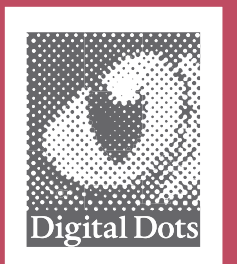


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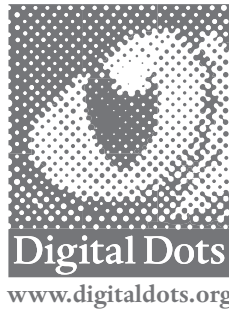
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The Digital Dots Buyer's Guide to JDF



The Digital Dots Buyer's Guides

This publication is part of a series of independent buyers' guides for publishers, graphic arts professionals, printers and print buyers. Buyer's Guide titles provide straightforward explanations of how technology works, what it's for and considerations for investment.

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About Digital Dots

Digital Dots is an independent graphic arts research company established in 1999. The company is a collection of like-minded graphic arts consultants, pixies and professional journalists specialising in digital prepress and publishing technologies. Digital Dots provides exclusive market research, testing and evaluation services for prepress and publishing applications, and publishes a monthly newsletter. Spindrift is the industry's only truly independent resource for graphic arts news, analysis and comment, and has a rapidly growing worldwide readership.

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Published by: Digital Dots Ltd. • The Clock Tower • Southover • Spring Lane
Burwash • East Sussex • TN19 7JB • UK • www.digitaldots.org

Printed by: Fulmar Colour Printing Co. Ltd. • Croydon • Surrey • UK
www.fulmar.com

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Acknowledgements

The Buyer's Guide to JDF is part of the Digital Dots Buyer's Guide Series. It is produced in cooperation with our publishing partners and sponsors. We are grateful to everyone at Agfa, Creo, CIP4, Esko-Graphics, Enfocus and Screen who has helped with this project. And of course we thank our publishing partners.

Thanks to Todd Brunner for production and layout under fire.

For John W. Seybold, 1916–2004
The father of digital typesetting

Introduction

Welcome to the Buyer's Guide to JDF

Never has a technology been so difficult to separate from its function as the Job Definition Format, JDF. Never has a technology offered printing and publishing such promise, but JDF isn't just about technology. This may be why JDF gets misunderstood. JDF is an agent for change. It's about process and growth, and it offers potential for unmatched competitive advantage. JDF automates media production to help traditional printing and publishing move into the realm of digital media communications, without compromising traditions of high production values and sophisticated content management. JDF will help media production remain the unassailable preserve of the professional, in the fast changing world of digital communications.

In the following pages we cover everything you need to know about JDF. We introduce the basics to explain what JDF is, how it works and its importance for workflow automation and business efficiency. We also cover all the main issues that you need to consider for your investment into JDF. The case studies included provide examples of two companies' reasons for getting into JDF and how the implementation is going. The businesses of Wyndeham Heron and Neidhart & Schön are dramatically different, and yet both companies are already seeing returns on their JDF investments.

The Guide includes an overview of the vital importance of MIS to a JDF workflow, and an explanation of how the specification coexists with other standards used in daily media production. We have explained how the major workflow system suppliers for graphic arts production support JDF in their systems.

This guide is not exhaustive. It does not include an endless list of JDF compliant technologies, but it does provide examples of some of the more advanced implementations of the specification. Instead we focus on application and integration issues for automated print and digital data manufacture. JDF affects the entire media supply chain and it is relevant for any professional company involved in content creation, production and supply, so this is the perspective we address, rather than merely listing JDF compliant products. The technology is the least of the concerns for companies taking their businesses forward to the future.

Successful investment is about choosing the right technology for your business, but with JDF it is vital to understand what you expect to gain from automation and production efficiencies. This is as much about revenue development as it is about cost extraction. JDF investment is about supporting changing production needs in line with market development. The Buyer's Guide to JDF is intended to help you better understand the technology, and to give you ideas about how to implement it. We hope you find this publication useful and welcome your feedback.

The Nuts & Bolts of JDF

It has been many years since we have seen a data format cause such excitement as JDF, the Job Definition Format. Unfortunately mixed in with the excitement there is considerable confusion, and for many printers and publishers this has got in the way of learning what JDF is really all about. This is ironic because JDF is specifically designed to simplify information interchange, not make it more difficult. JDF is a data format, nothing more nothing less. What makes it so important, is the fact that it is designed to take media production into new territory. The problem is that the territory is uncharted, hence the confusion. Everyone is exploring an amazing new realm without a map. Figuring out how to navigate is what the nuts and bolts of JDF is really all about.

The technology

The techno-babble for JDF has been well aired. Few data formats are as acronym rich, and those acronyms come thick and fast: JDF is an XML application designed and stewarded by CIP4. JDF incorporates Adobe's PJTE, CIP 3's PPF, a JMF with HTTP and MIME thrown in for good measure, and of course XML itself. But what these initials all stand for matters far less to the end user than what they bring to the JDF standard and to digital workflows. Comprehensive, powerful and flexible, the JDF standard provides the digital equivalent of the traditional printer's job bag but it goes oh, so much further. JDF is a digital format so it keeps track of rather more than a customer's contact details and the job elements.

What is it for & where did it come from?

JDF can ensure that when a customer gives production people a new telephone number, that information is automatically routed to other relevant departments such as finance and marketing. Not only does JDF keep track of a print job's components, but it can track down such things as digital logos or company addresses that might otherwise have to be manually sourced. Because it is exclusively designed for workflow and process automation, JDF can instruct production tasks, such as sending a file for output as soon as customer approval is received.

Universal and extensible, the JDF standard is managed by CIP4, the Committee for Prepress, Press, Postpress and Process. CIP4 was formerly CIP3 and responsible for development of PPF for communicating prepress data to press and finishing technologies. CIP4 is responsible for JDF development and its membership includes all of the major players within the graphic arts community. The specification is written to support every kind of production process, from content creation through to distribution. It is designed to bring coherence to digital workflows by unifying processes for improved efficiency and optimised automation. The scope is huge but although the technology is interesting, how to implement JDF is an even more complex question. Fortunately implementation is already underway with several bold printers around the world working with JDF to improve control and automation, reduce errors and costly remakes, and raise production throughput.

How does it work?

With its armoury of acronyms and interoperability tools, JDF manages information in a hierarchy consisting of jobs and processes, often using common elements and resources. In the JDF realm jobs can be any kind of digital data file from conventional print jobs to records in a database. The processes can be anything from automatic allocation of job numbers, through to finishing instructions, and everything in between. JDF can access data from remote production systems or systems used in different areas of a business, such as production planning and Management Information Systems. The standard has this immense scope because it is essentially a sophisticated and intelligent electronic messaging system.

JDF the great communicator?

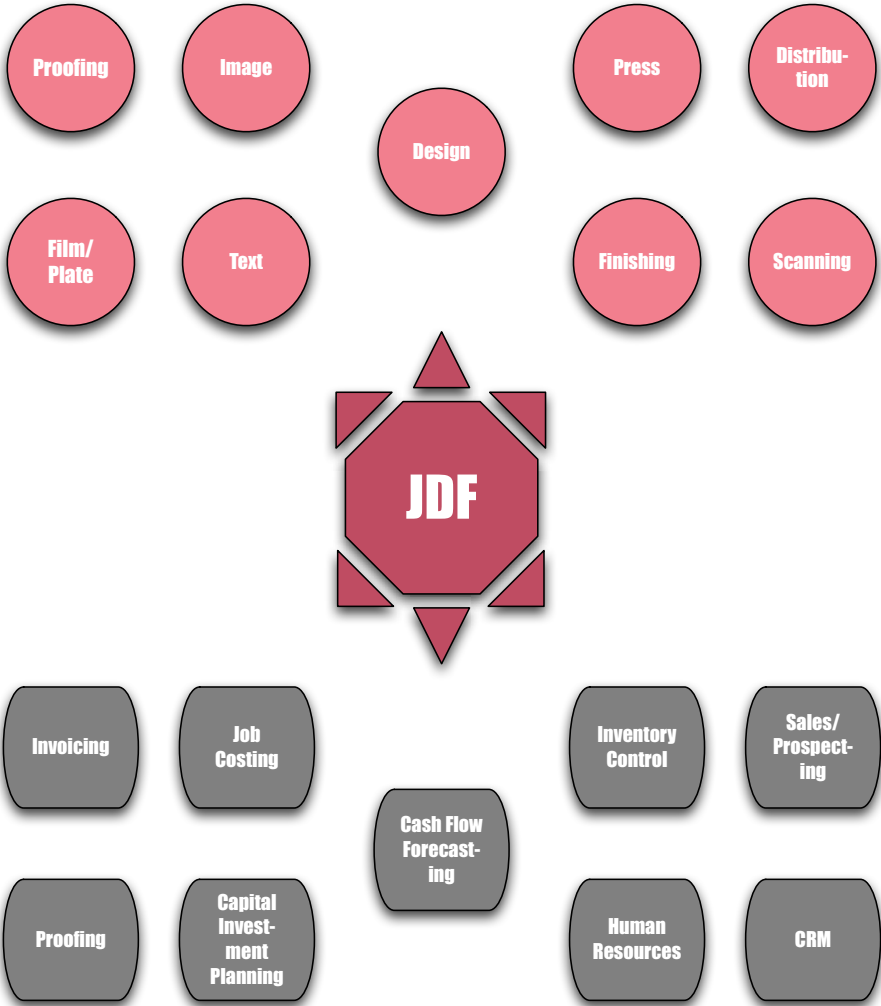
JDF includes a set of messaging rules and communications protocols to ensure that all information relating to a job or task can be shared. This is why JDF compliant technologies can automate and unify digital production. It is also the reason why it is easy to create confusion around JDF. How, why and where a system shares information, is all about the objectives of the JDF implementation. Who and what shares information and how they do so, depends very much on how a developer has chosen to support JDF in their system, and this comes down to choices made by software engineers. Just as there are many different ways of describing the colour red in natural language (rot, rouge, red, roja and so on), so there can be many ways to describe processes in JDF. It all depends on what, how and why a process is described, and of course on the way in which the results will be used.

JDF can be used in many ways, but the most obvious perhaps is to track production. How long a particular job took to produce including preflighting and proofing cycles, imposition, platesetting and so on, can all be communicated to a financial system using the format. JDF is bidirectional so it can provide control and messaging information to and from MIS. JDF can trigger processes in the workflow such as outputting proofs, as well as notify the user of the production status, and warn of approaching deadlines or absent page elements such as advertisements. All of this information is accessible to MIS systems where it could be used for estimating the cost of similar jobs, or for generating invoices.

Production tracking using JDF could be configured for a single supplier's RIP and platesetting system or for a complex distributed system involving multiple devices, front-end systems, and postpress equipment supplied by an array of developers. In all cases, JDF simplifies the data interchange between all elements and makes information available to other digital systems. The difficulty comes with making sure that all elements understand and can write comprehensible JDF files, staying within the JDF spec without resorting to proprietary technologies.

For users, any conversation about JDF has to begin with deciding what one wants it to do within the workflow. JDF gives users greater independence to build highly customised complex workflows based on diverse technologies. However, successful JDF implementation depends fundamentally on understanding how suppliers have designed JDF compliant system elements, the extent of known interoperability, plus extensive testing on the part of the user. JDF has plenty of scope but the key issue isn't the roots and nodes of the JDF specification. It's in having a clear understanding of how JDF can be used to make a business more efficient, with all resources operating

cost effectively. JDF is the final piece in the digital workflow puzzle, but besides completing the picture JDF adds a whole new dimension to the proposition. Like that other slippery dimension, time, getting JDF implementation under control won't be easy, but it will definitely be worth it.



JDF - The Center of Your Universe

Making the Move to the Job Definition Format

JDF was designed to simplify information interchange so that systems, subsystems and processes could share data. Any move to a system that uses JDF has to begin with ideas about how further digitisation and automation might improve a production workflow. JDF manages the sending and receiving of messages across devices and processes, wherever they happen to be. In simple terms JDF is a sort of electronic courier, capable of delivering and receiving files and information about them. JDF is able to instruct other activities as well and this characteristic is perhaps JDF's greatest strength. JDF takes print's manufacturing principles and applies them to prepress and process management.

Why bother with JDF?

Advances in the pressroom have automated most of the mechanics of print production. JDF extends this highly sophisticated manufacturing model to prepress, press and post-press activities, and beyond. JDF joins together production, business and MIS (Management Information Systems), bringing process management to all parts of the digital production workflow. JDF automates cross media production for any type of output, print or electronic.

In a highly competitive and dynamic market environment, process automation is a dominant priority for prepress, printing and publishing professionals. Automation can help remove cost from the workflow and improve return on capital investments by maximising usage. It can help optimise a system's capacity and improve throughput, but automation is about more than getting the most out of hardware. Digital information systems can gather and analyse the information about usage. Working with metadata – the data about the data – such information analysis can help to provide the knowledge required to continuously improve processes. Process analysis highlights areas of weakness in the workflow, such as potential bottlenecks, or areas of high cost, such as proofing. JDF compliance provides the power and flexibility to gather this information, but using it effectively depends very much on understanding what JDF can do and how best to do it.

Know what you want

The transition to JDF and total automation begins with a thorough system audit, which is not necessarily as simple as it sounds. A system audit starts with defining the production system's boundaries, plus those of all contributing or related systems. JDF can bridge to other digital systems such as MIS or sales, so the system audit should include any related business systems as well.

JDF uses the outputs of one process or processes as the inputs to other processes. This means that where tasks overlap or depend upon one another, such as processing files for proof and platesetter output, JDF can add extra information or manage subsidiary

tasks, perhaps monitoring the time taken for plates to output, or measuring the delay between producing a proof and getting a response from the customer in an approval process. JDF could improve efficiencies in such situations, but only if there is an understanding of precisely what happens when and where, prior to JDF implementation. The more complete the system analysis, the greater the opportunity for effective use of JDF, and so for improvement.

Define the borders

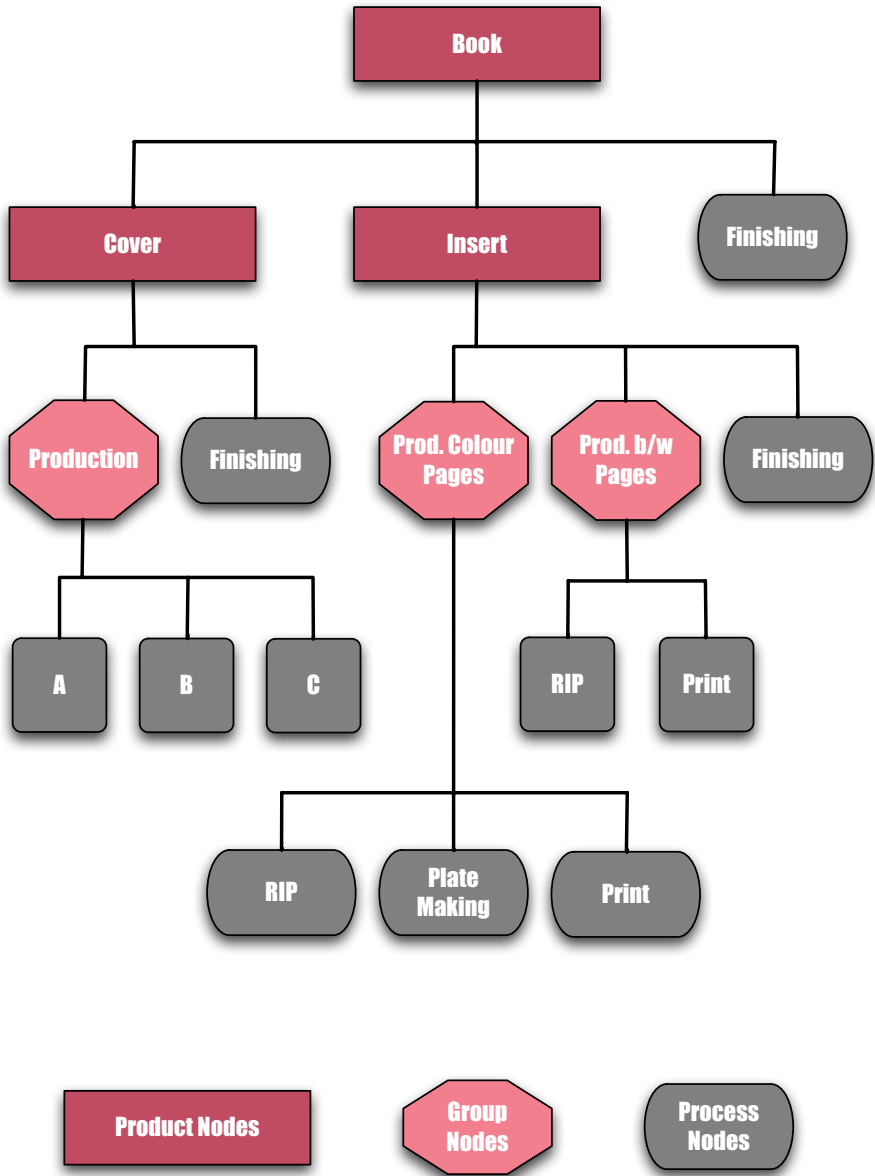
A system's borders could be anything from the walls around a print works and a handful of operators, to a digitally linked global enterprise involving hundreds of users and processes. JDF has scope to support both scenarios and everything in between. Successful implementation for any situation however, depends entirely on comprehensive workflow analysis, quantification and process description. It all sounds pretty complex, but often a thorough evaluation and understanding of tasks in the production chain provides the starting point for what is yet to come. Knowing what needs doing is often harder than deciding how to do it. The process analysis should also consider how the production workflow is likely to evolve over time. Ideally this part of the analysis ought to incorporate customers' intentions, perhaps with some sort of customer requirements survey.

Involve the customer

The second phase of any JDF implementation has to involve customers along with process descriptions of their workflows, identifying any direct and indirect links to the production workflow. Customer involvement in the JDF development plans can yield more than raw data for the JDF implementation plan. Customer contacts add ideas for future business directions and can highlight areas where JDF could be of benefit not just to individual clients, but to the business in general. Some issues to consider during the customer analysis include knowing the population of users contributing to the workflow and a measure of how involved those users are, particularly where approval cycles are complex. It is also important to understand where subsidiary or parallel systems, such as MIS, data management or archiving come into the picture. Consider preflighting, HTML generation for the web, colour control, proofing, RIP functions, creating separations for print, output management, and a swarm of other application specific concerns. They all have to be addressed and somehow resolved so that their requirements and interdependencies can be taken into account within the system. Once the numerous procedures involved in production are defined, it is possible to see where data sharing might be useful. These are the points in the workflow where JDF could play a part.

Market adoption of JDF

It is partly due to the massive scope of the format that JDF implementation appears to be slow. However a number of printers and developers are making some progress. For the most part implementations have been in highly controlled environments at large printing companies. These test sites are not yet truly representative of what the majority of printers will experience with JDF, however the good news is that rapid progress is being made. Implementation is still somewhat limited by the fact that the development community needs to ensure interoperability across systems, and this requires extensive and thorough testing. In many respects JDF is about supply chain



The JDF Job Ticket mimics the actual workflow, splitting processes into their logical components. These are called process nodes in CIP4-speak.

management, so it takes rather more than a single system's JDF compliance to really see how it can benefit a workflow involving several players.

Because of this enormous scope, developers are faced with a huge task when it comes to building JDF compliance into their software. Not only do developers have their own technologies to contend with, they must also implement the JDF specification in such a way that it works properly with systems beyond their control. This is basically about using the correct expressions in the JDF specification, but as with using any language for the first time, working out the best expression to achieve a given result takes practise. As any tourist in a foreign land knows, getting a sensible response usually takes several attempts. The need to somehow restrict the vocabulary is part of the rationale behind vendor cooperations such as the Networked Graphic Production consortium. NGP developers are working together to use a common lexicon within the JDF specification.

JDF for specific applications

The other difficulty developers face is working out how JDF compliance will actually benefit a particular application. What information can it add and how will that be useful to the business? Some applications such as RIP and workflow systems inevitably take priority over others, such as paper inventory management, where the manual equivalent is already efficient. Once again the issue is one of supply chain management. If a developer knows everything there is to know about all the links in the supply chain, the task of developing JDF compliance is much simplified. A company such as Heidelberg has a huge task to make all Heidelberg technologies JDF compliant. Fortunately for Heidelberg, once it has achieved compliance the company's engineers will have developed considerable expertise in JDF.

Essentially a digital version of the traditional printer's job bag, JDF has an unprecedented capacity to reshape the media industry. The industry is shifting from production to process management, but this transition depends on having a fully digital workflow to begin with. Steady uptake of computer-to-plate production and growth in digital printing together increase the reach of digital production and the need for data sharing. As the industry moves from mechanical to digital dominance, management rather than production processes are the means of leveraging technology investments and improving business organisation and method.

JDF is giving the humble printer's job bag a digital makeover, turning it from a useful filing method into a digital management tool at a single stroke. JDF brings together all parts of a content creation, production and management into a single cooperative environment. There are no boundaries and no limits to what can be produced and how it can be produced. JDF is the most important technology to emerge from the digital ether since PostScript. Wherever a business is going, JDF can provide the digital fuel to drive the machine. It begins with digitisation and understanding what one wants to do. So what are you waiting for?

Wyndeham Heron Takes Flight

Company:

Wyndeham Heron

Type of Work:

Magazine production and printing

Equipment:

Platesetters from Agfa and Lüscher, Agfa Apogee workflow and Delano project management technologies

Time of installation:

1998 to 2004

Top advice:

Use technology investment to take costs out of the workflow, improve services and enhance profitability.

Streamlining the machine

Wyndeham Heron is one of the UK's largest magazine printers, receiving between 45 and 50,000 PDFs and producing 10,000 digital printing plates per month. Unsurprisingly the company's manufacturing process is fully digital and highly automated, but for Wyndeham Heron there is only one way to take its production model even further: JDF, the Job Definition Format.

JDF takes the traditional concept of a digital workflow automation and extends it to touch all aspects of the business. For print manufacturers like Wyndeham Heron, this technology is designed not only to increase efficiency, but also enhance profitability and customer services. Wyndeham Heron is no stranger to digital production having first invested into digital workflows in 1998. In September of that year Wyndeham Heron became one of Agfa's first users for the Apogee prepress workflow management system, producing imposed 8-up films on Avantara filmsetters. Wyndeham Heron has beta tested evolving versions of Apogee since 1999 and in 2001 moved to computer-to-plate output with the installation of a Gallileo VXT. The company subsequently added RTI soft proofing technology, two Lüscher platesetters producing plates for a 64-up Lithoman press, with M+A's registrator and punching system for trimming and punching these enormous plates. In 2002 a second Gallileo VXT increased capacity yet further.

An investment for profit

There was also a miscellany of information technologies and peripheral equipment. Wyndeham Heron's overall production spend between 1998 and 2002 was around £3 million. During that time turnover rose from £22 million to over £47 million. Staffing

has fallen from 70 people in the film planning and platemaking departments in 1998, to 22 people producing plates today. The volume of work today is more than double the 1998 throughput and profitability has risen. According to technical director David Brown “it’s very difficult to quantify it, but without the investment in a digital workflow we wouldn’t be anywhere near as successful as we are today. Prior to 1998 we had a prepress department that was constantly running around in circles trying to keep presses busy. Now we have a digital workflow, everything is happening in the background and we use the systems to check files coming in from customers. The digital workflow makes the business profitable because it’s keeping the presses busy.”

Productive & profitable?

CTP has yielded vast productivity improvements for Wyndeham Heron: approximately ten out of five thousand plates per week are remade, 32 page sections that used to take ten to twelve man hours to produce, today average 45 minutes. Investment into the workflow has been, as David puts it, “absolutely crucial to profitability”. He adds however that “it’s difficult to quantify. We handle five or six weekly magazines, six days per week and it is the prepress investment that has improved output and productivity, making this achievable.” This need for further accountability is why the next stage for Wyndeham Heron is integration of production and MIS, using JDF. MIS will build the job tickets with all relevant user details, production criteria, rights information, and naming conventions for all associated files. MIS will pass a JDF job ticket to the Delano project management system using this file to set Delano’s parameters, with JDF bridging the two environments.

JDF will help quantify Wyndeham Heron’s profitability, but the company also hopes it will help with customer services. Even though around 75% of customers supply PDFs across the web working with RTI technology for soft proofing, customers need more support and JDF is a means of doing this. As David sees it “JDF will enable the customer to take responsibility for the faults in their files and fix them. Through Delano our customers can manage their own approvals and corrections without having to involve us, knowing that nothing will happen to that section once the customer has approved it.”

But David wants to take it further: “The next link we are looking for is JDF coming from the publishers, so that commitment starts prior to our MIS generating the job ticket ... JDF starts with the job and that starts with the publishers.” He adds that “many customers want to get involved with JDF, but publishers need to invest in MIS”.

JDF is clearly a journey that starts with a single step, and some publishers have yet to take that step. In the interim Wyndeham Heron is building web interfaces for customers who want to feed information into the Wyndeham Heron production system via the web. For David the journey is about constant improvements even though “improvements in the workflow are the intangibles. If you look at some of the problems CTP has given us, it’s predominantly about communication, because things happen so quickly with digital workflows it can be difficult to communicate around the business. One of the things we want to get with JDF and Delano is real time communications, within and without the business.”

Over time JDF will bring together Wyndeham Heron’s many islands of automation into a single cohesive business system for print manufacture. “We want to be able to look at our jobs and have all of the information about that job available. We want

to get reporting information back and start to target people who need support and help to ease their problems.” Clearly for Wyndeham Heron there is no turning back “we’ve got to be there, we’ve got to push on and persevere. For us JDF is the only way forward”.

Marrying JDF & MIS in the Workflow

Efficient communication is what printing and publishing are all about, but neither industry has been heavily associated with automation. The route to universal production automation based on JDF will however be long and difficult, not least because for printers and publishers the very potential of JDF is overwhelming. But JDF doesn't have to be scary. Any business with a digital system has a starting point for JDF, and the first two links in a JDF supply chain are the print production system and a business's Management Information System.

When graphic arts professionals speak of digital systems, they generally refer to prepress origination, planning and production technologies. Yet the most likely digital systems used in business are found in support operations: accounting, stock control, quality management, personnel and so on. Already well developed and familiar, such technologies are collectively referred to rather vaguely as management information systems or MIS. They are data processing technologies sharing a common foundation with prepress production, and JDF is about leveraging this shared digital platform.

MIS

The purpose of any MIS is obviously to provide management information, so that business decisions are based on fact. What counts as important information obviously depends on the size and type of business, so MIS technology, organisation and operations are highly specific to the enterprise. Different industries have different requirements, but basically any MIS technology is based on a database implementation of some sort. Most MIS technologies can be configured to meet the needs of any type of business and, by their very nature, they are flexible and fluid. Flexibility and how well an MIS system automates the different tasks a particular business has to fulfill is probably the most important consideration when investing in MIS.

Consider a totally automated business machine for media production, a machine that takes into account every aspect of a job, the client, the production processes, raw materials, delivery, billing, customer communications and personnel. Such a machine is an holistic entity, completely dependent on digital technology that bridges diverse related, but unconnected activities. JDF provides the connections. MIS technology combined with JDF's massive scope has the potential to build an automated reality, creating a supremely elegant information processing model.

Of course it could also create a truly terrible mess. It all depends on how one goes about it. Success depends fundamentally on a rigorous workflow analysis and close cooperations with suppliers. Working closely with partners to understand what the workflow should look like and how existing systems should migrate to the new model, is more than the right place to start. It is fundamental to the success of any JDF implementation.

What MIS?

Most MIS developers are building JDF compliant systems, but before one considers JDF there are certain characteristics that any MIS ought to have, starting with a database and a client server architecture. Systems need to be scaleable, in order to meet changing needs as the workflow requirements evolve in line with business development. The MIS should also make it easy to define data fields for different system modules, so that different tasks can be optimised for different scenarios. It ought to be able to integrate software that is standard for a particular application, such as Indesign or Xpress in the graphic arts. The MIS should also support common standards such as PDF.

Where to start?

Understanding what you want from the MIS can be harder to work out than which MIS system to choose. Decide what kinds of analyses are required (for example how many jobs were imaged on a particular platesetter), and when, say daily, weekly or monthly. And what should happen to this information? How is it processed? Where is it routed? Can the system work via the web? Can information from the MIS pass to production and elsewhere? What about audit trails and data archiving?

Apart from the obvious business operations modules, a JDF compliant MIS system should handle tasks such as quotation management and estimating, customer and prospect data management and correspondence, and perhaps most important of all, job ticket generation. This is the first point at which an MIS really can start to support prepress and production activities. The MIS should automatically build the job ticket through customer data, estimating information and any relevant details regarding the quotation procedure. Creating a job ticket thus happens automatically, requiring no additional data re-keying. Once job tickets are created they can be managed collectively and provide management with the information needed to anticipate resource needs, potential workflow bottlenecks and overall workload throughout prepress, the press hall and the business in general.

Stock control and materials management are extremely important considerations in this model, because materials and inventories tie up capital, affecting the business's liquidity. An automated material ordering system integrated with a database of materials and supplier information can help keep inventories to a minimum, helping with both operations planning and cash flow forecasting. All of this stuff should be accessible within a JDF compliant model.

Post production information, including an audit trail of all activities associated with a given job, can then feed data back, via JDF, into the respective modules of the MIS. Statistical reporting is also useful. Taken altogether the dataflows can clearly be extremely complex, and this is why MIS and JDF developments are best done with partners. It is also the underlying reason for why the printing and publishing industries can continue to dominate the media industry. Power is all about knowledge and control!

Many JDF compliant MIS systems can support most of these requirements, but not many in the field are actually working with JDF in daily production. Many MIS developers are working with graphic arts suppliers in order to develop integration paths between prepress production workflows and MIS technologies. Several are

members of the Networked Graphic Production partnership, which was established to build preliminary integrations of technologies based on the JDF specification. Using common JDF naming conventions and agreed communications protocols across systems provides a basis from which to develop more complex JDF interactions.

The specifics of MIS information technology, user interfaces, language and working routines vary with the demands of the industry. For this reason most MIS developers seem to serve a local market. There are of course some MIS developers with a global reach such as Prism, active in both the northern and southern hemispheres with over 10,000 end users. The company's Prism WIN and QTMS product groups are fully integrated and suitable for use in all prepress production environments. The Prism WIN Management Information System has a large installed base and Prism has actively promoted open standards such as JDF, to encourage tighter control of operations and production within printing companies. Following is a sample of some other companies active in this area, but there are many more besides this handful.

Compri is based in the Netherlands with an MIS technology called Xgram for large and medium sized printers. Compri has over 225 sites in the Netherlands and Belgium. Another Dutch developer is DiMS which also provides services to a primarily local client base. DiMS' technology supports all administrative and print related business requirements.

Hiflex is a rather larger MIS/JDF supplier. Based in Germany Hiflex's technology supports many languages and is used throughout the world. This JDF compliant system is already in use at Neidart & Schon in Switzerland, one of a handful of live JDF production environments. Hiflex has also implemented a JDF-based interface for exchanging production information with Koenig & Bauer presses.

Optichrome Computer Systems Limited of the UK has developed Optimus 2020 which has gained considerable market share in the UK. This print MIS has been developed over many years and is now JDF compliant. Optichrome has customers in several other countries besides the UK.

Press-sense Ltd of the UK has focused on web based solutions for the printing industry. The iWay family of JDF compliant tools is installed at sites in the United States and Europe and JDF implementations are underway.

Printplus AG is a Swiss developer of large scale MIS and Enterprise Resource Planning systems for prepress, print and publishing companies. The company is working to provide JDF business management tools across the complete print supply chain.

Shuttleworth and Tharstern are two more active promoters of JDF for MIS and the list of MIS developers goes on and on.

Partnership & cooperation

Not all MIS suppliers are knowledgeable about the printing and publishing industries, so choosing an MIS partner isn't necessarily easy. It's a matter of asking the right questions or working closely with your workflow system supplier. JDF is all about partnership and cooperation. In fact, it can be more efficient to work with partners and consultants rather than going it alone. Outsiders can take a truly objective view of the workflow, the processes, redundant operations and what is required to make

the move to JDF Workflow and system suppliers such as Agfa, Creo, Dalim, Esko-
Graphics, Fujifilm and Screen are all working closely with their customers and with
MIS developers to turn JDF into reality. Where it will lead us is a matter of how well
and how far the JDF specification is implemented.

RIPs & JDF

Much of the JDF rhetoric seems to hover somewhere between the mind-numbingly complex and the even more mind-numbingly dull. This may be why so many printers and publishers are reluctant to get on with developing their implementation strategies. Fortunately the development community is rather less faint hearted. All of the major RIP developers are building JDF compliance into their next generation RIP and workflow systems, whilst ensuring that yesterday's technology doesn't have to be entirely pensioned off. In several ways developers share strategic views, but there is by no means a consensus for JDF technology.

Initiatives such as the Networked Graphic Production reflect to some extent market confusion about how JDF systems can work in practice. NGP reflects how the development community is striving to ensure that JDF implementation strategies can be designed according to the publishing imperatives, rather than constrained by technological ones. Application awareness and a careful implementation plan matter more with JDF than they do perhaps for any other technology deployment. JDF touches every part of the digital media supply chain, and its implementation necessarily needs to take into account every link in that chain. There are six major companies tackling the huge task of making their RIP and workflow systems JDF compliant. And where these six lead others will follow, adding JDF compliance to technologies new and old.

Agfa – Apogee X & Delano

Along with Adobe, Heidelberg and MAN Roland, Agfa is one of the founding “gang of four” companies that initiated JDF in 1999. The company was one of the first RIP vendors to embrace Adobe PDF and PJTF (Portable Job Ticket Format) and worked closely with Adobe to enhance these formats to build PDF workflow systems. This work gave Agfa a solid knowledge base when it made the switch to JDF and JMF (Job Messaging Format).

The Apogee Series 3 is a JDF compliant system, with real users running it live. The system can read and write JDF commands, converting them internally to PJTF. In June 2003 Agfa introduced the latest version of Apogee. Apogee X which works in an XML environment with a job database optimised for JDF and JMF connectivity. In January 2004 Agfa introduced Apogee X 2.0 with full scalability, fault tolerance, MIS integration and Delano.

In cooperation with Quebecor, biggest printers in the world, Agfa has developed a print project management system called Delano. Delano facilitates communication between printer and client. Web based, Delano simplifies job definition, page submission, remote soft and hard proofing, page approval and job status follow-up, ensuring that all processes are as productive as possible. Using JDF and JMF Delano integrates MIS, prepress and press systems to optimise the workflow. Delano 1.0 was released at the end of last year and is available in two versions. Delano Publish is for publishers and PDF producers, and Delano Production is for print shops.

Agfa isn't currently planning to launch an MIS system, opting instead to integrate with the many existing systems on the market. MIS system options are very regional, so a system dominant in one country might be virtually unknown across the border. Quite often printers develop "home brewed" systems of their own, a phenomenon especially common in newspapers. The same thing can be said about Media Asset Management systems, so Agfa prefers to focus on integrating within the Apogee and Delano architectures with JDF the golden link in the workflow chain.

Creo – Synapse making the link

A synapse is the juncture between two nerve cells, so Creo clearly has to win the prize for the best JDF system name! Following the divorce with Heidelberg, Creo chose not to replace Prinergy with a completely new product built exclusively for JDF. In order to support Creo RIP systems over time, and to support JDF, the company has designed a common interface for Brisque, Prinergy and Spire. Synapse Director and its modules provide Creo systems with links to MIS and other JDF systems.

Implementation will take time. Brisque is still very popular with its users, and the Synapse architecture will certainly prolong its life. Brisque 5 has a new user interface built in Java and optimised for Synapse connection. Creo's Spire RIP is used with digital presses and high volume printers. This RIP has a lot in common with Prinergy and Creo provides this technology to other companies including Xerox. The two companies are cooperating to develop Prinergy for digital printing environments. Xerox uses Spire as part of its JDF compliant workflow and is rebranding all Xerox related workflow system components under the Freeflow banner, incorporating JDF technologies within this strategy.

Synapse is a suite of many software modules, but Synapse Insite Server and Synapse Link are the crucial ones. Creo has established links to several MIS systems already through Synapse Link, most notably the Prism system. Creo has made available a DTK (Developers ToolKit) to help integrators and MIS programmers build connections to the Synapse technologies. Initially such integration was taking 9–12 months, but now integrators such as Dutch MIS providers X-gram Open are taking as little as a couple of months.

Synapse Insite Server provides Brisque and Spire users with bridges to the outside world via JDF. Insite supports decentralised proofing over the Internet, as well as soft proofing on screen and remote proofing on calibrated colour proofers. There is a series of smaller Synapse modules for designers and publishers. Synapse Prepare creates preflighted PDFs using the same rules and quality thresholds as Prinergy. Synapse Page Assigner allows a designer to assign an imposition template and page order to a document. This information is saved in a JDF file and used to automate processing in the prepress department.

Clearly Creo already has a range of JDF aware or JDF compatible products running at some customer sites. Creo customers are working with JDF in live production. Creo's cooperation with Print Café has provided the company with experience in online estimating and job procurement, especially through its work with the Hagen MIS system. This experience will stand Creo in good stead for its continuing R&D efforts, even if the cooperation with Print Café has been rather shaken by EFI's acquisition of Print Café.

The Creo solutions are pragmatic in that they leave the RIP systems more or less as they are, using a common JDF layer in the form of Synapse. Over time it's likely that some JDF and JMF processing will get integrated directly in Prinergy and Spire. However Brisque, in spite of the new version 5, is still not based on PDF.

Esco-Graphics – The Scope of JDF

Esco-Graphics supports two RIP lines: Flowdrive originally a Purup Eskofot technology and Backstage, a Barco Graphics development. Esco-Graphics positions Flowdrive as a system for small to medium sized applications and Backstage for high volume, high speed production. Esco-Graphics has introduced a modular system concept called Scope, incorporating a suite of modules supporting both Backstage and Flowdrive.

Esco-Graphics' PostScript interpreter (Adobe certified) is integrated in the Flexrip and this now works entirely with PDF as the preferred file format. Flowdrive uses Global Graphics' Harlequin Eclipse PostScript interpreter. According to Esco-Graphics PDF version 1.5 together with some special plug-ins for Acrobat and Illustrator has all the features required for professional production, even in demanding environments such as packaging production.

Some of the modules to the Backstage server are Desktop, Packedge and Plato (for step-and-repeat work). Esco-Graphics works internally with rich sets of metadata and in the future this may very well be JDF/JMF data. The Outright module in Backstage can already create PDF files containing the information for correct impositioning and step-and-repeat work. At the moment Esco-Graphics uses XMP (eXtensible Metadata Platform), Adobe's open source technology as a means of capturing file metadata. JDF is also an XML application, so working with XMP helps Esco-Graphics phase JDF implementations over time. The Scope environment is the obvious base from which to expand in this development.

Fujifilm – twin track JDF

Fujifilm has had some degree of JDF compatibility in its RIP systems for a while. Fujifilm showed a prototype JDF module at Ipex 2002 and this is now installed and in beta testing at a number of sites. Celebrant is Fujifilm's own Adobe based RIP and Rampage, based on Global Graphics technology, is sold under license. Fujifilm has its own MIS system of sorts, but Valiano VBMS is currently only available in the UK.

Fujifilm is readying a number of JDF modules for the Celebrant RIP system. Celebrant will support JDF imposition schemes to provide maximum flexibility so that job screening, colour management and so on can be applied at the last minute. Within a Celebrant workflow, jobs are assigned job details plus additional information coming from the prepress production system. A JDF press control option extends CIP3/PPF functionality to provide data to further minimise press makeready time. The JDF Remote Output automates proofing or final plate ready jobs for remote output to proofers or CTP devices.

Fujifilm's JDF efforts have extended to its cooperation with Rampage, and the company has driven much of Rampage's JDF development work. Here too the focus is on flexibility and workflow adaptability so that customers will be able to use system components from different vendors within an integrated system. This kind

of heterogeneity is precisely what JDF promises to deliver. Developed by Rampage for Fujifilm, Fujifilm's JDF modules incorporate Fujifilm's trapping, screening and colour management technologies. Rampage Open supports raster and vector workflows, working with a Rampage Digital Master for data independence until the point of output.

Rampage Pathway is Fujifilm's JDF technology family and Fujifilm has announced several new modules. One of these is an interesting product for Creo Brisque workflows. Cegway is an unlocking mechanism for Creo's CT/LW data format so that files produced within the Brisque environment can be output on Fujifilm engines. Providing what is essentially a Brisque client, Cegway sits between Brisque and the rasterisation and output engine. This technology gives Fujifilm an advantage when it comes to upgrading Brisque users to a Fujifilm JDF compliant workflow.

Customers can also purchase Rampage Baseline, Fujifilm's JDF compliant core RIP technology. Other models include the Rampage Output Director, Rampage Trapping, and Rampage Remote for proofing. Fujifilm has not yet revealed which MIS technologies will work with its RIP systems.

Heidelberg Prinect – digital glue for workflow

Heidelberg has had a unique position within the graphic arts community. Until recently, the company's product portfolio spanned the industry's entire technology requirement, from input devices to bindery equipment. However recent times have not been kind to Heidelberg and the company has withdrawn from a number of sectors. According to Heidelberg six different encoding standards manage communications within its current technology range. JDF provides Heidelberg with a means of fulfilling external system and customer demands, but it is also a logical means of simplifying and streamlining the company's internal workflows and systems. The overall name for all Heidelberg JDF related products is Prinect. The main components are Prinect Prinance, a Heidelberg branded MIS system, and the Prinect Printready workflow system. Prinect Prinance is based on the Alphagraph MIS system, installed at over 2000 sites worldwide. Heidelberg is responsible for about 200 of these.

Following the break with Creo, Heidelberg won't develop Prinergy any further. Instead the company has raised the profile of its Metadimension Adobe CPSI based PostScript interpreter. Unlike Prinergy, Metadimension has no underlying Oracle database but instead relies on Printready, in conjunction with an MIS system such as Prinance for database related functionality. Heidelberg's approach is also modular so users can start with a basic Metadimension RIP and then upgrade when needed. In the Prinect Printready workflow there are additional modules such as Prinect CP2000 to control sheet fed presses and Prinect Signstation for impositioning. On top of all this, there are numerous other modules that perform specific tasks within the workflow.

The Metadimension RIP can be used as a standalone system or expanded with Printready modules, with Printready providing the user interface. Printready consists of numerous modules and Heidelberg has developed some Acrobat plug-ins to provide extended capabilities in impositioning and trapping. Enfocus Pitstop Pro is still a part of Printready and manages preflighting and PDF editing. Prinance and Printready can both read and write JDF. Over time Heidelberg's internal use of JMF will increase to gradually replace proprietary data tags.

Screen – Trueflownet JDF production environment

Screen's Trueflownet production environment allows any JDF compliant technology to be incorporated into a Trueflownet workflow. Underlying Trueflownet is Trueflow 3 which is now fully JDF compliant and has a new user interface. This version links direct to MIS environments and has a range of new JDF enabled technologies. These include new imposition tools and an image quality management module based on artificial intelligence and colour management technologies derived from colour control software used on Screen's Cézanne. RGB images come into the workflow with all colour repro details captured in a JDF compliant procedures file.

Trueflownet has seven JDF compliant additions besides image handling. TrueFlow Rite is a basic JDF workflow for users coming into JDF workflows for the first time. It comprises a RIP plus Screen's imposition module and the same user interface as TrueFlow 3. It is modular and can be extended with the Rite Control Production Manager which is based on a core JDF controller for managing system module integration including subsystems, such as MIS or remote production systems, via the web.

Screen has also developed Rite Online, an online print ordering system built around a Global Graphics core, Rite Approve for remote web and browser based proofing, and Rite Portal. This module is for creating Certified PDFs and includes automated preflighting, printing to a virtual printer and automatically loading the PDFs to remote servers. It also creates JDF job tickets for the host site. The final module in Screen's JDF suite is Rite Transfer which links to Rite Portal to provide a drag and drop mechanism for remote file delivery. It includes automatic preflighting and creates a dynamic link to the host site. This allows the printer to provide a hub for accessing all PDF profiles and production specifications.

It is excellent news for users that so much work is being done to make RIP technology JDF compliant, particularly since much of what has been said of JDF has been more theory than reality. Over the coming months manufacturers' strategies will continue to unfold and JDF will be well on its way to being an established component of digital workflows.

JDF & Standards – Miracle or Muddle?

The Job Definition Format, JDF, is a process automation specification designed to bring together digital workflows. It unifies diverse technologies used in the printing and publishing industries, and can facilitate information interchanges with other industries as well. It is the most powerful automation technology the printing and publishing industry has seen, going far beyond basic process management. JDF is an information technology that allows printers and prepress professionals to build truly integrated digital workflows. It extends the reach of digital workflows across systems, linking islands of automation within digital prepress and beyond. JDF connects prepress workflows into any industry where media production is required and as such it has huge significance for the printing and publishing industries.

Reaching out

Stretching a digital workflow into publishing houses or corporate data systems is all about cooperative data management, sharing processes if not actual data. There are many reasons why companies would want to do this. For example, advertising files are often delivered direct to a production house for output, bypassing the publisher. However a prepress house does not generally return production information to the ad sales teams or the ad agency, even though it may be useful to know that some clients' ads are cheaper to produce than others. Similarly, printers may want to encourage publishers to set up their pages to a specific format, or run bespoke preflighting routines for particular workflows and approval cycles.

These are the kinds of things that JDF can facilitate, helping to shorten deadlines and reduce errors in file processing. It's all about automation and speed. But JDF's effectiveness for automation depends fundamentally on how the specification is implemented and on how it interacts with other data standards used in production and elsewhere. Because of its huge scope, JDF must be able to coexist with standards that are already in daily use.

Standards

For this reason one of the primary objectives for the executive body looking after the JDF is to make sure that the specification works with industry standards. JDF is the responsibility of the Committee for Integrated Prepress, Press, PostPress and Processing (CIP4), a collective of over 200 industry participants. The committee and its membership are investing huge resources into the development of the JDF specification. This includes writing and publishing it, interoperability testing and liaising with other industry bodies to ensure JDF's relevance and usefulness. JDF will help prepress and publishing professionals to provide standards based services and support to any industry producing information in print and electronic forms. Scary or what?

Digital stitching

JDF provides workflow cohesion because it is written in XML, the lingua franca of the information industry and so a smart choice for JDF. Most enterprise technologies for database and data warehousing support XML, as do programming languages such as C++ and Java. Network management technologies are also XML savvy, so all sorts of environments can be accessible to JDF compliant files bringing new power and flexibility to information production.

Besides XML, JDF incorporates other standard technologies based on widely used data protocols. One of JDF's most important components is the Job Messaging Format (JMF) which exploits the same protocols, http and MIME, that are used on the Internet to pass data around. This, plus the fact that JDF is basically an XML application and so extensible, is both a blessing and a curse. Although it is technically simple to make new versions of the specification, companies can create JDF files that are not standard JDF even though they appear to be regular JDF files.

The JDF specification provides enormous scope for applications throughout the digital world. Developers in virtually any field can work with the JDF syntax to optimise data cooperations across the digital landscape.

Initially within the graphic arts industry JDF is creating bridges between production and general business systems. These Management Information Systems (MIS) encompass a vast range of applications and tools specific to different aspects of business management, so widespread implementation won't be simple or quick. MIS preferences also vary according to the industry, company size and culture and this too needs to be reflected in JDF implementations. Adding a JDF dimension to a workflow is a matter of working out where and how it could be useful.

A basic integration might bring together production planning and management systems with estimating, costing, invoicing and customer databases. A more ambitious goal could be to integrate consumables ordering, shipping, inventory management and customer relations. The shared goal of both extremes and everything in between is to integrate digital data processing throughout the organisation, reaching even into client systems such as a magazine publisher's workflow, or a utilities billing system.

Interoperability with MIS technologies is only the starting point for JDF, but its broader implementation depends on cooperations between developers, system suppliers and users. Much work is underway to facilitate this wider interoperability ensuring that JDF can cooperate with specific data standards used within the graphic arts and printing industry. Work is also underway to ensure that JDF works with standards based interoperability, beyond printing and publishing.

CIP4's JDF & PODI's PPML

The Print on Demand Initiative (PODI) fosters digital print applications and market development for direct to press and variable content print applications. PODI and CIP4 have an agreement to work together, so that their data standards cooperate efficiently in prepress production. For example in the current JDF specification there is no means of specifying variable content elements once a content database is selected. However PODI oversees the Personalised Print Mark-up Language (PPML),

an XML application that defines a digital print document's structure for customised, variable content print production. Version 2.0 has had support for job ticketing for sometime.

A PPML 2.0 Digital Print Ticket allows a PPML job to dynamically set parameters on the fly from the PPML file, defining certain file information so that the information could be used in a JDF workflow. Version 1 of DPT was a precursor to many of the ideas for digital printing interoperability included in JDF. PODI is now working on a new version of the PPML Digital Print Ticket, due for completion later this year. This will be based directly on JDF syntax to restrict the type of JDF workflows a digital output device should support, without constricting a device's processing options in any way. A digital press or printer will be able to support JDF workflows that incorporate PPML or not, as the user prefers. The idea is that all types of files move from origination to final output more efficiently, with JDF facilitating smooth processing of personalised print data. It will be especially relevant for complex print jobs, where content is sourced from a number of files residing on different data systems.

Prior to the advent of JDF and PPML, digital press developers worked on ways to make variable information printing more efficient. Xeikon for example developed JDML (Job Definition Mark-up Language), an XML application for managing digital press jobs. Xeikon along with many other digital press developers is working with PODI and CIP4 to ensure that their knowledge and experience are reflected in emerging JDF compliant data standards.

JDF and PDF interoperability

Probably one of the greatest concerns for workflow managers is how JDF and PDF will cooperate, beyond the simple addition of a JDF job ticket to a PDF. The JDF specification includes tools for working with PDF documents so it will be possible to develop technologies that take advantage of PDFs growing dominance as a means of shared communications and the fact that it is the preferred format for production workflows and file delivery.

PDF is the preferred format for prepress production processing but it is also used in other environments, such as for content sharing and approvals. PDFs are used in different ways in each environment but in both, PDF is a basis for communication throughout the workflow. This creates opportunities for yet further automation, particularly for internal communications, approvals and notifications. As yet little has been heard about the processing of notes and comments on PDFs, but this may be something to consider as part of a JDF solution.

In many PDF based workflows annotations and comments are used for job communications, but currently there is no simple means of extracting such comments from PDFs and incorporating them into a job ticket. This could be a useful addition to the specification, as most digital workflows rely heavily on automated preflighting technologies for checking files. Often preflighting errors are accepted by the client and the PDF continues in the workflow. However there is no means of identifying a PDF that has been approved, despite preflight failures at each stage in the workflow. Wherever there are preflight checks, the PDF will continue to fail even though it is approved. And each time there has to be some communication with the client, in order to clarify the situation. JDF could help with this. Esko-Graphics and

KPG have developed a bidirectional link between the Backstage workflow server, which publishes PDFs and the Real Time Proof web approval system. Real Time Proof returns a PDF's approval status including comments via JDF to Backstage.

EnFocus has developed a technology for embedding job tickets into a PDF, rather than relying on external job tickets. We understand that Enfocus put a slice of XML or XMP (eXtensible Metadata Platform, an open source format written in XML) into the PDF itself rather than the XMP part of the PDF. The job ticket is processed as an integral part of the PDF and is subject to preflight checks, but not production processing. A JDF compliant workflow system will be able to extract the job ticket information and incorporate it into a larger JDF based entity. The idea is that the embedded data can be cross referenced to some external information as part of the preflight checking process. This could be customer data or accounting information, or it could be associated files passing through another workflow.

UP3i

Another standard that is important for JDF workflows is UP3i. The Universal Pre and Post Press Interface is a joint venture between Duplo, Hunkeler, IBM, Océ, Stralfors and Xerox. It is designed to facilitate job ticket and device control data processing. UP3i therefore makes it possible to incorporate bindery and finishing equipment into the workflow, so that JDF job tickets are aware of them. Both CIP4 and NGP have agreements with this organisation, and the UP3i standard ought to help with integration of hardware components in the digital print line.

Networked Graphic Production (NGP)

Probably the most misunderstood acronym associated with JDF is NGP, Networked Graphic Production. Networked Graphic Production was originally a Creo initiative, but it has developed into an open project that any company can join. NGP is an industry collective of 36 companies, all of whom the NGP requires to be members of CIP4. Together the NGP member companies have built some preliminary integrations of their technologies using the JDF specification. Such integrations include using common JDF naming conventions and agreed communications protocols across systems. The NGP partnership has done preliminary integration of member technologies in order to provide working JDF tools. It is a partnering of companies, within the cooperation that is CIP4.

The NGP's idea is to establish a common language among partner systems, a specific lexicon of the JDF specification that members use. According to the NGP, its "partners have adopted a 'one-to-many' development model ... using a specific set of the JDF specification ... that does not exclude technologies of non-NGP Partners." The NGP integrations ought to work cooperatively with technologies from nonmember companies, but practical implementations are really the only way of knowing how well this will work. The most important thing about industry initiatives such as NGP and other JDF interoperability projects is that they are about partnership to help smooth implementation of the technology.

Talking the talk

Like language, JDF with its XML foundation is a collection of syntactic patterns, rules and vocabulary. Like language, the specification may have structural possibilities for all kinds of expressions, but that alone isn't really enough for effective communications. The tourist on the streets of Rome may have learnt enough Italian to ask a Roman for directions to the Coliseum. However there is no guarantee that the tourist can express themselves understandably, or that the Italian reply will be even slightly comprehensible the first time it is uttered. Very likely it will take a few tries and lots of errors before both parties understand each other. Clear and straightforward communications take time and practise, and it's the same with JDF. Matching the structural possibilities of JDF to the application requirements will take time, experience and cooperation.

Walking the walk

The JDF specification is above all about efficiency and automation for digital workflows, but it isn't a single entity. JDF specifies how data in a file should be described and shared between digital systems, but it doesn't create the description or do the sharing. The format can speed up information interchanges, ensuring that the data is compatible, but it doesn't make the interchanges actually happen. JDF leads to simplified system integration, but it doesn't work in isolation. Above all JDF is a technology for cooperation. Yes, it can potentially increase the reach of prepress production technologies, but how the reach is controlled depends on how the publishing and media production industries implement workflow development. And this is about cooperative, industry-wide business development.

There is a tremendous amount of valuable work being done within the development community to further JDF and related standards. But what is really needed is active engagement within the publishing and production communities. This isn't so much about prepress as it is about business development. It's about understanding how operations and production can improve throughput and services to customers and consumers. It's about the overall performance, of companies and the industry as a whole. Yes, it will cost money and time, and yes there will be some sharp lessons learnt. But someone has to start learning them somewhere and the communications industry won't wait. Implementation begins with partnership, and partnership begins with dialogue. The conversation starts now.

The Zen of JDF

Company:

Neidhart + Schön Group in Zürich

Type of Work:

Printing and multimedia

Equipment:

Creo Priner workflow and Lotem 800 CTP

Time of installation:

2003

Top advice:

“One cannot oneself purchase JDF. One must achieve JDF compliance independently, and this needs a good leader and a focal point for the [JDF] framework.” – Daniel Schnyder

It's easy to associate JDF with high volume, high ticket print production. It's harder to think of it in the context of more conventional print businesses. Most printing companies are small to medium sized, producing a wide range of work for a wide range of customers. JDF is just as relevant for them as it is for printing giants.

Neidhart + Schön Group in Switzerland is a relatively small business of sixty people and is implementing JDF. The company is unusual in that it has been building its tightly integrated business management and cross media production system for nearly ten years. Daniel Schnyder who is responsible for technology and overall production explains: “Seven years ago we invested in computer to film with a Purup [device]. One year later this technology was replaced with a Creo engine and that was replaced with Creo's Lotem 800 Quantum with a Prinergy digital workflow for computer-to-plate [output]. The JDF compliant Hiflex technology pulls the business together.”

Neidhart + Schön is a cross media service provider with a heavy focus on integrated production. Most employees work in the offset printing division and as Daniel points out in “the whole group ... there isn't anyone who is not connected to the network. At each workplace in the company there is a network connection and a PC. Through this arrangement around fifty percent of places in business administration could be set up to manage daily, postproduction work reports.”

Key to Neidhart + Schön's strategy was the move into business automation in 1992. At this time the Hiflex MIS was installed to provide statistical information and to streamline general administrative operations. Using digital technology to assist in this way established an important precedent for the company: work digitally. For many companies, particularly in sectors where there has been a heavy emphasis on craft skills, trusting digital technology to do the job can be hard. Neidhart + Schön started

early and its strong foundation is now easing JDF implementation. Daniel believes: “The functioning of a JDF compliant network stands and falls on the MIS. It needs a clear workflow and good information technology collaboration. This is inevitably dependent on up to date PCs and sound knowledge. If the output from the MIS is available, the fit is appropriate [and] the workflow is under control, one can then start to undertake implementation at more points in the workflow.”

There hasn't been a particularly obvious cost saving yet, but as Daniel explains: “At the beginning this investment had no effect – we don't produce any cheaper because of it! The personnel costs were reduced by 50% from the cessation of [conventional] platemaking and improved client workflows. The makeready time was considerably reduced. Today, through JDF material costs such as plates and proofing papers are more precisely controlled and flow automatically into costing.” Tighter control over the business has made a substantial contribution to revenue growth. Turnover has doubled in the last ten years and now for Daniel “The biggest budget concern is software updating. In this company we hardly invest in anything else. In percentage terms around two to three percent of the company's annual turnover is reinvested.”

The digital habit had already reached the prepress department at Neidhart & Schön. The production department has long been familiar with concepts of data sharing, single keying and of using the business system to assist production planning. What's changed with JDF is that new jobs are created directly from the Hiflex MIS. This system creates Prinergy job tickets so that the 15 prepress employees involved in typesetting, image editing and digital platemaking don't also need to create customer and job information. There is no need to input the data a second time and once the job is complete, Prinergy supplies the MIS system with job related data using the Creo JDF interface. This happens in real time so that invoices and estimates for new jobs are always based on the most up to date information. According to Daniel “Using JDF saves us up to two minutes per order in prepress alone. With ten to fifteen jobs a day, the overall saving is 20 to 30 minutes, and the effect is even more pronounced on the print floor”. Annually this ought to equate to savings of between 300 and 400 man hours, just through single keying.

Daniel adds that: “Since the installation of JDF, workflow processes have improved the precision of materials handling and no petty errors are visible in either production and technical activities or customer services. The included costs are a single entity. The cost savings do not lend themselves to precise identification, but daily savings in postproduction are assessed to be running at around one hour for every workstation. The savings through the precise time spent for example in materials handling doesn't lend itself to calculation.”

The next steps for Neidhart & Schön are to have fully automated, JDF-supported imposition of orders, based on the parameters defined in the Hiflex administration module for production planning. There is also considerable interest in automating the existing system of just-in-time paper supply. Daniel explains that “Space is a very expensive commodity here in Zürich. What we want is to trigger a paper acquisition at the same time as an order receives the OK to print from the customer. That would allow us to make significant reductions in our direct and indirect storage and logistics costs.” Eventually the JDF workflow will have to reach the clients, but currently as Daniel says: “There is no opportunity for the JDF workflow to [reach] clients. But naturally with the very high use by clients of digital delivery (image data, PDFs and so on) today, all participants can now encourage the environment to grow.”

Most printers are experiencing increased competitive pressures and the need to further streamline their workflows. Digital systems are the obvious place to go, but with JDF it is wise to work with a partner on the implementation. As Daniel puts it: “Such a project is impossible to pull off alone, very strong and knowledgeable partners such as Hiflex, Creo and MAN are mandatory. For sure one needs beforehand a clear presentation and clear ideas about what’s needed, [and] to not lose track of the objective. One cannot oneself purchase JDF. One must achieve JDF compliance independently, and this needs a good leader and a focal point for the [JDF] framework.”

JDF Stepping Out

So much has already been said about JDF's theoretical possibilities, that surely there can't be much more to say? Undeniably, JDF is the future for media production. But hard as it is to know where to start sifting through the muddle of technology choices, it is harder still to know how they will affect media supply chains. Never has a technology been so difficult to separate from its function as JDF. That may be because JDF isn't just a technology, it's a process and an agent for change. So, if the JDF specification is the oil in the media manufacturing engine, then JDF compliant products are the nuts and bolts holding together the mechanics. It comes as no surprise, that some of those nuts and bolts are better than others.

The list

Of course sorting out the Skodas from the Aston Martins isn't a simple matter, but CIP4 has very kindly produced an excellent starting point for users. The committee has compiled a complete list of just about every JDF compliant technology available. The publication, JDF Marketplace, is available from the CIP4 website. The entries are provided by CIP4 members so the non-CIP4 member products are not included which for quality control, is probably a good thing. Members have access to rather more information about JDF than do nonmembers.

Although it has to be said that CIP4's publication is mostly a marketing tool, it nonetheless does provide a complete compendium of all JDF products. As to how to evaluate these tools for a specific workflow, that is a much trickier problem. JDF compliant development efforts generally fall into one of two categories: strategic and tactical technologies. The strategic technologies are RIP and workflow systems that have been developed at huge expense and are likely to come with much handholding and all round nurturing for customers. Tactical tools are additions that solve an immediate or specific need, complementing an existing workflow.

The more comprehensive strategic systems will have been designed to provide JDF compliance across a complete integrated workflow. They incorporate everything from MIS interfaces, through to output management and beyond. As is to be expected, some JDF compliant RIP and workflow systems are less well baked than others. One way to distinguish the fully baked from the halfbaked, is to know your stuff before you start asking questions. If you have read this far in the Buyer's Guide to JDF you should be confident enough to do this. You already have sufficient savvy to know that if a supplier tells you they support both CIP4 and JDF standards, their system could well be as half baked as their rhetoric.

Integrated systems

RIP systems are the foundation for prepress production and the most dramatic JDF advances are obviously in strategically vital RIP technologies. Several companies are moving towards integrated workflow environments, using JDF to bridge diverse components in order to get data more efficiently to their output devices. There are

several impressive systems already in production. Agfa's Apogee X and Delano, Creo's Synapse plus Spire, Brisque and Prinerger, Esko-Graphics Scope, Heidelberg's Prinect and Screen's Trueflownet are all examples of cohesive workflow environments. They use JDF to provide communications links across workflow modules, reaching right through to output.

Workflow alternatives

However even companies that don't care how data gets imaged are moving in this direction. Dalim's Printemps is a well developed workflow system that has included JDF interfaces for many months. Running under Linux, Printemps supports all manner of clients including Mac OSX, Windows and Unix in several flavours. Printemps works across the web and includes sophisticated project management tools, preflighting, automated imposition and output management, all totally JDF compliant. Dalim's Twist 5 has been totally rebuilt to support JDF.

EFI has developed JDF compliant connections between its Print Café technology and the Hagen OA business system. EFI's goal is to support integrated print manufacture based on its Velocity technologies including Exchange, Oneflow and Balance. These are all JDF compatible as is the technology coming from EFI's proofing division, BestColor.

Few workflow systems are exclusively based on technologies from a single supplier however, so server based cooperations are an important factor in the JDF equation. Obviously this is the level at which most interactions between MIS and production occur. It is also an important foundation for technology cooperations, where tools come from different developers. Several interesting examples have been shown publicly, in high profile and carefully managed demonstrations such as Print City and the NGP collective at Drupa. All such projects demonstrate squeaky clean JDF interoperability.

But suppliers are also working together individually. For example Esko-Graphics and KPG have set up a bidirectional link between the Backstage workflow server and the Real Time Proof web approval solution. This is based on JDF Backstage publishes PDF files to Real Time Proof via JDF, and the approval status with comments is returned via JDF to BackStage.

Cooperations of this sort will continue to gain in sophistication as developers and users start working with JDF in real production environments. The JDF 1.1a specification has left plenty of holes for canny developers to fill. Some of those holes are filled with simple tools such as Dynagram's Dynastrip imposition system with JDF imposition templates. Some of them, such as colour quality control, variable content management for digital printing and nested repeats for packaging, may best be left to the next version of the specification. Many companies have already helped to make the specification more complete, having submitted modifications that are included in JDF 1.2.

Many other aspects of workflow management are also under development. Key to effective JDF implementation is some sort of methodology for constructing workflows and providing the command, control, and configuration of plant automation and job production. To this end, JDF 1.2 has several additions to extend preflighting functionality, JMF messaging and tightens the specifications for file naming using

MIME encoding. CIP4 is working on quality control and colour management functionality, and something it describes as “Device Capabilities” for automating the handshake across systems. The idea is to communicate to an MIS or workflow system the set of JDF elements and attributes a device supports, thus creating the handshake across the systems. At the moment this has to be done by users such as printers working with their system suppliers and/or consultants. Handshaking is the foundation of cooperations such as Networked Graphic Production and Print City. Participating companies construct the handshakes between their devices, providing some assurance that the handshakes across devices from these companies are established and proven.

With JDF 1.2 and its support for device capabilities, devices can be automatically queried for which elements of the JDF specification they can or cannot handle. This is an important breakthrough, making it possible to add devices to the workflow in much the same way as one would add servers or client PCs to a network. However it will take a while before there are sufficient 1.2 compliant devices available. It’s an important functionality, but more for extending an established JDF habit than the basis for getting into JDF. Don’t wait for 1.2 because JDF workflows are already being built. Now is the time to build the digital foundations you need for the future.

Understanding what you want to do isn’t the same as understanding how to do it. Understanding where to start with JDF is all about deciding what kind of information you need to improve your business. It starts with the MIS, from corporate-wide IT, right down to homegrown technologies based on Filemaker Pro and Excel. What to automate and understanding the operational requirements is the starting point for JDF. Where it will take you, is up to you.