

# Workflow

The key to efficiency and automation in Printing



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# introduction

There is absolutely no doubt that the print industry is being radically transformed by the growth of digital print and competition from other communication channels like email, SMS and the Internet. In this increasingly complex environment workflow is now becoming critical to simplify processes, reduce cost and speed up interaction and delivery times.

*For print providers, improving their workflow is the best place to focus attention and money in order to drive better business returns.*

offset, digital cut sheet, reelfed and wide format devices that all require unique workflow processes, for file preparation, print



drupa Global Trends Report 2014

As can be seen from the statistics in the drupa Trends Report printers are under continual pressure to reduce prices in an environment where increasing revenues is difficult and margins are constantly being eroded. Printers are producing more and more jobs at lower value, so the administration and processing of jobs has to be done in an automated workflow to reduce cost and lead-time in order to remain competitive. Although many print service providers have workflow in parts of their business, which manage specific tasks like pre-flight checking of files for example, very few have these workflow islands connected to achieve full automation. This white paper discusses the challenges and benefits of creating an end-to-end workflow.

Workflow is critical to success because it can unify the different print technologies like

production and finishing. An integrated workflow can avoid bottlenecks and utilize production capacity more efficiently. Personalized communications and marketing campaigns now require highly sophisticated workflows to manage cross media technologies such as print, email, SMS and purls (personalized web pages).

Print customers are now looking for a new breed of print service provider who can overcome these challenges and provide a new range of integrated communication services. For print providers, improving their workflow is the best place to focus attention and money in order to drive better business returns. It allows them to connect directly with their customers 24/7; it reduces cost by automating processes and allows them to start efficiently delivering new personalized print applications and services.

# what is a workflow?



## What is a Workflow?

The official definition of a workflow is;  
*"a reliable repeatable sequence of operations, enabled by a systematic organization of resources and information into defined roles and processes that can be mapped and documented."*

A print workflow consists of a sequence of connected steps having a work element that

end-to-end manufacturing process. A workflow can be viewed as the optimized components to deliver the same process repeatedly, which is why it is so critical in manufacturing environments like printing.

Flow control is a concept applied to workflows that manages the flow speed and flow volumes within a process. This type of process is the foundation for the automation of digital print and web-to-print systems; it allows efficient print on demand and just in time manufacturing and delivery. Workflow is

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the key to achieving maximum efficiency and reducing cost, by eliminating and automating back office systems and reducing

relates to machinery, the efforts of an individual, or a group of staff like account executives or press operators. The flow element refers to a print job that is being transferred from one step to another in the

manual touch points.

Workflow management Systems allow you to define different workflows for different types of jobs or processes. So, for example, in a print company, a designed document might



be automatically routed from the designer to an account handler and then to the prepress department. At each stage in the workflow, one individual or group is responsible for a specific task or tasks. Once the tasks are complete, the workflow software ensures that the individuals responsible for the next task are notified and receive the data they need to execute the next stage of the process.

Workflow management systems also automate redundant tasks and ensure uncompleted tasks are highlighted and followed up. They can also control automated processes, which have been put in place to make administrative tasks like order processing redundant. The workflow therefore reflects the dependencies required for the completion of each specific task.

### **Print Workflow Components**

An automated workflow can comprise of many individual components which brought together provide a seamless array of print services that can be integrated with a conventional MIS and prepress workflow.

### **Job Management**

Automating processes across all the print devices to get jobs delivered on time is essential to achieve maximum uptime and productivity. Workflow can improve the quality of your output by reducing manual handling and human error, as well as speeding up turnaround times in order to produce more work and increase revenue.

### **Prepress**

Prepress workflow automates the labor-intensive prepress tasks of preflight, imposition and color management can be handled with a touch-less workflow, reducing

risks of error, freeing resources and saving time.

### **Web to Print**

An automated workflow can expand services make them more accessible through the web, allowing customers to submit jobs from anywhere, anytime using a convenient online portal. Job scheduling and set up can be automated with a complete audit trail.

#### **Variable Data Publishing**

Workflow can control variable data elements to drive customization and personalization of documents that create targeted communications.

### **Cross Media Publishing**

Cross media workflow solutions make it possible to simultaneously develop multichannel communications to maximize the use and value of customers digital assets. Communications can be delivered across multiple channels including print, email, Web, mobile and video.

A workflow is usually illustrated by flow diagrams of each of the individual components, showing directed flows between the processing steps. Workflow components can basically be defined by three parameters:

- 1.** Input description: the print job specification, material and resources required to complete each step within the workflow
- 2.** The rules and processes which need to be carried out by staff and equipment at each step

***Printers have to become strategic partners with their clients and part of this process is to eliminate barriers and make the process of printing more efficient and less of a hassle.***

3. Output description: the information and materials produced by one process step and passed to another

Workflow components enable the following benefits:

- Automates each step from file preparation to production creating a lights out or touch less workflow
- Automates basic decision making and processing based on the individual job attributes
- Allows printers to build workflow templates once and use them repeatedly
- Converts electronic orders directly into an automated workflow
- Allows information to be re-purposed for use in other digital communication platforms
- Allows the integration of variable data printing and personalized printing.
- Integrates the printing, finishing and mailing functions
- Allows transparent inventory control and stock management



# workflow – where did it come from and where is it going?



- Allows automated logistics and customer billing
- Enables job archiving and individual digital asset management and retrieval

The business processes that underpin print manufacturing fall into three categories: order entry, print production, and financials. The main reason for printers to employ an automated workflow is to shorten the distance between them and their customers and to provide a transparent and audited process. Printers have to become strategic partners with their clients and part of this process is to eliminate barriers and make the process of printing more efficient and less of a hassle. This can be done in two ways, by building volume through convenience for the customer and providing confidence through simplicity and ease of use.

## Workflow – where did it come from and where is it going?

In the 1980s, the term workflow was first used in the software industry by FileNet; the company called its business process automation software "WorkFlo".

In 1995, the publishing industry studied how traditional publishing processes could be re-engineered and streamlined into digital processes in order to reduce lead time, as well as printing and shipping costs for delivering printed books and journals to warehouses and subscribers. The term electronic workflow has evolved and been used to describe the publishing process,

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from online delivery of digital manuscripts to the posting of content on the web for online access.

Over the last decade workflows have become the focus of continual research and technical improvements aimed at total automation and optimization in the printing environment.



The changing market dynamics and downward price pressures have made workflows central to the development of critical paths and the removal of production bottlenecks. These workflow developments created a whole new range of applications for

printing services and information management. Flexible, agile and adaptable systems were introduced relevant to a multitude of different print and business applications. The latest workflows now integrate directly with Management Information Systems, providing a real time view of every operational aspect of the business to deliver ultimate flexibility and efficiency.

In the new digital era of cross channel marketing and digital print, the business of printing is changing faster than ever. Workflow is transitioning from the early days of desktop applications using creative layout and desktop publishing through client server based applications like computer to plate and Data flow controllers to the latest web based applications using web-to-print and cross channel communications. In the future this will develop even further through rich Internet applications and low cost cloud apps.

The demand for variable personalized colour documents is increasing exponentially. We're seeing customers demand shorter and shorter runs being turned around in hours instead of days. Printers are producing more jobs at lower value so the administration and processing of jobs has to be automated to reduce cost and lead-time in order to remain competitive.

Different print technologies like offset, digital cut sheet, reelfed and wide format devices all require unique workflow processes, for order acceptance, file preparation and print production to avoid bottlenecks and to meet customer deadlines. So an automated hybrid workflow is becoming the key component to drive efficiency and profitability across all areas and processes within the business.



Personalized communications and marketing campaigns now require highly sophisticated workflows to manage cross media technologies such as print, email, SMS and purls (personalized web pages). Print customers are now looking for a new breed of print service provider who can overcome these challenges and provide a new range of integrated services. Improving your workflow is the best place to focus your attention and money in order to drive better business returns. It allows you to connect directly with your customers 24/7; it reduces cost by automating processes and allows you to deliver new personalized applications and services across a range of communication channels.

Some of the key features of the latest workflows are:

- Modular architecture so workflow can be scaled and automated as required
- Browser-based to simplify software installation, support and management
- Standardized PDF conversion to support a variety of PDF formats
- Preflight to highlight and file problems to produce higher quality output
- Imposition tools to automatically layout pages based on job properties
- Scheduling and job processing by printing each job automatically or

batching jobs to optimize set ups and post press finishing

- Printer routing – Rules-based logic intelligently routes and programs jobs to optimize the productivity of the print engines
- JDF/JMF standard compliance allowing a seamless integration with other systems and equipment in the workflow

Workflows now need to handle content that needs to be re-purposed for the Internet, an array of mobile devices as well as a variety of different print technologies from offset to digital and wide format. The individual jobs will need to be stored for easy access and reuse. The digital assets in the job – images, logos, advertisements and text content will all need to be individually tagged and archived in a digital asset management system and made available on demand for viewing, retrieval and reuse in other jobs.

All these elements can be controlled and managed by an automated workflow, which reduces valuable time and resources. This service is a great asset to the customer and allows the printer to create a new revenue stream as well as controlling a customer's content for distribution and re-use in a variety of marketing formats.

In the future as more and more equipment becomes JDF (Job Definition Format) enabled; workflow will become even more critical to run a print production environment. The JDF is an industry standard

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job ticket format designed to simplify information exchange between different applications and systems in and around the graphic arts industry.

The main features of a JDF workflow are:

- JDF is intended to enable the entire industry, including media, design, graphic arts, on-demand and e-commerce companies, to implement and work with individual workflow solutions.

- The ability to carry a print job from concept to completion. This includes a detailed description of the creative, prepress, press, post press and delivery processes all contained in the JDF file.
- The ability to bridge the communication gap between production and Management Information Services (MIS). This ability enables instantaneous job and device tracking as well as detailed pre and post calculation of jobs.
- The ability to bridge the gap of a customer's view of the product and the manufacturing process.

This new workflow environment will transform how business is done through transparent information and specification for all parties, improved scheduling and capacity planning, automated machine set ups and customer updates, automated logistics, inventory control and billing.

It can be seen from the direction the print market is taking, that in order to adapt to the changing demands of customers and their products, print providers need to streamline their business operations to make them more responsive, flexible and ruthlessly efficient to increase their profitability. This can only be achieved through the right combination of integrated workflows, customer applications and digital print technology. The sooner printers focus their attention and investment on workflow, the sooner they will become more competitive and transform the way they do business to the benefit of themselves and their customers.

# what's so important about workflow and automation?

## What's so important about Workflow and Automation?

Workflow is absolutely critical to smoothing out and simplifying all the steps in the production process. Workflow management systems are now critical to ensuring that work flows in the most efficient and controlled way through a print environment. A printer's typical workflow is usually quite basic and only combines the high priority processes within the business, such as estimating, order generation, job ticketing, file pre-flighting and invoicing. There is a great opportunity for printers to focus on workflow and integration with the administrative functions of an MIS as a means to drive business improvement and gain greater control of each step in the production process as their business grows and becomes more complex.

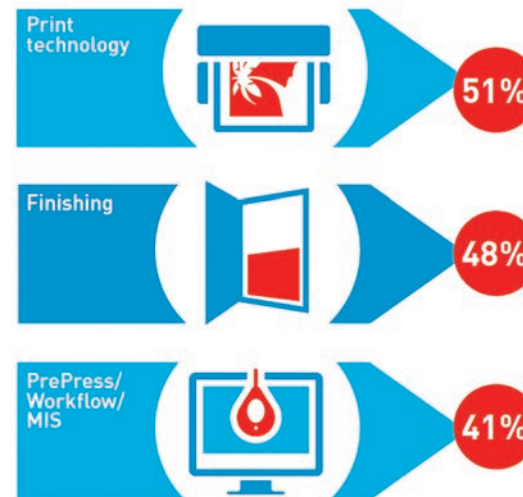
As can be seen from the survey results above the message is getting through and 41% of print companies are investing in workflow to make their business more productive and efficient. Printers are focusing on three key elements to drive better results:

### Predictability

Eliminating surprises and mistakes by creating predictable outputs to achieve fewer prepress cycles and reduce the overhead costs of each job.

## Printer investment plans

Top 3 investment drivers



drupa global Trends Survey 2014

### Performance

Maximize throughput and productivity by having a platform that automates repetitive tasks, optimizes production equipment and reduces waste.

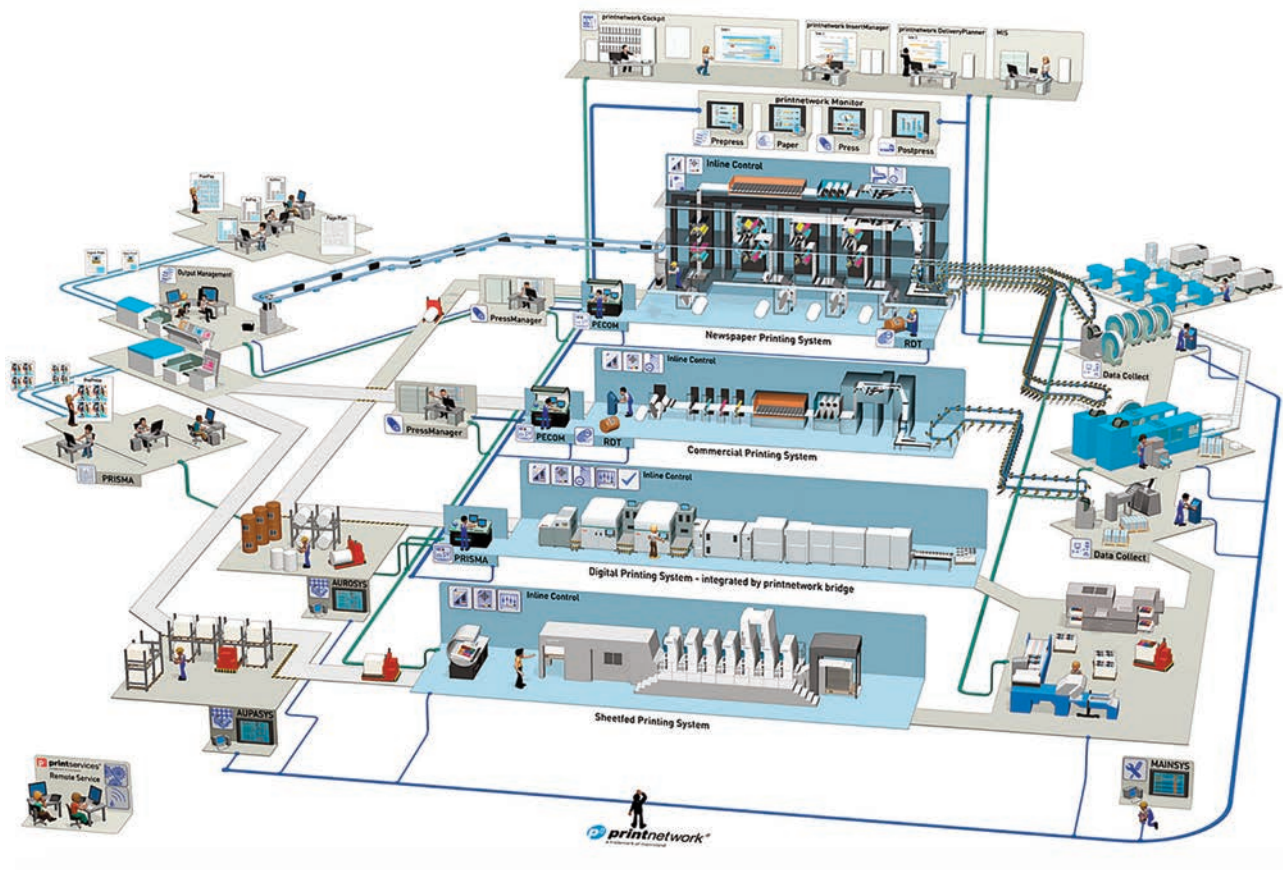
### Scalability

Scale your workflow as business grows by simply adding software modules to ensure printing and finishing is fed at maximum capacity to automate downstream tasks and significantly reduce turnaround times.

The following illustration shows a fully operational print workflow and the opportunity for automation and increased efficiency:

*The key driver to achieve benefit from a workflow system is to understand the business context and evaluate the flow route required to gain maximum efficiency.*

# workflow opportunities



The key driver to achieve benefit from a workflow system is to understand the business context and evaluate the flow route required to gain maximum efficiency. It is often the case that workflows start out as a generic system and become tailored to the unique requirements of individual print companies and their customers. As an example the workflow for offset jobs would be completely different than for a variable data digital print job. The process steps to produce each job are different and therefore need their own unique workflows or alternatively a Hybrid workflow can be developed, which is capable of dealing with all the different print processes and communication elements required in the business.

## Workflow Opportunities

Over the years commercial offset printers developed workflows exclusively for offset printing; this included the estimating, order processing and job bags as well as combining some of the proofing and pre-press elements. When they introduced digital printing devices into the production mix, they found that the workflow demands were very different and consequently developed separate digital workflows. As customer demands and run lengths are changing, there is now a need to print the same work in both offset and digital, and make production



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choices based on lead time, cost and run length, consequently having one combined hybrid workflow provides ultimate production flexibility.

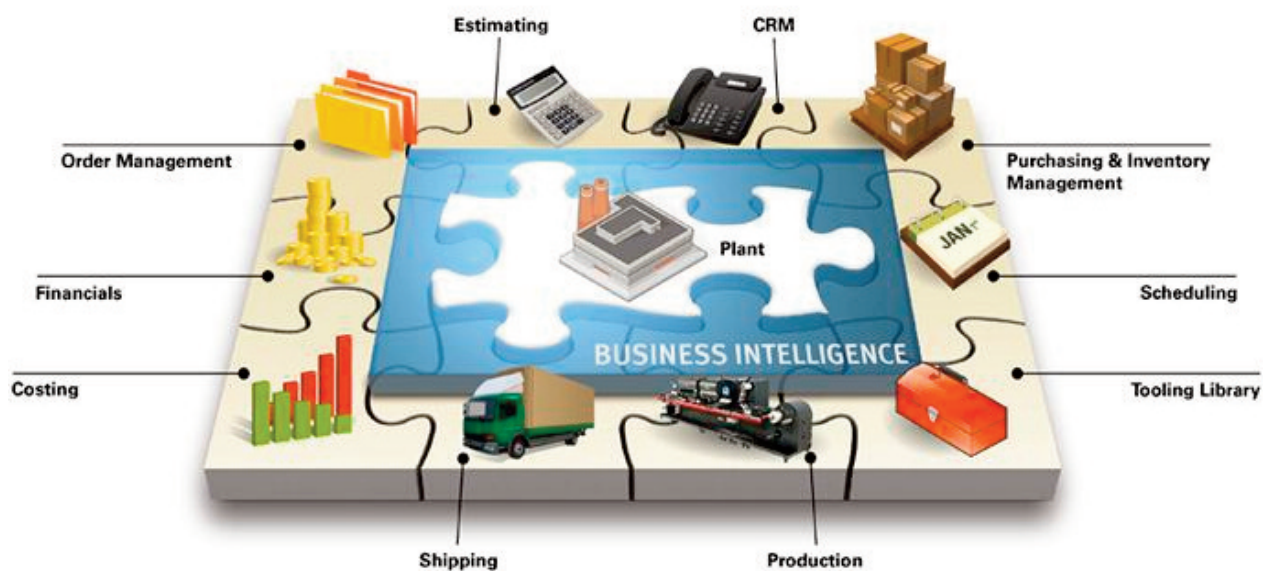
A hybrid workflow is essential to print companies who are operating in both an analogue offset and also a digital print environment. Traditionally most print companies have organized their workflows individually around offset output and digital output. This type of workflow set up means that there are clear boundaries established based on pre-determined run lengths and cost per page, consequently offset competes with digital rather than complimenting it in the production environment.

Digital workflows are very different to offset workflows because jobs often require instant pricing, proofing online and contain

variable content elements. Print ready files will go directly into the print engine job queue for production and finishing elements will

often be carried out inline. Probably the most important factor is that a digital workflow has to accommodate many more jobs than an offset workflow and is quite often integrated into a web based job delivery system like web to print. It is therefore essential that the administrative functions like estimating, order processing and approvals is all managed within a completely automated process to reduce cost and drive efficiency. If this is not achieved, digital jobs can become loss making due to the high cost of administering and processing the job

Hybrid workflows are designed to be more sophisticated by integrating the individual components required for both offset and digital production processes e.g. it will take account of differences in the end-to-end process of each job and provide the most





efficient and cost effective production route. As more and more emphasis is now being put on digital production due to reducing volumes and lead times it is essential that printers now focus on hybrid workflows to manage their workload.

There is a growing trend in the print industry for customers not to specify how their job is printed but to allow the print provider to choose the most suitable and cost effective production process. Buyers of print generally realize that production quality digital print is now comparable with offset, so their primary aim is to achieve the best output solution at the best price that delivers

them a demonstrable RoI. This means it is critical for printers to understand the print volume and financial cross over points between digital and offset production in their business and how this relationship changes based on different job specification criteria. This is particularly relevant when it comes to using static or variable content in the final printed product.

### **Data and Analysis through workflow**

Workflow usually works hand in hand with Management Information Systems to accept customer orders, to save modified settings in the digital print workflow so a job can be repeated and content updated at any time. An agile workflow receives continual job-related feedback messages on job status and data relating to timing, consumption and logistics. This information is invaluable for customer updates and post job calculation to determine the actual cost and profitability of a job, which is invaluable when assessing the crossover between offset and digital. The ability to choose freely between print processes significantly enhances a printer's flexibility and scheduling options.

A hybrid workflow will contain all the front end costing and estimating information for both digital and offset job alternatives. It will provide information on which formats and material stocks are most suited to digital or offset, it will assess the prepress costs and lead time implications of prepress, proofing and platemaking. From a production perspective the workflow will account for the time and cost of setting up a press, printing the job, finishing inline or near line as well as packing, distribution and warehousing. Understanding all these elements is critical to balancing customer demands with the most efficient scheduling, production and

***A hybrid workflow provides the printer with ultimate production flexibility and maximizes the utilization of both his digital and offset equipment.***

fulfillment route. Informed decisions can now be taken as to whether a particular job should be printed digital or offset. The workflow provides options for the most efficient way in which a job should be printed, based on run length, lead time, substrate, format and finishing requirements but most importantly on available machine capacity, whether the job will be repeated, if it is better to print on demand or keep stock in a warehouse.

A hybrid workflow provides the printer with ultimate production flexibility and maximizes the utilization of both his digital and offset equipment.

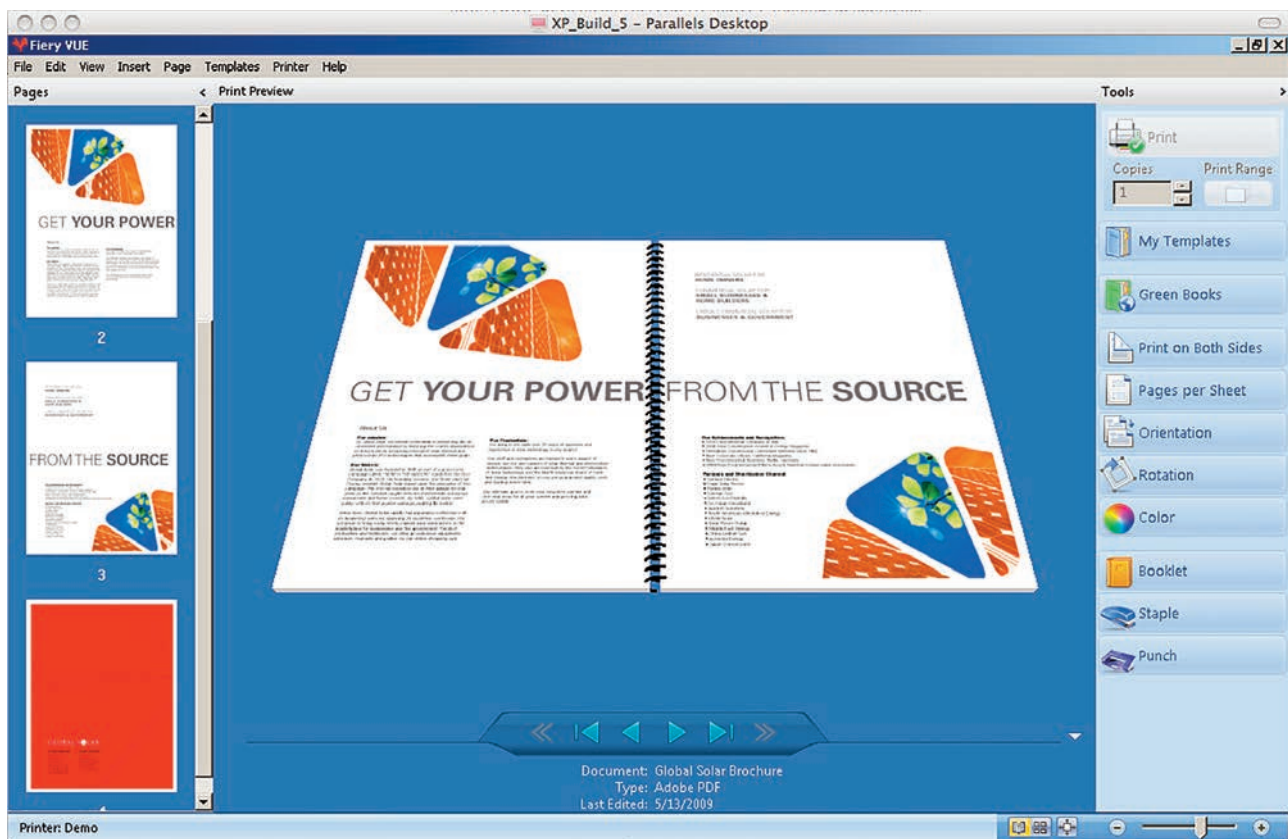
### Benefits of an Integrated Workflow System

It is now possible to design a fully functional workflow that fits an individual printer's business requirements, providing

immediate tangible benefit and an upgrade path to allow a higher level of automation as and when required. As can be seen from the statistics below only 21% of printers have an end-to-end automated workflow so there is room for increased efficiency and also an opportunity to achieve a significant competitive advantage.

Printers are also not exploiting the opportunity to automate their information flows as only 31% have integrated their MIS and web-to-print and only 25% are using JDF and CIP4 data to drive business improvement.

The latest proprietary print workflows allow print staff to pre-build workflows for automatic document preparation, proofing, and printing for both digital and offset environments. The ability to automate the prepress environment through preflighting, image enhancement and proofing adds value



***Printers have to make it easy and straightforward for their customers to securely do business with them anytime and anywhere no matter how complex the job***

and reduces cost to all digitally submitted jobs. The main benefits of a fully integrated workflow are:

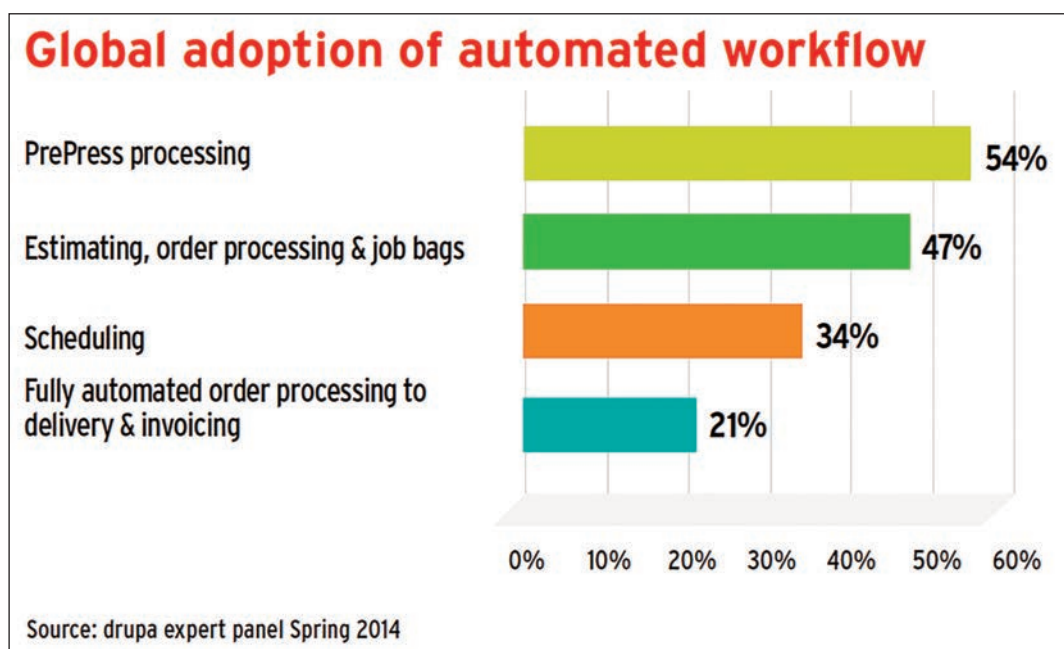
- Reduced administrative cost through automation
- Reduction in staff through less manual touch points
- Increased pre-press efficiency
- Maximize printing capacity by doing more in less time and with fewer mistakes
- Maintain consistency and quality control while reducing costs

- Integrate with customer service portals and web to print systems
- Improve customer relationships
- Increase revenues by enabling new applications
- Exceed customer expectations by improving turn-around time

The following print applications all benefit from their own unique automated digital workflows:

- Books and manuals
- Collaterals
- Direct mail
- Stationary and business cards
- Booklets
- Calendars
- Postcards
- Posters

Printers have to make it easy and straightforward for their customers to





# practical steps to optimizing a workflow

securely do business with them anytime and anywhere no matter how complex the job. Creating workflows that can automatically route jobs to maximize the use of resources, add variable content to expand the applications that are offered, is now essential. Having a flexible and scalable approach to provide estimates, accept new or repeated orders and launch an automated job ticket on a 24/7 basis fits in with the environment that customers are operating in. The days of waiting a couple of days for a quote, or only doing business between 8am and 5pm are gone and printers have to adapt to this new reality.

*As with everything planning, self-assessment and analysis is the fundamental starting point. It will save enormous amounts of time and money in the long run if you thoroughly understand your current business processes and have a roadmap of your future business plans.*

on your answer you will require software that makes the online order entry process painless for the end customer while trying to make the backend processing as touch free as possible with complete automation.

## Practical Steps to Optimizing a Workflow

As with everything planning, self-assessment and analysis is the fundamental starting point. It will save enormous amounts of time and money in the long run if you thoroughly understand your current business processes and have a roadmap of your future business plans. This will allow you to start mapping specific product workflows and processes to understand what is required from beginning to end and how this can be achieved in the most efficient way.

It is essential to decide what you are trying to achieve, are you focused on ecommerce for example? Is this B2C or B2B? Depending



A marketing and collateral based printer will require software that supports one-to-one communication (e-mail marketing, QR Codes, variable data printing, etc.). Depending on the size of the company and their customer's demands each printer will have different requirements and need a specific software

solution tailored to their corresponding business plans.

After aligning their product workflows with their business plans, each printer should be able to identify the individual components required to create their own integrated workflow. An integrated workflow will connect order entry with print production through to financials. To accomplish this, most printers will probably have to implement a multi-vendor solution. When a

***It is essential that all printers seek to eliminate as many manual touch points as possible in their work processes. Why? Because print is now competing with alternative digital channels in the marketing mix and many of them have low production costs and almost, zero distribution costs.***

printer is armed with his own unique business analysis and future plans, it is then possible to evaluate the technical requirements and make decisions based on "nice to have features" or business critical components.

It is essential that all printers seek to eliminate as many manual touch points as possible in their work processes. Why? Because print is now competing with alternative digital channels in the marketing mix and many of them have low production costs and almost, zero distribution costs.

### **Workflow planning**

Make a plan of the production processes within the business. Look at each step in the workflow and think how these could be automated and made more efficient. For example the estimating could be done with an online automated calculator; customers could then also supply files and submit an order online. Customers could be given automated updates on their jobs progress to reduce the number of customer service calls. Customers could control their own call offs and stock control by giving them access to a virtual warehouse. Every element of the



workflow below can be customized and automated to provide efficiency and a better customer experience. When a company is producing a large amount of low run low value digital jobs automating all these processes and integrating them with an MIS and the Internet is absolutely critical to success.

#### Production Process Steps

- Enquiry
- Estimate
- Order entry
- Job ticket
- File receipt
- Pre-flighting
- Proofing
- Approval
- Scheduling
- Platemaking/direct to digital press
- Printing
- Finishing
- Fulfillment
- Delivery/warehouse
- Invoicing

*If time is spend planning a workflow designed to meet your business objectives and client requirements it can transform the average SME commercial print environment. It creates an ultra efficient and streamlined business with reduced cost, higher productivity and value added benefits for the customer.*

B2B clients can be profiled by vertical markets to understand if there is a similarity in products, run lengths and order values to provide a more cohesive efficient and streamlined workflow. From a product perspective it is useful to segment your products so you can identify the most efficient production method based on volume, price and product format.

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Customer Profiling	Product Profiling
B2B Customers	Offset products
B2C Customers	Digital products
Vertical markets	Type of products
Run lengths	Format
Value of customer	Volume
	Finishing

As well as concentrating on the production processes it is vital to profile your customers and understand which are B2B or B2C. B2C clients are more likely to want the convenience of ordering and paying online.

productivity and value added benefits for the customer.



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