Strategies for Streamlining Digital Document Workflow

Multi-Vendor & Multi-Location Production Environments

In recent years, the world of digital printing has undergone a revolution that is transforming document production, from initial document concept all the way through production of finished documents—including virtually infinite avenues of distribution.

The advent of ever more powerful and less expensive information processing and automation systems has had a sweeping effect on the document production process. This is particularly true when it comes to production workflow. Data streams, documents, and platforms once segregated between data centers and commercial printers are no longer limited to one industry or environment. Powerful convergent digital presses are enabling the fast, cost-effective production of short run documents enhanced with personalized variable data for commercial print shops. Meanwhile, transactional documents in corporate print environments are being enriched with sophisticated graphics and personalized marketing messages. In fact, the digitization of almost every aspect of the document process is redefining the way documents are designed, produced, and distributed.

The extraordinary sophistication of new digital information and communication tools is accompanied by the increasingly complex challenge of managing information in dynamic, multi-vendor environments composed of multiple platforms, equipment, and software from several vendors. Outdated combinations of disparate processes, data streams, and proprietary digital workflows are also key factors that complicate today’s production environments.

As a result, companies today face daunting challenges throughout every step of the workflow process. The exorbitant time and money spent preparing documents. The frustrating incompatibilities of multi-vendor environments. The unnecessary expense and inefficiencies of idle time and downtime, and the ever-present need to ensure profitability, document integrity and accuracy to name just a few of the most common issues.

These conditions drive home the critical need for common interfaces and workflows—and a flexible, scalable, open workflow management solution that integrates equipment from many manufacturers and processes to streamline the entire document lifecycle. A solution that enables users to automate processes, support equipment from multiple vendors, unify operations management and detect and resolve errors before they become bigger problems. All while delivering maximum flexibility and productivity from their technology investments.
Workflow—What Is It?

In simple terms, workflow comprises the processes involved in conceptualizing, creating, designing, preparing, ordering, distributing, producing, finishing, and delivering documents. Providing the framework for the entire document lifecycle workflow entails everything from project definition and team assignments to scanning, make-ready and proofing through job tracking, prepress, printing, finishing, and distribution. And in today’s IT-intensive business world, the optimal workflow solution must integrate increasingly sophisticated tools that encourage collaboration and foster relationships between the document owner and the end customer.

Workflow—Why It Matters...

Digital workflow, which comprises a complex sequence of tasks and processes that can make or break the success of a document production operation, is key to productivity, flexibility, and profitability. Workflow also has a profound impact on how you manage and grow your print operation. Today, business runs on mission-critical documents such as invoices, statements, bills, reports, presentations, advertising materials and manuals. As a result, inefficient, incompatible, or underpowered workflows can cripple even the healthiest of companies. Conversely, an open, effectively powered document production workflow can position an enterprise for flexible growth and increased competitive advantage.

Components of the Workflow Process...

While different environments can share similar workflow steps and processes, there are significant differences between the way documents are produced in corporate and commercial environments.
The production of mission-critical documents in corporate environments comes with its own unique set workflow challenges. The most typical challenges include the need to contain costs, improve efficiency, manage applications with variable data, and eliminate costly errors from the production process.

As corporate print operations struggle to overcome the barriers to productivity that result from multiple or inflexible workflows, and as production runs get shorter and operations more sophisticated, the pressure is on to eliminate inefficiency from the production process. There is a growing need for a highly robust way to direct print jobs to the right location and combination of print-and-finishing devices, at the right time and through the most cost effective production process.

The workflow steps associated with producing documents can be grouped into nine major categories. However the tasks associated with each category can vary when applied to the corporate and commercial print business environments. The nine document workflow steps and corresponding corporate production tasks are defined in Table 1.

Table 1: Corporate print workflow steps and associated tasks

<table>
<thead>
<tr>
<th>Workflow Step</th>
<th>Description</th>
<th>Related Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concept</td>
<td>From project definition through funding approval</td>
<td>Encompasses creating new billing statements, conceptualizing incorporation of marketing messaging into monthly bills, or deciding to redesign policies to include ID cards.</td>
</tr>
<tr>
<td>Creation</td>
<td>Content authorship through database customer relationships, and acquisition of digital resources</td>
<td>Includes defining new statement formats, identifying parameters for marketing messages or defining layouts for new policies.</td>
</tr>
<tr>
<td>Design</td>
<td>Application design, data integration and resource creation</td>
<td>Includes generation of layouts, overlays, fonts, and images and sourcing of special substrates.</td>
</tr>
<tr>
<td>Preparation</td>
<td>Job layout, composition, and approval</td>
<td>Includes creating online and hard copy proofs of new applications and testing substrates.</td>
</tr>
<tr>
<td>Order Management</td>
<td>Effective management of daily operations</td>
<td>Includes tasks related to scheduling among various print and finishing devices</td>
</tr>
<tr>
<td>Data Distribution</td>
<td>From accounting, reporting and job submission to load balancing and intelligent routing</td>
<td>Includes transfer of print jobs to local or remote print facilities</td>
</tr>
<tr>
<td>Document Output</td>
<td>From job and revision printing to automatic reprinting, archiving and reordering</td>
<td>Print and electronic document production</td>
</tr>
<tr>
<td>Finishing</td>
<td>From sorting and trimming to cutting, folding, stitching and inserting.</td>
<td>Trimming off bar codes, folding, and insertion of final documents into envelopes for mailing.</td>
</tr>
<tr>
<td>Delivery</td>
<td>Internal and external distribution</td>
<td>Management of mailing lists, labels, marketing inserts, fulfillment and shipping of printed and electronic documents</td>
</tr>
</tbody>
</table>
Managing workflow in commercial business environments means finding efficient ways to support a diverse set of applications, generated on a wide range of platforms, using an equally wide range of composition tools.

It means finding ways to handle new job types, to drive new revenue-generating opportunities and do more with finite resources. It means implementing a workflow management solution with the power and flexibility to handle virtually any application and to accommodate all of the steps in the commercial production workflow, as shown in Table 2:

**Table 2: Commercial print workflow steps and associated tasks**

<table>
<thead>
<tr>
<th>Workflow Step</th>
<th>Description</th>
<th>Related Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concept</td>
<td>From project definition through funding approval</td>
<td>Conceptualizing a new product catalog, deciding to apply personalization into a new brochure or to redesign user guide applications with language and content for a specific customer model.</td>
</tr>
<tr>
<td>Creation</td>
<td>Content authorship through high quality scanning and digital asset and document management</td>
<td>Includes creating mockups for new catalogs, defining information to be personalized, and selecting language and content.</td>
</tr>
<tr>
<td>Design</td>
<td>Application design, data integration and resource creation</td>
<td>Generation of layouts, overlays, fonts and images &amp; determination of finishing requirements.</td>
</tr>
<tr>
<td>Preparation</td>
<td>Job layout, composition, and approval</td>
<td>Includes pre-press activities like creating impositions and generating proofs for signoff and pre-RIP specific information</td>
</tr>
<tr>
<td>Order Management</td>
<td>From bidding and supplier selection through web-based order processing</td>
<td>Ordering of production substrates and consumables, scheduling of printing, and determination of just-in-time future printing requirements.</td>
</tr>
<tr>
<td>Data Distribution</td>
<td>Accounting, reporting and job submission to load balancing &amp; intelligent routing</td>
<td>Includes transfer of applications to local or remote print facilities and transport of application for electronic storage at distributed facilities</td>
</tr>
<tr>
<td>Document Output</td>
<td>Preflight, final proofing, revisions, printing, archiving, and reordering</td>
<td>Print operations and electronic document production and archiving</td>
</tr>
<tr>
<td>Finishing</td>
<td>Binding, laminating, trimming, folding, collating, drilling and shrink wrapping</td>
<td>Creating book blocks, trimming, signatures, folding and stitching</td>
</tr>
<tr>
<td>Delivery</td>
<td>Distribution to end customers, warehouses or regional distribution centers</td>
<td>Management of mailing lists, labels, pick-and-pack fulfillment, and shipping of printed and electronic documents</td>
</tr>
</tbody>
</table>
The Challenges of an Underpowered Workflow

In the best of all possible worlds, workflows would be compatible, automatic, intelligent, and accurate. In reality, several proprietary, multi-vendor workflows are the rule rather than the exception. In fact, according to CAPV research, today’s print operations typically face significant barriers as a direct result of distinct and often inconsistent investments in various aspects of workflow.

As print runs get shorter, there’s no room for inefficiency in the production process. Operations are becoming more sophisticated, which magnifies the need for an automated way to detect errors. Most production facilities have little or no time or resources to manage multiple proprietary workflows or processes, let alone train duplicate sets of personnel on them. In addition, many print operations face common—and daunting—challenges.

Challenge 1: The High Cost of Preparing Documents for Production
The leading workflow challenge? The excessive time, money, and resources invested in preparing documents for production. Accounting for an estimated 82 to 93 percent of total production costs, the high cost of integrating workflows is steadily rising, as operations struggle to process more jobs in shorter runs, and more and more new applications. There is a critical need for a way to accelerate project turnaround, improve cost-effectiveness and efficiency, and for automated tools that maximize workflow efficiency.

Challenge 2: Incompatibilities of Multi-Vendor, Multi-Location Environments
As traditional boundaries between transactional and publishing environments fade and as digitization and sophisticated networking capabilities open up enterprise-wide workflows, today’s production environments often comprise combinations of data centers, commercial print centers, mail centers, copy centers, printers, office copiers, fax machines and more. Meanwhile, the proliferation of multiple inflexible workflows and multi-vendor, multi-location environments is creating system, file, device, and output incompatibilities that force organizations to maintain duplicate sets of equipment and operational staff—often dedicated to producing a single document type. The result is redundancy in capabilities and under-utilized equipment. To solve this dilemma, print operations need to connect and share diverse print devices to eliminate redundancies and unify staff resources.

Challenge 3: Idle Time, Downtime, Delays, and Inefficiencies
Adding yet another layer of complexity to the workflow quagmire, many enterprises, faced with disparate and ineffective workflows, are struggling with efficiency problems—idle time, downtime, job delays, and specialized skill sets—all of which negatively impact throughput, revenue flow, cost efficiency, and profitability. There is a critical need for a way to unify operations management to enable complete control of the entire workflow from concept through creation, production and distribution, enabling streamlined supervision of operations, job management, and optimized device utilization.

Challenge 4: Error Detection and Resolution
As documents are produced at faster speeds on multiple equipment types and in several locations, the potential for error rises exponentially. While high levels of document sophistication and faster print speeds can yield strategic advantages, once printed, output errors are difficult to detect, and time-consuming and costly to resolve. Printed errors compromise business credibility and customer satisfaction and jeopardize future revenue streams. Clearly, print operations need intelligent problem resolution capabilities with automatic tracking and inspection of output to improve production quality and prevent, or quickly recover from errors.
Developing a Flexible Digital Workflow

So how do you overcome these challenges? How do you manage the inefficiencies and high cost of preparing documents? How do you resolve the incompatibilities and issues of multi-vendor, multi-location workflows and eliminate delays, downtime, and costly production errors? The solution lies in the development of a flexible workflow management solution that streamlines, simplifies, and unites operations and resources, eliminating unnecessary steps, processes, time, and errors. And because the choice of a digital workflow solution can directly affect profitability and productivity, it’s critical to select a workflow management software solution that meets your needs today and keeps pace as needs change tomorrow.

To accomplish these objectives, the right system should:

- Be open, scalable, and able to support your requirements today and tomorrow
- Support multiple clients, applications, equipment brands, and data streams
- Have an intuitive user interface with a consistent look and feel across production environments and applications
- Eliminate duplication, minimize downtime, and enable quick error detection and resolution

Planning for Success? Consider this...

Developing and implementing an integrated workflow management solution calls for careful planning and a best practice approach to evaluating options and applications. This evaluation should be based on your company’s needs and criteria ranging from functionality to technical architecture and vendor liability. As with any manufacturing environment, the focus in document production is better quality, fewer defects, and finding ways to whittle out inefficiencies and costs. In short, the goal is to balance the productivity/quality equation. To ensure an efficient workflow, it’s critical to address these key questions:

- Do you have a workflow strategy in place—or has your workflow evolved without a plan? Mergers, acquisitions, and organizational changes have made this a common phenomenon. If your enterprise is like many others and you don’t have a cohesive plan, now is a good time to get one. Evaluate your existing workflow, take stock of where you are, where you’d like to be, and prioritize your requirements.

- Once you’ve prioritized your requirements, develop a workflow strategy. Select a technology partner that can help you pull it all together. You want a partner that knows the terrain. One that offers a wide breadth and depth of products, consulting services, and business partnerships. One that understands your goals and can design a system to integrate different components of your workflow solution—whether you’re starting from scratch or integrating new technology with legacy systems.

- Partner with your chosen vendor to implement the workflow solutions you need to unify your processes and operations. This is most effectively accomplished in phases based on your priorities, timeframe, and budget. Make incremental improvements to migrate to more current technology. Implement your plan, test for benefits, measure results, review priorities and proceed to the next phase of improvement.
Getting There...

Today's workflow solutions must address different areas of functionality ranging from CRDs, mail centers, and in-plant facilities to office and production printing requirements. Different areas typically use different systems, and run different page description languages on different platforms. Therefore, you need to structure your workflow so that you can flexibly handle print requirements that change on a day-by-day, application-by-application basis, regardless of destination throughout the entire enterprise.

Like any significant technology investment, your digital workflow solution should be optimized for current and future use and should be flexible enough to address diverse requirements. It should support applications generated on PCs, Macs, or mainframes and be able to send them to any printer in any department.

You should be able to make scheduling decisions and split workloads based on printer availability and not on the compatibility of a particular device or proprietary data stream. You should be able to customize and audit documents based on CRM applications that link users to specific website locations. Build these criteria into your workflow blueprint and you’ll have an open, flexible solution that supports current and future needs. And, when evaluating a potential solution, consider three factors to guide your decisions.

PRISMA Workflow Management Solutions

Océ PRISMA™—Roadmap to a Flexible and Intelligent Workflow

Building on a long-standing commitment to providing best-in-class solutions that enable flexible adaptability to changing requirements and the complexities of multi-vendor operations, Océ has invested millions of dollars and over two decades of research and development to the Océ PRISMA technology. The result is a family of scalable, digital workflow management software solutions—solutions that bridge traditional boundaries and address today’s corporate and commercial print operations’ biggest challenges.

Océ PRISMA is an architected family of workflow management software solutions that allow organizations to maximize the performance and cost-effectiveness of multi-vendor operations independent of location, system, or print device. Océ PRISMA eliminates the inconsistencies, investment redundancies, and many of the thorniest issues that plague both single- and multi-vendor workflows.

For example, as multi-vendor, multi-location environments create system, device, and output incompatibilities that force organizations to maintain duplicate sets of equipment and operational staff, Océ PRISMA transforms challenges into choice-without-compromise opportunities. Using industrial grade servers to connect and share diverse print devices and unify staff resources, Océ PRISMA provides a cross-vendor workflow solution that enables print operations to eliminate redundancies and distribute to and manage any number of output devices, regardless of location or vendor.

Océ PRISMA leverages existing investments and seamlessly handles digital document management requirements. Océ PRISMA optimizes operational efficiency and document quality. It supports easier migrations, intelligent bridging of previously disparate environments, and enables compatible coexistence between devices from multiple vendors, reducing dependency on a single supplier of equipment and systems.

With these capabilities, customers in corporate and print-for-pay environments can accommodate complex workflows on a variety of print engines using a mix of page description languages and benefit by leverage important capabilities such as:

continued on page 9
Automated Workflow Tools—Addressing the challenge of simplifying document preparation, which can account for up to 93 percent of total production costs, Océ PRISMA includes automated tools that speed pre-production document preparation, eliminate the inefficiencies of manual steps, and accelerate project turnaround for greater cost-effectiveness and a faster time to revenue. By moving tasks to workstations and using graphical user interfaces, Océ PRISMA makes it faster and easier for employees to do their jobs. Océ PRISMA enables them to enhance and make changes to documents quickly and easily, to integrate scan and edit functions, and streamline the configuration of fonts, colors, forms, page layouts and other resources.

Extending the benefits of automation to multiple platforms, Océ PRISMA offers direct support for IBM AFP data streams, and currently drives hundreds of InfoPrint™ printing systems. It provides a direct interface to Xerox® DigiPath™ environments, honoring DocuTech™ job ticketing parameters for cut sheet and continuous forms digital presses. Océ PRISMA supports Xerox LCDS workflows in hundreds of customer locations worldwide. It also adapts to the demands of all workflows and digital environments extending the boundaries of most digital solutions in today's market.

Finally, because it’s modular and expandable, Océ PRISMA meets print operations’ infrastructure needs over the long term—whether your goal is to retain a legacy workflow with new equipment or improve process efficiency, with Océ PRISMA you can adapt your infrastructure to meet your precise needs and find the workflow that best suits your unique environment.

Multi-vendor Print Serving—Addressing the challenge of multi-print-vendor incompatibilities and the costly and inefficient duplication of equipment and staff required to run multiple locations, Océ PRISMA is designed with today’s complex and diverse output environments in mind.

Océ PRISMA supports Océ, IBM, Xerox, and other systems and devices, which means that you can distribute to, and centrally manage any number of output devices—office printers, production printers, distributed printers, or documents published in electronic form. Using industrial grade servers that connect multiple systems to multiple devices, Océ PRISMA offers automatic support for all major page description languages including Postscript, PDF, TIFF, PCL, AFP, LCDS, and IPDS. And, with integrated scan and make-ready functions, Océ PRISMA offers complete support for Macintosh, PC, and mainframe image types and offers a common look and feel that eliminates costly redundancies in personnel and training.

Because you can dynamically distribute print jobs to any output device regardless of location or vendor, you can pass on efficiency-based cost savings to your users and customers. You also become more competitive because you can move output to production centers closer to the end customer or mailing location, or simply to different devices based on changing status or availability.

Océ leads the way with solutions that address the unique challenges of multiple, inflexible workflows and multi-vendor, multi-location environments. Océ PRISMA provides a flexible family of software solutions and a multi-vendor print serving capability that leverages the power of industrial grade servers to eradicate redundancies, streamline operations, and increase profitability.

1. Where is the data coming from? From a database? A document composition system? A CRM application? What PDL format is it in? Your workflow solution should support creation of output from a variety of input sources—from CRM systems to databases to document composition programs to electronic document generation systems.

2. Have you made investments in different types of equipment? Your workflow solution should be open and adaptable enough to integrate many different types of equipment from many different vendors—cut sheet and roll fed production printers, office printers, fax machines and more. Inventory your output devices and decide whether you want to work with one vendor to ensure compatibility or if you want a solution that lets you mix and match systems from different vendors to minimize costs and select the best products the market has to offer.

3. What types of applications are you creating? Consider the types of documents you need to create today and tomorrow. Are they static or do they incorporate variable information? Do they require full-color, highlight (spot) color, or only black and white? Are they data or graphics-centric? How divergent are your applications with regards to creation, layout, finishing, and content? How convergent do you want them to be? All of these application-specific considerations will impact the demands and requirements you make on your workflow.
The Importance of Knowledgeable Advice and Expertise...

Like many organizations today, you probably face common issues like the need to contain costs while growing your business. The need to do more with less. To support legacy applications. And to update your workflows so that you can compete smarter and reach customers more effectively. It’s a tough balancing act—made more difficult by the fact that you may not have the in-house resources to implement complex systems and solutions.

To successfully deploy a workflow solution that meets your business objectives, it helps to have a full-service provider with deep industry expertise, an understanding of customer requirements, and the ability to integrate multiple components into a cohesive whole.

The Océ Professional Services team works closely with customers to address the goals of leading businesses by developing and deploying customized digital workflow solutions that meet, or exceed those goals, based on a collaborative business process and proven methodologies.

- **Unified Operations Management**—Eliminating the downtime and delays that negatively impact organizational revenue flow and cost efficiencies, Océ PRISMA enables complete control of document operations across single or multiple sites. Unifying operations management, Océ PRISMA software oversees operations, manages print jobs, and optimizes device utilization. By allowing you to balance workloads across all available output device resources, local or distributed, Océ PRISMA helps you maximize utilization of your people and equipment ensuring lower operational costs and higher productivity.

To make operations management even smoother, Océ PRISMA is designed with the operator in mind. Océ PRISMA features a GUI based operator console that is intuitive, easy to understand and puts everything operators need at their fingertips so that they can develop, submit, schedule, and manage jobs throughout their environment faster, with fewer errors and less training. Meanwhile, department managers and executives can oversee the department via access to data on device status, performance, usage, and errors for all printers and output devices in all locations.

- **Intelligent Problem Resolution**—addressing the costly and increasingly critical need to ensure document accuracy, Océ PRISMA enables print operations to automatically prevent or quickly recover from production errors. With Océ PRISMA intelligent problem resolution capabilities, print operations can track, inspect, and correct problems—from initial printing through post-production, certifying that the right data was printed on the right paper stocks, and to track what was inserted in an envelope and then develop reports that enable internal operation improvements and accurate postal manifests. Using a variety of visible and invisible scanners and systems of high-speed cameras, Océ PRISMA compares actual physical results of a print job to the desired results, minimizing the cost impact of errors. Meanwhile, users can manage and confirm what has been printed to ensure that documents reach their intended destinations and know immediately when errors occur to resolve them expediently.
Océ PRISMA

Océ PRISMA—An Architected Family of Workflow Software Solutions
Modular Océ PRISMA components are designed to seamlessly manage complex enterprise workflows, accomplishing what few other workflow solutions can. Océ PRISMA provides the first truly viable 100% accurate electronic proofing system. It enables centralized control of single or multi-site shops. It redirects work to available equipment to optimize use of resources—and automatically collects statistical production data to enable fact-based decisions for production workflow improvements and shorter time to revenue. Providing intelligent control of every phase of the workflow process, the Océ PRISMA suite of architected software solutions is categorized into six functional areas, each with a multitude of product and service offerings:


PRISMAenterprise—provides overall management and common control capabilities for today’s extensive range of single and multi-site document production environments, enabling central control of resources for corporate and publishing environments.

PRISMAaudit—developed to enable Automated Document Factory (ADF) capabilities, PRISMAaudit tracks documents, devices, and output integrity for seamless control of every job in the production process, with automatic report generation and reprinting of lost or damaged jobs.

PRISMAProduction—server and mainframe-based software solutions for pre-press and print management requirements to facilitate enhanced connectivity, compatibility, and multiple-PDL support to single or multiple printing devices from Océ and other vendors.

PRISMASatellite—addressing the requirements of the departmental printing operation, PRISMASatellite extends the benefits of production-class job accounting and reprinting to enterprise-wide office environments for improved control and efficiency.

PRISMAarchive—a family of solutions that enables high-speed digital indexing, archival and retrieval of print data, with support for a full range of languages, formats, and on-screen viewing capabilities.