing jobs from one to thousands of sheets with both very high profitability and ease of use. From magazine covers, books, brochures, labels, to invitations and packaging, offer new services and exceptional benefits to your customers.

Spectacular and unique effects are now available within a 100% digital process:

- embossing and debossing
- multiple colored foils applied in one pass (up to 3 colors)
- variable data printing (VDP) on Hot Foil Stamping and/or Spot UV Coating (text or image)
- foil on foil
- exclusive capability to foil and emboss on plastic including on Polypropylene (PP)

With JETvarnish 3D and iFOIL, not only will you now be able to bring Hot Foil Stamping in house, but you will be able to do it with virtually no set up and high speeds but also the possibility to offer a new never before seen finish; the personalization of embossed hot foil.

Promotional card overlaid with scented varnish on the fruit

Scented Varnishes

Scented varnishes are thin, transparent coatings that are laid over a piece of print. The varnish contains tiny microcapsules of scent which are broken when rubbed, allowing the scent to be released into the air. The great thing about scented print is that it can really evoke an emotional response in the reader and there are a huge array of aromas available, and each has a host of possibilities for the creative marketer or designer to use to engender a specific response in their target audience.

If used well, scented varnishes can really add impact and longevity to print. The secret, as ever, is in understanding your target audience to get the best out of them. Scented varnishes can be used on a wide range of printed products – including point of sale, catalogues, and leaflets – even business stationery. It can also be used on all kinds of stock – cards, papers, and vinyls, glossy or matt.

Summary

Finishing can be the jewel in the crown of any print company. It can drive greater efficiency and create additional sales revenue. Inline finishing in particular has the potential to make a radical difference to the operational efficiency of an SME print provider, as well as giving them a competitive advantage in the products and services they offer. However to maximise the opportunity, they have to look beyond just the functionality of the equipment and understand how they can exploit its full sales and marketing potential to transform their business.

Every year run lengths are dropping, lead times are getting tighter and printers are expected to reduce costs and do more with less budget. Inline finishing will become an essential part of the equation in achieving these goals but most printers don't think to the future, as they are too concerned with fire fighting today's problems. This is a major pitfall, so it is really important to take time out to consider what the demands on your business will look like in the next 3-5 years and how products, volumes and lead times will have changed.

Making the right investment in finishing equipment now could be critical to your future success. Investing in a digital press in isolation without considering finishing could leave you regretting that decision for the lifetime of the machine. It is always advisable to investigate how you can maximise your investment in inline finishing by providing total production flexibility and automation with as wide a variety of products as possible. Including as many finishing options as possible requires a relatively small investment upfront but will be paid back time and time again over the lifetime of the equipment.

Ease of operation and flexibility are the key to success

It is important to work closely with your equipment supplier to fully understand which set of finishing options they can provide and how they will be relevant for your business and the products you currently produce. There is a wide variation of finishing options available from one vendor to another, so ask about the installation process and test some of your existing jobs before making the investment – see for yourself how quickly and easily they can be produced and calculate the operational benefit to your business. If you are planning to offer customers new on demand products like inline stitched or bound brochures, get some samples produced, tell them the benefits to expect and the range of finishing options available. Getting their feedback first will give you confidence that you are making the right decision and that your customers will be receptive to these new ideas.

Every penny counts in business at the moment, so make sure you plan thoroughly, take advantage of every opportunity to reduce cost, be more efficient and at the same time maximise sales opportunities with customers. Inline finishing is a great opportunity to do just that, so I would recommend you do your research before jumping into a digital print investment without it.

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