

Impact of DOP on Short-Run, Fast Turnaround Printing

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Abstract

The latest generation of Digital Offset Printing (DOP) presses feature on-press imaging systems that are very fast, and match the image quality achieved with the best platesetters. Such presses extend the economics of offset printing to very short run lengths, thereby offering lower costs and higher quality than toner-based machines. The key impact of on-press imaging is the way it simplifies the manufacturing process and reduces cycle times, allowing printers to be much more responsive to their customers. Printers that have harnessed these benefits are market leaders in terms of both revenue growth and profitability. This paper examines the economic impact of DOP on the short-run printer and how best to integrate DOP into production workflows.

DOP Becomes Popular

Heidelberg announced the first DOP press ten years ago and since then, the number of DOP options available to printers has exploded. Printers can choose the system that best meets the needs of their customers. All implementations use a thermal imaging head to transfer the image data onto a substrate mounted on the press cylinder, but the similarities stop here. Press size ranges from 2 to 8 pages and the number of colors from 4 to 12. Some presses use a conventional dampening system, others are waterless. Some systems use processless plates, one system processes the plates on-press, and one doesn't use any plates at all! All but one of the available DOP systems are sheetfed presses.

With so many DOP presses entering the market it is now possible to see clearly the market niches where DOP excels. These are the niches characterized by fast turnaround times and short runs. This paper examines these niches and explores their profit potential for the printer.

Simplified Operations

Digital offset printing integrates platemaking and printing into a single device and makes it possible to go from data file to printed paper in one step, thereby streamlining operations and reducing cycle times. The concept is simple: digital files are delivered directly to the press where imaging takes place in parallel with the normal press make-ready cycle.

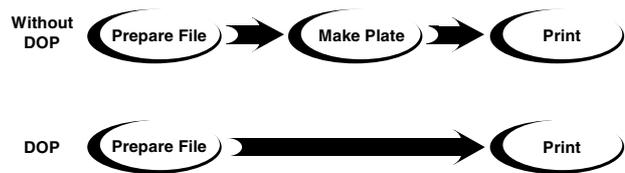


Figure 1. DOP eliminates steps

Eliminating steps, particularly the manual handoffs, reduces the potential for errors, spoilage, and wasted time. As has been proven many times in many industries, simplifying operations and reducing cycle times leads to improved manufacturing efficiencies. Manufacturers with short cycle times consistently eliminate competitors that are unable to achieve the same. This is the key opportunity that DOP offers the short-run printer.

In addition to eliminating a step, DOP reduces cycle time. Printing 3,000 copies of a 6-color image takes only 20 minutes of actual printing time. However, it can take up to half an hour to prepare the plates on a conventional platesetter and get the plates to the press. Installing DOP simply eliminates this half hour of production time.

High Quality Fast

As information exchange intensifies worldwide and the various new media interact more and more with print, the need for faster and faster print cycle times constantly confronts printers. One of the key advantages of DOP is its ability to reduce drastically the time required for a printer to respond to customers—the turnaround time from file ready to print delivered.

The turnaround times typically achieved by commercial printers in the US are alarmingly long. According to recent data from GAMIS, commercial offset printers, be they big or small, are very seldom able to turn jobs around in under a week. This is illustrated in Figure 2.

Yet this same GAMIS study concluded:

“The most important issue on the minds of our respondents is turnaround time. Over a third of both print buyers/content creators/printers mention this without prompting as their biggest problem with producing printed product. Anything that enables shorter turnaround will be welcome.”²

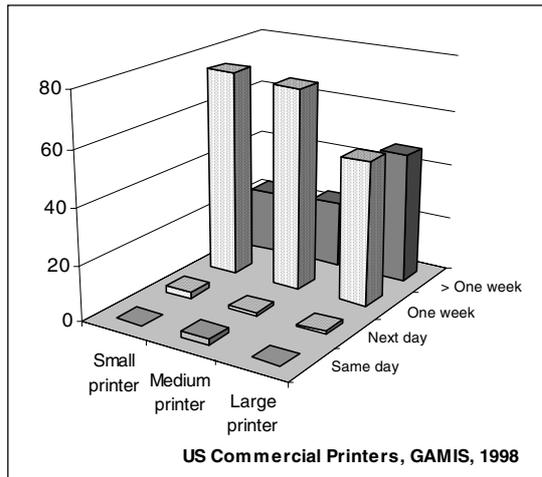


Figure 2. Turnaround times for US commercial printers¹

Print Quality and Versatility

Depending on the imaging system used, DOP presses are able to match the outstanding image quality achieved by high-end platesetting devices. While some toner machines are now approaching the image quality of offset printing, wet offset continues to set the standard.

More important perhaps than quality is the print versatility provided by offset printing in terms of format, colors, stock, and finishes. Customers demand special printing stocks of all materials, textures and thicknesses; they demand large sheet sizes; they demand specialized inks; they demand spot colors and six-color process printing; they demand varnishes and custom finishes. All of these can be easily achieved with wet offset printing—the print features that are available with toner-based printing are much more restricted.

A well-designed DOP press is able to maintain the full quality and versatility of wet offset printing, making it even more competitive with toner based printing.

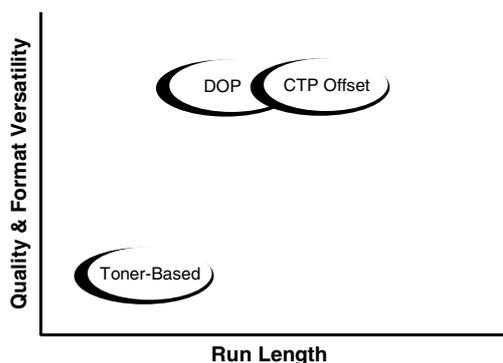


Figure 3. DOP offers CTP/offset quality at toner run lengths

Lowest Cost Technology for Short-Run

By digitizing the pressroom and extending the revolution set in motion by CTP (computer-to-plate), DOP streamlines operations significantly. By eliminating the

need for platemaking operations, DOP reduces operating costs for short-run printing. In a well-designed DOP press, imaging takes place in parallel with other essential make-ready steps such as blanket washing and ink presetting. There is practically no manufacturing labor required to image on press. This provides DOP presses with an operating cost advantage for runs that are under, say, 15,000 sheets (the exact breakeven point depends on the press being considered and the cost structure of each particular printer). In addition, one has to take into account the additional financial rewards resulting from the higher shop productivity that DOP provides for short-run and the advantages of processless plates.

Minimizing Impact of Disruptions

As with any custom manufacturing business, printers are constantly disrupted. A bad plate is found on press. A customer needs the job sooner than planned. Another customer requests more changes after signing off the final proof. Because of the custom nature of printing, such disruptions are expected, to the point that many printers simply accept them.

Approximately 20 percent of print jobs suffer significant schedule delays because of unexpected problems or changes. DOP makes it much easier for a printer to respond to such disruptions. Not only does DOP reduce the number of disruptions because of its simpler manufacturing cycle, but more importantly, it makes it much easier to recover when disruptions occur. Overall, DOP is expected to cut the number of customer deadlines missed in half.

Late Content Close

With everybody in the chain feeling the pressure for quicker turnaround, customers appreciate printers who can easily accommodate schedule changes and late closing of job content. With DOP, because imaging takes place on-press just prior to printing, it's possible to make content changes up to the very last minute. For example, a printer could offer his customer extra value by allowing critical prices in an advertising piece to be set just before printing begins.

Traditional offset printers queue jobs both at the platesetter and at the press. Queuing jobs at the press helps ensure that the press doesn't sit idle, but it comes with a price—it forces early job closure and has costly consequences in terms of labor and materials if customers request last minute changes. Converting the traditional queue into an electronic queue saves dollars and helps printers be more agile in the face of disruptions and customer requests.

DOP Sets the Standard

CTP, toner, and DOP all share the short-run printing market. DOP's unique combination of quality, versatility, flexibility, and cost make it a compelling option for printers in the short-run printing business.

The features of DOP are compared to those of toner and CTP based operations in Figure 4.

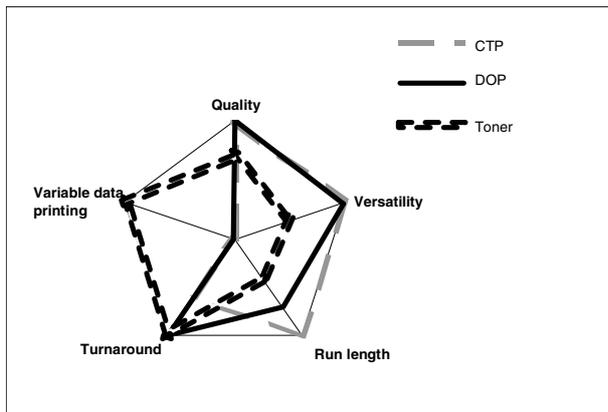


Figure 4. Relative strengths of toner, CTP and DOP

Given that a significant 70 to 80 percent of the pages printed on toner presses is short-run rather than variable data printing, offset printing can regain much of the short-run printing business currently done on toner equipment thanks to DOP technology.

Proofing

DOP opens the door to better and more economical press proofing. Proofs can be quickly printed with the actual stock, ink and press that will be used for the final job. This allows the "creative loop" to be closed in a very effective way, ensuring the utmost in color accuracy and creative impact.

Using DOP to Expand Your Business

DOP is able to deliver economically the full quality and versatility of wet offset printing at very short run lengths. This allows printers to take on higher-value jobs than can be printed with toner-based machines, by providing accurate and consistent color, unusual paper stocks, customized spot colors, and a full range of varnishes and finishes.

DOP makes it possible for commercial printers, quick printers, and service bureaus to be more responsive to their customers, while at the same time retaining the full quality and versatility of wet offset printing. These same attributes for quick turnarounds and economic short runs can also serve in-house printers, allowing them to reduce costs while increasing the diversity and timeliness of material they print.

Table 1. DOP Target Segments.

Segment	Driver
Commercial Printer	<ul style="list-style-type: none"> • Meet short-run and quick-turn needs of long-run customers • Enhance profits • Accommodate shift of customer base to shorter runs and quick turn-around. • Increase utilization of existing prepress capacity • Reduce costs
Quick Printer	<ul style="list-style-type: none"> • Increase value added • Meet longer-run, higher quality needs of customers • Expand business into new segment • Enable web-based job submission • Reduce costs
Service Bureau	<ul style="list-style-type: none"> • Survive by expanding into printing segment • Improve proofing services
In-House Printer	<ul style="list-style-type: none"> • Reduce inventory costs • Accommodate JIT (just in time) manufacturing • Enhance segmentation of marketing materials • Reduce costs

Success Requires More Than a Press

A printer equipped with a DOP press is well positioned to take advantage of the high demand for short-run and quick turnaround printing. Yet installing a DOP press is only one step towards profitability. To make the transition from long-run/price-sensitive printing to short-run/service-sensitive printing, printers need the right mindset supported by the suitable workflow and business practices. Successful DOP printers typically:

- emphasize responsiveness to their customers
- market to an identified base of customers that want short-run jobs fast, or who work to tight and dynamic deadlines
- offer customers a full range of print features and the full quality of offset printing
- benefit from an efficient sales cycle that allows jobs to be placed quickly and efficiently
- help customers deliver print-ready files
- turn jobs significantly and consistently faster than competitors
- have a flexible operation that accommodates changing job requirements and short planning cycles
- understand and manage costs and operations in real time

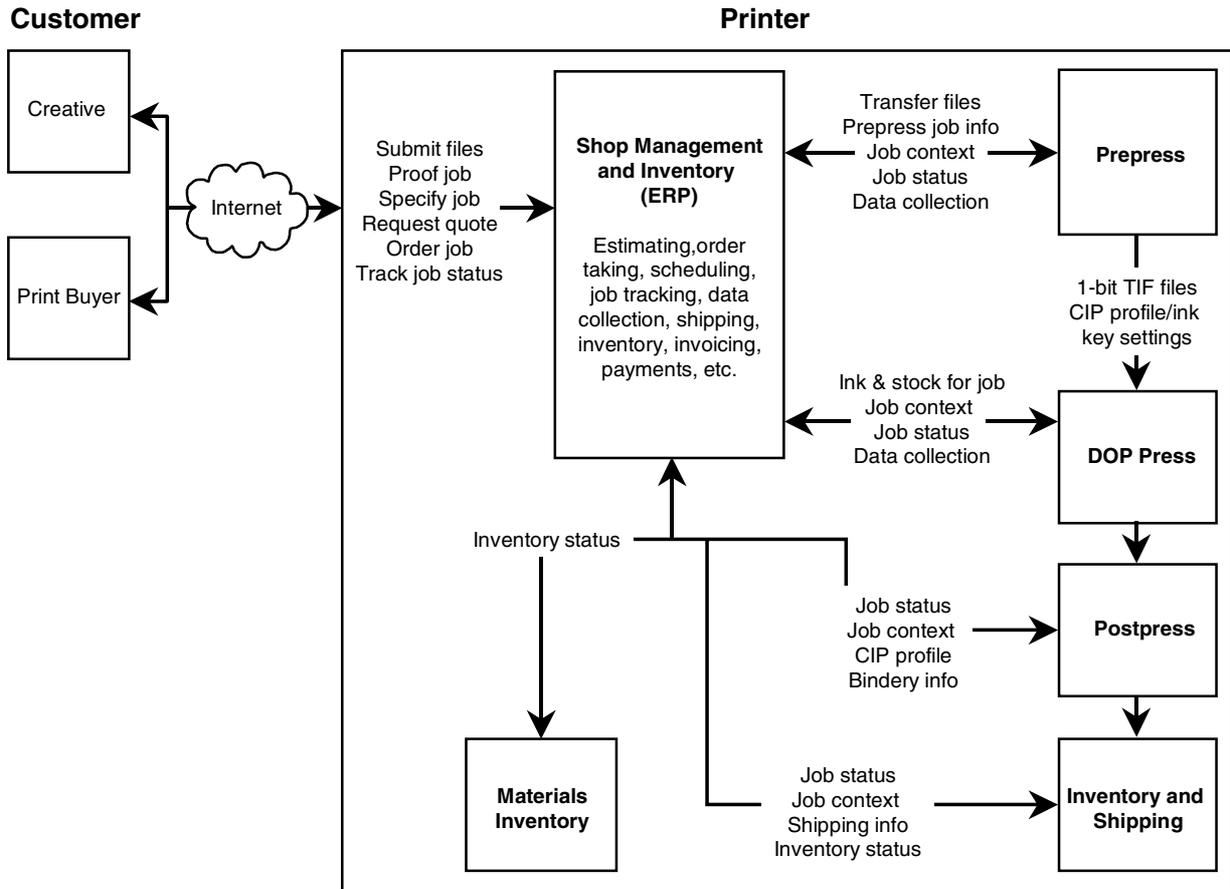


Figure 5. Integrated workflow for profitability

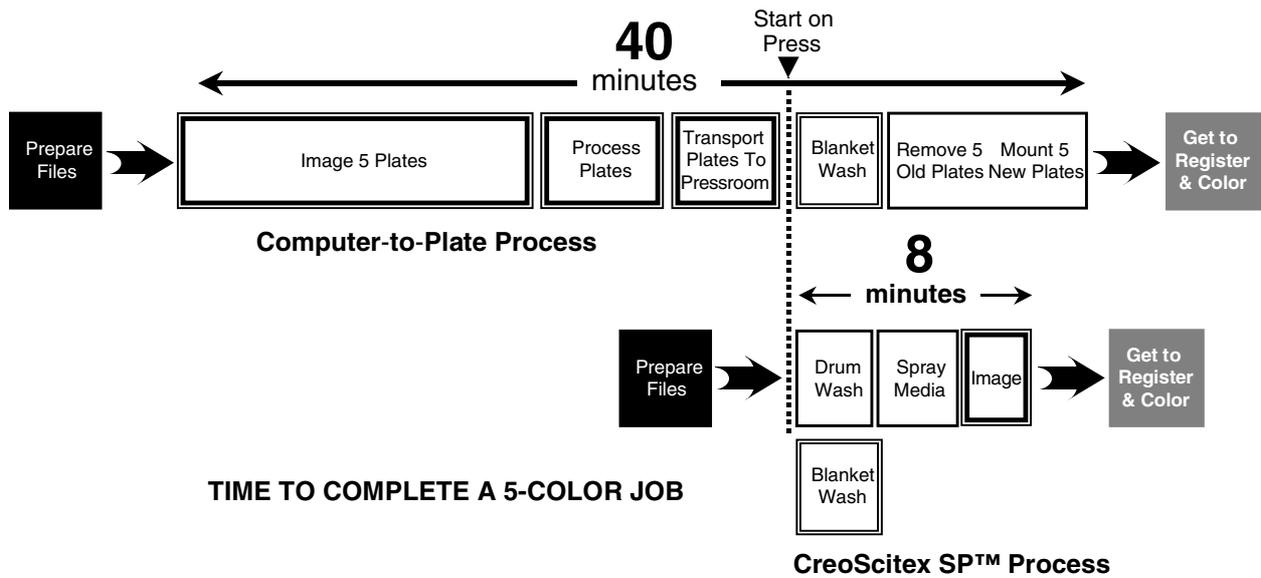


Figure 6. SP means shorter cycle time and reduced number of handoffs

Evolving Workflow Needs

The workflow to make DOP printers even more profitable than they are today is approaching and most elements exist today—what is needed is tight integration of tools such as the Internet, prepress workflow systems, remote proofing, color calibration, CIP profiles, on-press imaging, and enterprise resource planning (ERP) systems.

Internet technologies are ideally suited to facilitate order handling, job intake, remote proofing, and shop management. Simply using a web browser, customers should be able to create and submit job specifications, place orders, submit error-free files, proof jobs, track job status, and even pay invoices.

Internet tools also give customers and employees visibility into the entire workflow. What information gets shared depends on the printer's needs and operations. At all stages, critical data such as customer information, job content, specified stock, ink and format, special instructions, press profile, pricing and delivery, equipment and materials status, could be available to all those who need it in real time. For instance, the press operator could quickly use the press touchscreen to check delivery status of the special stock required for the next job in the queue.

The DOP workflow of tomorrow will support the integration, communication and flexibility required to take printers to the next level of profitability.

The Future is Plateless

While the DOP presses of today give printers the ability to deliver high-quality products quickly, the ultimate goal is to eliminate plates altogether.

Already MAN Roland has demonstrated a plateless web offset press with its DICOweb. In the DICOweb, the image is created when a thermal laser transfers lithographic media from a ribbon onto a reusable sleeve fitted on the press cylinder. After the image is printed, the cylinder is cleaned in preparation for the next print job.

The other way to eliminate plates is with the CreoScitex SP™ process. In this case a liquid lithographic media is first sprayed onto a reusable substrate. Then, the media is imaged with a thermal laser. After printing, the substrate is cleaned off to ready the press for the next job.

One obvious advantage of plateless printing is the elimination of plates—the hassles and costs of ordering, storing, handling, and recycling plates disappear. In addition, plateless printing streamlines operations further, eliminating manual interventions in the manufacturing process. Whereas on-press imaging shortens the cycle time required to get a job to the press, the SP process shortens the turnaround time even further by saving time once the job reaches the press. With SP, “one-button”

press changeovers are possible, eliminating the need for the press operator to intervene and change plates. As a result, fast, and consistently fast, press changeovers are achieved, providing considerable savings to the printer. Figure 6, using the SP process times achieved by CreoScitex at Graph Expo 2000, illustrates how on-press imaging and the SP process combine to achieve fast job turnarounds.

While commercial SP presses are several years away, smart printers are beginning to work with DOP presses today, building their base of short-run customers and adapting their operations to this demanding but profitable segment.

Conclusion

There is no doubt that the push to reduce cycle time will continue, but not to the detriment of quality. DOP brings these unique and sustainable advantages to the short-run market:

- full offset print quality
- widest possible print versatility
- fast, simple manufacturing cycle
- easy to accommodate last minute changes
- lowest cost for short runs

Printers around the world are adopting DOP and achieving high growth and profits. Several printers are now installing their second or third Heidelberg Speedmaster 74 DI press following the success enjoyed with the first one. These presses help them meet customers needs—high quality printing (175 lpi and 2400 dpi) and no compromising on stock and colors.

DOP printers who evolve their operations and use DOP to increase their responsiveness to their customers will enjoy growth and profitability.

References

1. Based on data presented in State Street Consultants, Inc. for GAMIS, *Defining and Segmenting Commercial Printing*, pg. 220 (1999).
2. State Street Consultants, Inc. for GAMIS, *Defining and Segmenting Commercial Printing*, pg. 220 (1999).

Biography

Brad Palmer is educated in Chemical Physics and has over twenty years experience in managing high-tech product development and make-to-order manufacturing. He joined CreoScitex in 1999 to lead their digital offset printing (DOP) business. CreoScitex works with most of the leading press manufacturers to develop innovative digital presses, and supplies these manufacturers with the required imaging heads, high-speed electronics, specialized software, and workflow integration.