

TECHNICAL GUIDE

OPTIMISED WORKFLOWS

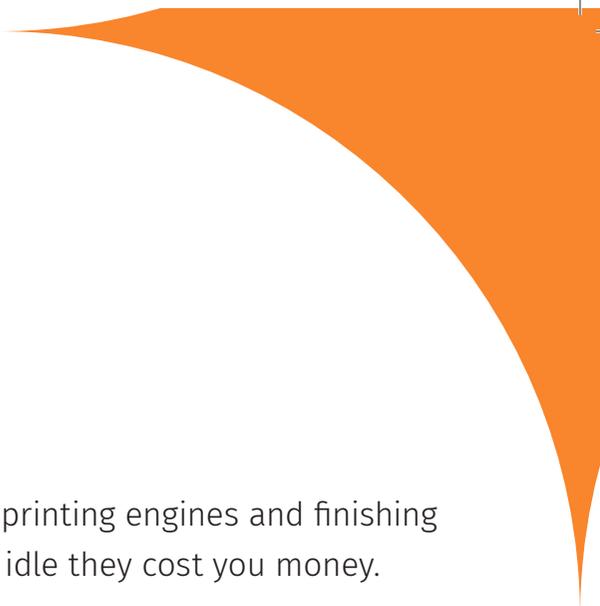
Second Edition

**FESPA**
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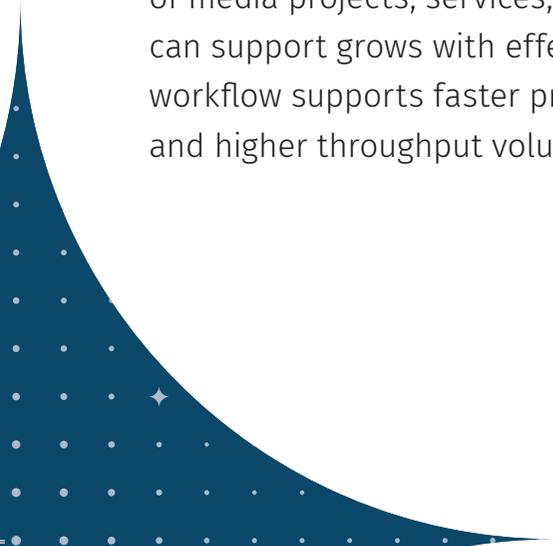
Optimised Workflows

Process optimisation doesn't just happen by itself but, dull as it might seem, the results can be more than rewarding. It's all about control and optimising profits through efficient data management. Predictability is the holy grail of any activity, whether it's training for a race or getting ready to go on holiday. You want things to go smoothly, with no halts to the flow of tasks and no unexpected costs to undermine success. Everything has a workflow, from feeding your cat to brain surgery, but equally the processes required for some workflows are easier to manage than others.

In the printing business managing the workflow effectively makes the difference between profit and loss. It's that simple, because business is about money. Whether you're publishing religious tracts or field notes for a charity or banners promoting a major public event, shelf hangers or billboards, the goal is to maximise the bottom line without breaking the law or otherwise compromising the business. And the bottom line for your company is money: without money, you cannot achieve any your business



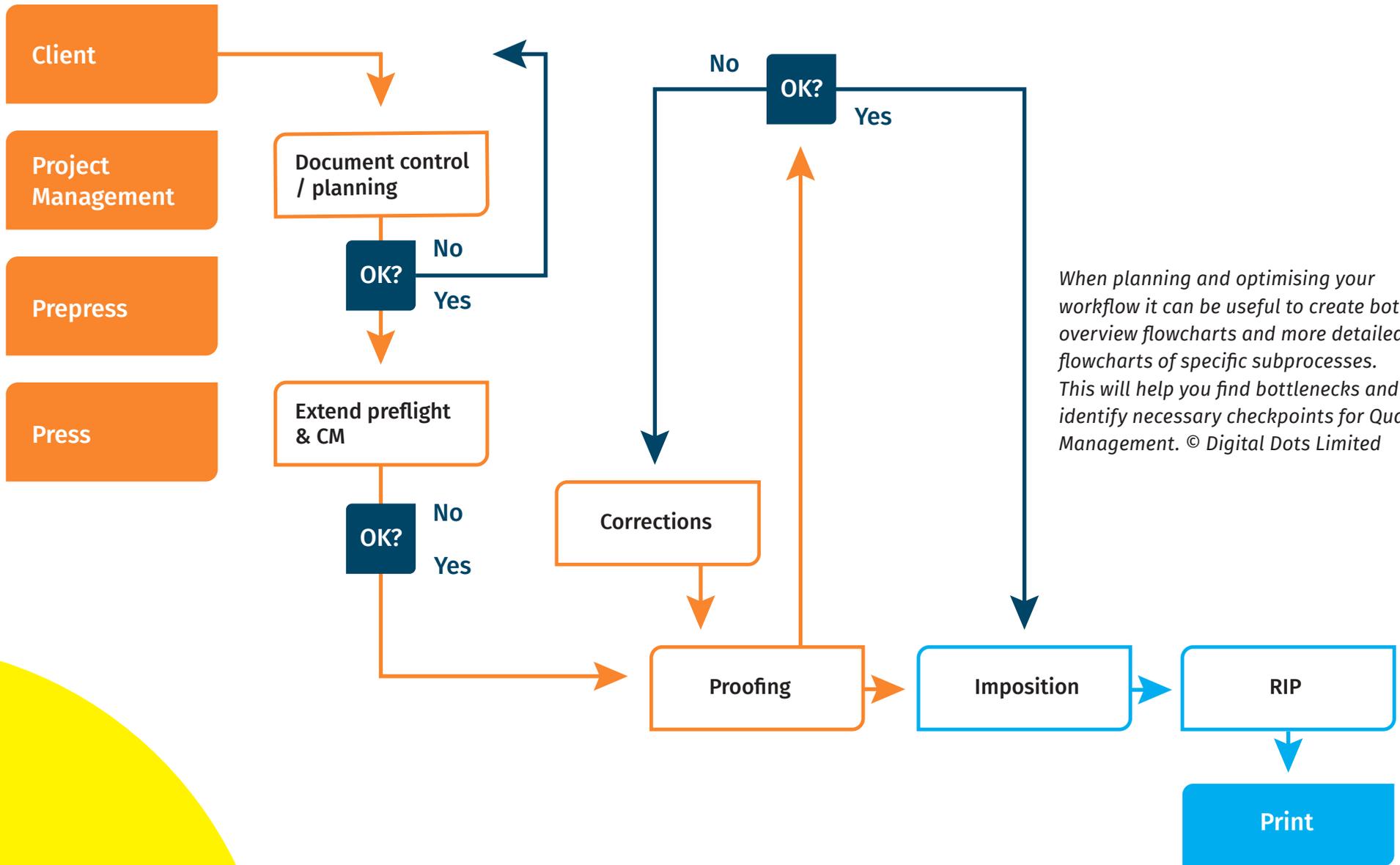
objectives, so any technology that can help improve process efficiency and resource effectiveness has to be a plus. Workflow optimisation ensures you get the most out of resources, whether it's people, software, capital equipment, consumables or anything else.



Efficient, flexible and predictable results have a direct hit on your bottom line, so production has to be as nimble and profitable and as responsive to customer needs as possible. Digital workflow technology cleverly deployed and maintained minimises errors. It cuts turnaround times, ink and materials waste and can increase the scope of the work you do. The range of media projects, services, customers and output options you can support grows with effective workflow control. An automated workflow supports faster production, tighter cost management and higher throughput volumes. It helps you to get the most out

of capital investments, such as for printing engines and finishing equipment, because if these stand idle they cost you money.

Optimising a digital workflow is about more than investing in the latest Digital Front End (DFE) system and data management software. Process optimisation starts first and foremost with people and the logical flow of work through the business. It applies from the moment you get a request for a quotation until you deliver the job to where it needs to be. It's as much about your staff, organisation and method, and management processes as it is about technology and kit. This is perhaps the single most important thing to keep in mind when you look at how you can optimise your business's performance. In order to think ahead and get consistently reliable results, you need to understand where you are now and the resources available to you. The most important of these resources are your employees and customers, and your vision for their futures.



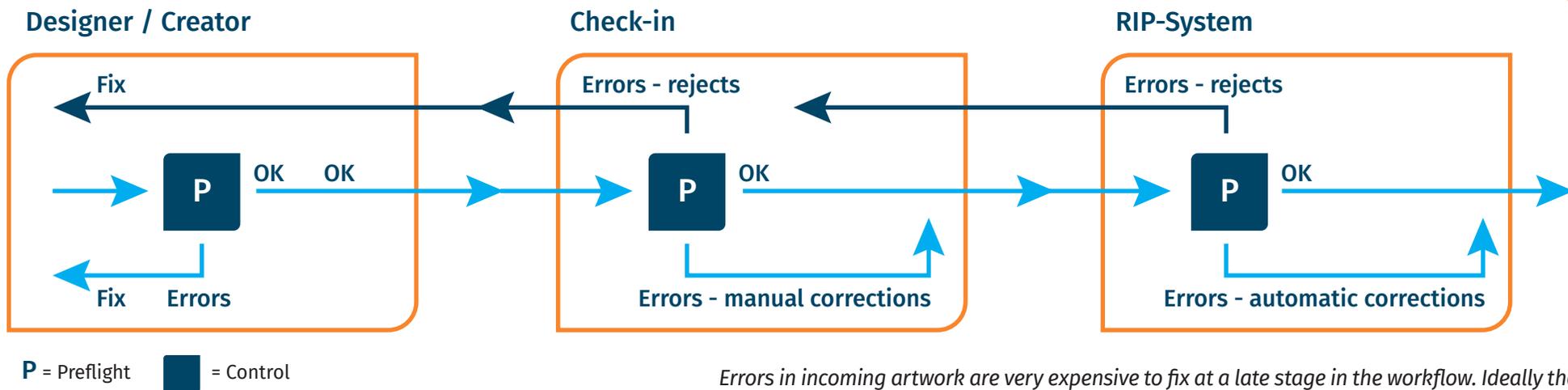
People Power

Your staff and your customers are powerful influences on production efficiency, so take stock of the skills available to you before you consider changes to how work flows in the company. In a small business, you know this already from simple observation and talking to staff and customers. If the business is large, do your research at departmental level and involve your Human Resources team. Perhaps consider inviting customers to an event at your plant to get their input and ideas for what they want and need from you.

Process management research and in depth reviews of human resources gets you closer to understanding what tools you already have available inhouse and amongst customers, as well as limitations and how you need to invest. Talk to customers to understand how they originate and develop their job files prior to delivering them to you, and see how you can help improve job preparation. Ask people in your production department what causes the most problems with order fulfilment. It could be incoming files or technology that isn't up to the job or some other factor.

There may be some customers whose jobs are more problematic than others so find out why. People are generally your best placed resource for identifying errors and their cause, and they can also be good at coming up with ideas for improvements. Be prepared to be open and to listen to new perspectives and ways of doing things, both from staff and from customers.





Errors in incoming artwork are very expensive to fix at a late stage in the workflow. Ideally the creator/designer should perform preflight according to the instructions from the print service provider, but preflight should also take place in the prepress department. © Digital Dots Limited

Job Analysis

Errors cost more to fix the closer they get to the printing press, so it is obviously important to reduce their occurrence as much as possible. If they have crept in, you want to be able to identify and fix them early in the workflow. Do some basic analysis on error and correction rates and categorise the types of errors, their frequency and associated costs. To what extent are processing failures data related, especially if they are likely to fail at the Raster Image Processor (RIP)? If those unidentified mistakes end up on press they could cost you dear, particularly for big jobs or longer runs.

Training

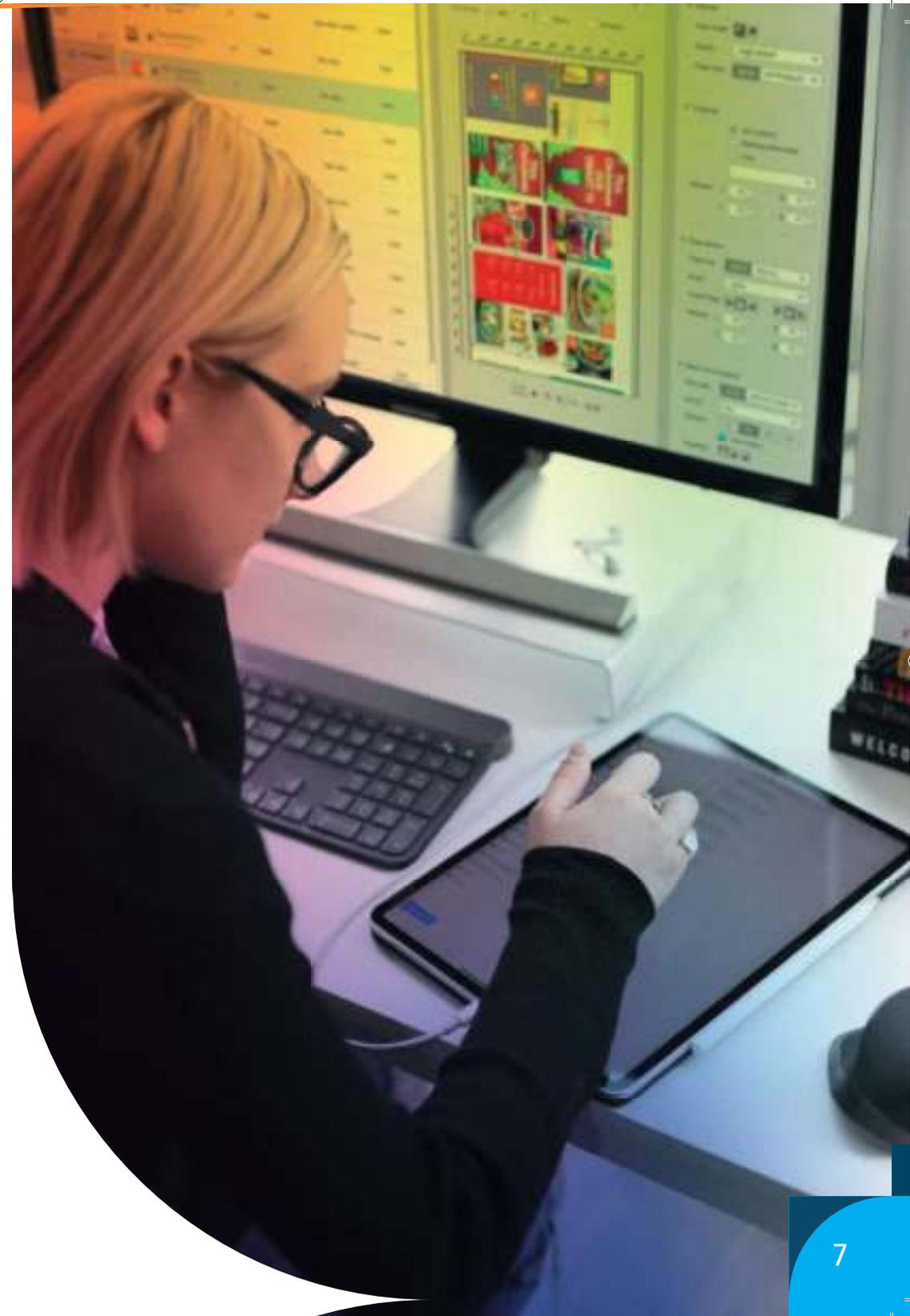
Review how your production systems are being used and make sure that people understand what they are doing and why. It is important that people appreciate how the tools they use work, and that they use them efficiently. Too often we come across companies where redundant and sometimes undermining tasks are performed because “it’s what we’ve always done”, like settings that get overridden later or adding page furniture that isn’t required. Review training procedures and when you install the latest version of software make sure people understand how to use any new features you want implemented. Otherwise you are wasting your money, and probably causing more disruption to the workflow than benefitting the business.

Digital Front End (DFE) Systems

The heart of your production workflow is the DFE. This technology ensures that the files coming into production end up looking as the customer expects, and that their production cost is in line with what you expect. DFEs are generally made up of modules dedicated to specific tasks, such as prepress functions, imposition, colour management and so on. They are basically elaborated RIPs which perform all data conversions and management processes necessary to turn digital job files into print or electronic media. A DFE is essentially the architecture of your workflow, so optimising its components can yield substantial process efficiencies.



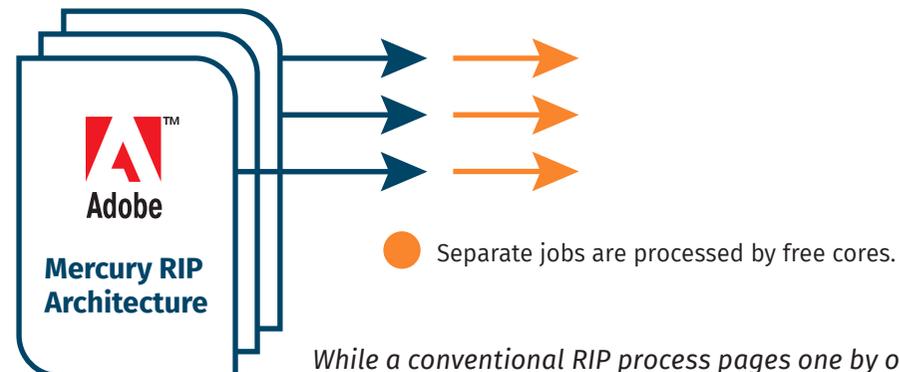
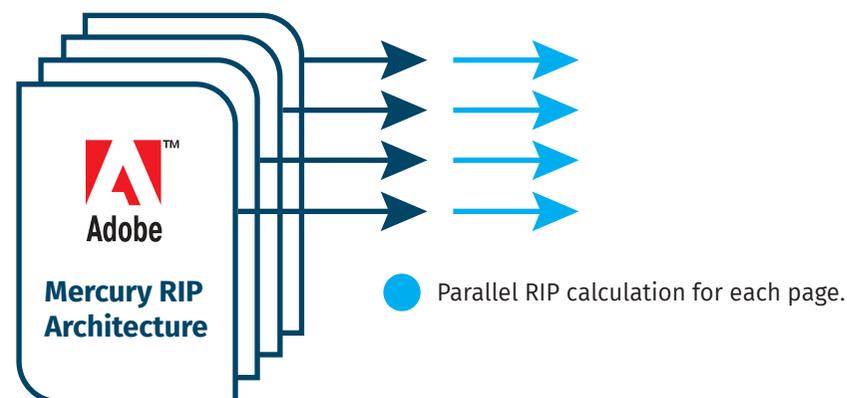
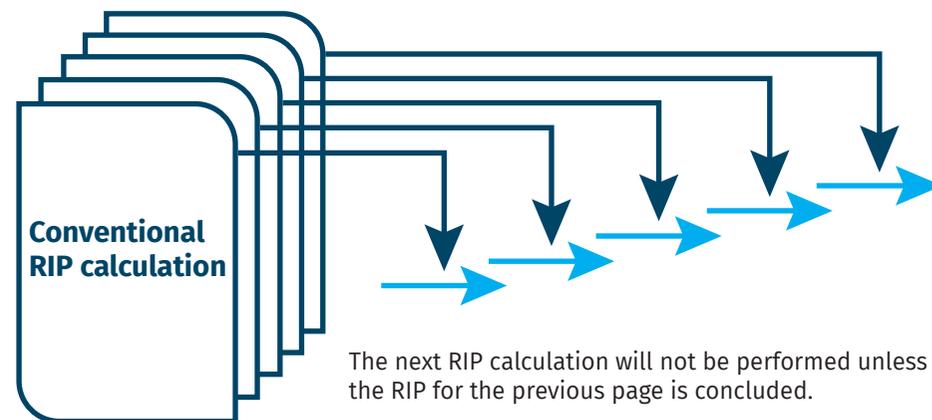
One of the most robust and well respected workflow systems on the market, Fujifilm XMF has the flexibility and sophistication to support complex production models for both conventional and digital output paths.



DFE or RIP?

It is important to understand the difference between a RIP which can drive many devices but is often output engine specific, and a DFE. A DFE generally handles input and output to and from multiple destinations, optimising the data for each output path. If you are delivering data to several digital printers as well as a conventional press for example, the DFE makes sure the data is correct for each type of output. This could include CMYK to CMYK conversions or reformatting for different output dimensions.

A growing number of DFEs in the graphic arts, particularly in the sign and display market, are based on the Adobe PDF Print Engine (APPE), a RIP that like any other creates pixels from geometric vector shapes rendered from a Page Description Language (PDL). However APPE provides developers with some powerful additional resources because unlike a RIP, it separates content from its processing data using the Job Definition Format/ Job Messaging Format (JDF/JMF). This data format describes the job intent and the characteristics of the output device, which provides developers with opportunities for some clever workflow management innovations. APPE also has a unique architecture which Adobe calls Mercury.



While a conventional RIP process pages one by one in a linear mode, a modern RIP use multiple processors to process pages in parallel. © Adobe Inc.

Getting The Most Out Of Your System

Software is rarely used to its fullest capacity, whether it's on your mobile 'phone or the imposition module in your workflow system. Developers load up their products with many features, sometimes of only limited relevance for your particular business. It is an important part of how developers stay ahead in the game and gain a foothold in growing market sectors, such as digital wide format printing. However you cannot take for granted that new software versions are not relevant for your business, just because they appear to be for companies you consider different to yours. Make sure you stay up to date: take a look at the latest tools whenever you get the chance, say at a trade show or at suppliers' events; read the trade press; network with colleagues as much as you can; and keep current with wider

technology trends such as mobile and cloud computing, Artificial Intelligence, Augmented Reality and new media trends.

You should also make sure that you fully exploit the basic principles of process optimisation, especially those that come free with your computer's operating system such as naming conventions and hot folders both of which are fundamental to process automation. The use of standard formats in prepress workflows is another clear and easy winner when it comes to identifying tools that will aid process optimisation and automation. Understand what different data formats are for and their relevance for your customers. For instance if you do no variable data printing, you probably don't need to insist that your customers deliver files conforming to PDF-X/5. But if your customers are asking

you to print jobs with CMYK, grey, RGB or spot colours along with transparency and optional content, you should definitely be looking at PDF-X/4a.

Compliance with basic rules for file submission, including well-formed PDFs and naming conventions are checked in preflight software. Make sure that you review what counts as passing or not, and how failed files are managed. Make sure that your preflight checking technology can cope with the types of files your customers deliver. Are incoming files automatically corrected, and if so how? What cost is associated with rejected files and how often do rejections occur? You may find the answers to these questions lead you straight to the source of the error, be that customer, an inhouse operator, or faulty software settings.

MIS & JDF

One of the key components of a modern workflow system is the Management Information System (MIS), which is often where jobs originate. The digital connection between MIS and production workflow is not necessarily a given, however most printing companies link the two. JDF sometimes provides this link, so that digital data common to both systems only needs to be entered once, and so that the MIS can provide the production system with basic job parameters and output expectations.

JDF is essentially an electronic job bag that can link disparate digital systems together, so that management of everything associated with the job occurs seamlessly across them. Customer data and job details can thus be shared so that there are no ambiguities or miskeyings, and so that the production system can notify the MIS of required changes to

job specifications such as substitution of a requested stock, which may have cost implications. The MIS handles the job origination process, estimating and eventual billing, and the production system gets the customer files to output so it makes sense that they should talk to each other. The dialogue between MIS and production can be managed, so that the real cost of the job is known and can be reflected on the final bill whenever possible.

Resource Management

This should all fit into a management structure that makes sure that the right resources are available when required at all points in the workflow. To achieve this you must be prepared to regularly assess your workflow's fitness for purpose. Set objectives for improvement and work with your technology provider to make sure that your needs are included in their development plans. Perhaps you want grommet placement checked in preflight, or tiling processes adjusted somehow, but you can only identify such needs if you are regularly assessing workflow performance and job characteristics. This is how you can best identify areas for improvement and expansion. Select criteria for measurement, such as ink usage or the incidence of colour errors and where they occur, so that

you can measure performance and so improve control and optimisation.

You might find it useful to ask a consultant to give you guidance with some of this. An outsider can often see problems and solutions that you may not have considered. However if you go down the consultant route, do make sure to work with individuals who know what they are doing. There are plenty of consultants working in the graphics industry but there are relatively few who fully understand digital technology, print media production processes and the specific business requirements of a business with your profile. Make sure to evaluate your options fully before committing to an open-ended contract that could prove expensive, time-consuming and ultimately disappointing.

Management Reviews

One of the founding principles of any good management system is that you have regular business performance reviews. Think of this as being a company audit that works in much the same way as a financial audit, except that you do it rather than an outsider doing it. Set your business objectives at board and departmental level and include timelines, milestones and targets that can provide focus for achieving overall goals. The purpose of a management review is to understand how well you are meeting your objectives, and to provide an opportunity to adjust your strategy. Production workflow is fundamental to the profitability of your business, so it absolutely must be actively managed. The management review is a tool that forces you to regularly review all aspects of business performance and the factors affecting it.



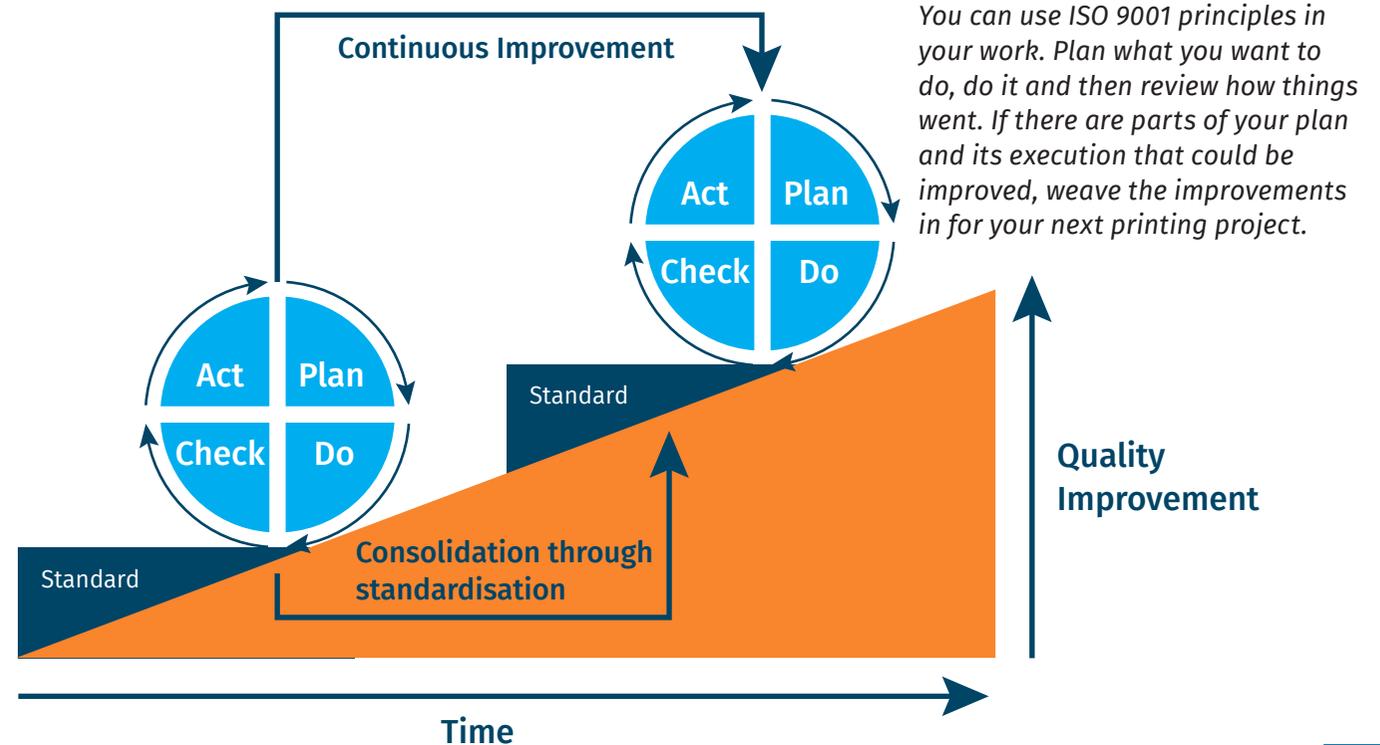
ISO 9001

One of the best known tools for optimising business performance and workflow is ISO 9001, the international standard for quality management systems. This standard describes a series of requirements that if met can demonstrate to customers that a business can consistently deliver good quality products and services. The standard is a carefully developed framework for streamlining processes and improving efficiency. There are over 1.1 million companies worldwide certified for compliance to ISO 9001 and many organisations require their suppliers to have this certification. The latest version was published in 2015.

Like its predecessor, the 2015 edition of ISO 9001 uses process management as the basis for optimising workflows and procedures. ISO 9001 2015 uses the Plan Do Check Act methodology and adds business management risk assessment

and mitigation to the mix. This addition aims to prevent undesirable outcomes from happening in the first place, by adding a requirement for risk analysis to process design and quality management processes. According to

numerous studies, companies that follow the ISO 9001 methodology find that shareholder returns are enhanced, overall financial performance is better and that they achieve a superior return on capital investments.



The Internet & Digital Media

One of the biggest advances in print media production workflows has come from the very technology that many printers most feared. When the Internet explosion started reverberating throughout the graphics industry, many printers went to the wall as electronic media replaced many forms of print. However the Internet has created many opportunities for new business models, as the rise of digital printing entrepreneurs and new print applications, especially of wide format digital printing technology shows.

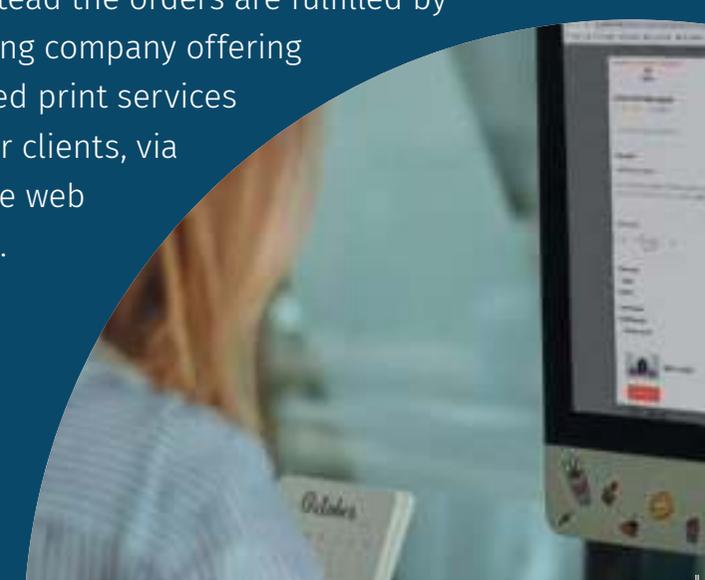
The Internet provides a digital environment that can link different communications channels, such as print and online media, fuelling new media applications that include print. Such applications can be as simple as an e-commerce website or as complex as Augmented Reality. The idea of delivering data for electronic output and for printing

is just the start. To the overhyped cross media model (print has been cross media for decades) add transmedia. This is an unprecedented proposition that has great commercial potential.

Transmedia outputs are part of interrelated media projects that depend on one another to develop complex and engaging content and creative media experiences. Transmedia projects can involve digital media, printed posters, digital signage, packaging, newspapers and magazines, interlinked to somehow create powerful storyworlds that engage readers, so that they can participate in a shared reality. The possibilities are extremely exciting. But none of this is even remotely likely to be realised without a powerful and utterly reliable digital workflow using the Internet to communicate with collaborators and audiences.

Web-to-Print Applications

At the very least the Internet provides a showcase for printing companies that otherwise would not be able to reach global or even larger local audiences. Printing companies worldwide can tout their services online and offer print services to be delivered close to the print's point of use. However this is not the most common way of exploiting the Internet. That honour goes to Web-to-Print (WtP) portals that allow customers to upload their files to a printer for production. These portals can be branded for a printer's clients so that major customers appear to be providing print services for their employees and partners. But instead the orders are fulfilled by a printing company offering managed print services for their clients, via bespoke web portals.



This model is used in many types of business, with manufacturers offering a print ordering portal managed by the printer but branded for the client. Such sites work well for ordering custom brochures and technical specifications, or bespoke posters and banners with the content varied according to geography, prices, campaign or such like criteria.

WtP technology extends the reach of a workflow system, so that it reaches out to the client and this, plus the process automation it provides, is its most powerful attribute. The web portal can be used for collaborating online, commenting on softproofs and providing corrections with a complete audit trail of the online conversation and changes to the files.

Such dialogues can be limited to the client's team or

can include the printer, which provides opportunities for upselling and building customer loyalty.

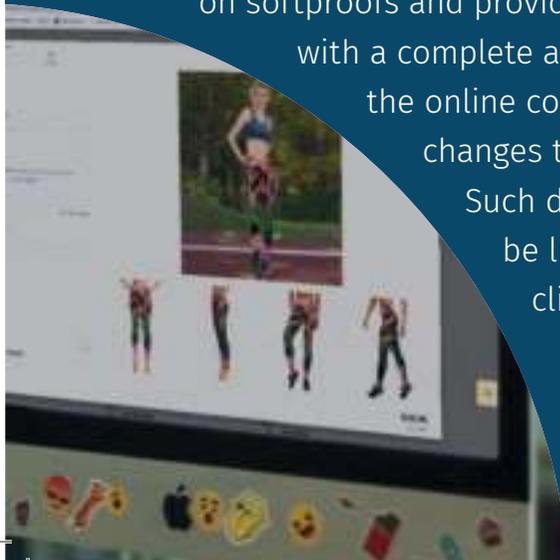
The website is also an opportunity to sell commodity print such as bespoke posters, banners and textiles. If fully automated, such a set up can be highly profitable particularly for high value items such as digitally printed textiles. Once the site is up and running, the trick is to ensure that potential customers find it, and that fulfilment is efficient and cost effective. We too often see absolutely drop dead gorgeous websites that fail to live up to their promise because they don't communicate quickly back to customers with order confirmations, deliver substandard results, or even fail to deliver at all without being chased. These are all problems that can be solved if you consider the website as integral to your complete workflow system, including

MIS and production. Think of it as a shopfront for the rest of your business to be included in all of your process management considerations.

An optimised workflow is just part of your overall model for business process control. However it is perhaps the hardest part of the business to manage efficiently, since so many factors influence it. Nevertheless, start optimising your business by optimising your production workflow, because this is the beating heart of your business. Be prepared to extend your workflow optimisation project throughout the enterprise because efficiency and a healthy bottom line go hand in hand.

Further Reading

<https://www.iso.org/>
<https://www.eupia.org>
<https://www.coatings.org.uk/>
<https://www.cepe.org>



Published by FESPA Limited
Holmbury
The Dorking Business Park
Station Road
Dorking
RH4 1HJ

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