Next Generation Workflow

Featuring Xerox® FreeFlow® Core

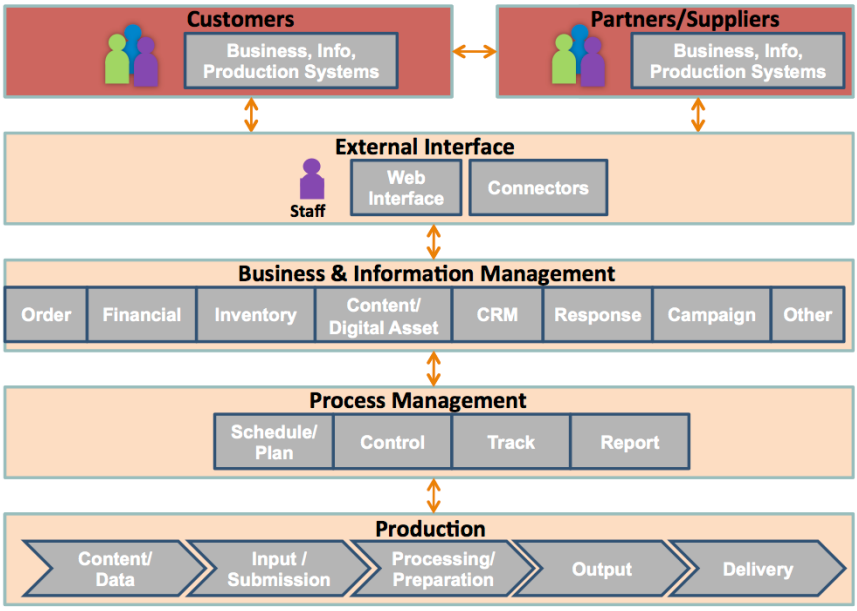
We often hear the term workflow, but the definition tends to vary based on who you ask, and what their role is. At a very basic level the definition is fairly straight forward; the 'Workflow' makes your work flow through the process. Although, having a workflow doesn't ensure that you are moving your work through the process efficiently.

Before digital printing, production workflow systems were centered around CTP devices and usually a single vendor. Similar functionality later became the core of many of the DFEs (Digital Front End) components that are shipped with and drive today's digital presses. However, the landscape has changed. We now live in a world of disparate machines, vendors, and process requirements.

So how do you find, build or buy a solution that can manage your production environment today and in the future?

The ideal solution should have the flexibility to address a world of disparate resources and processes, but also a way to ensure connectivity and communication throughout the entire process, including your clients and process partners. The PRIMIR Transformative Workflow Reference Model, below, illustrates the requirements for a fully connected workflow.

Transformative Workflow Reference Model



Source: PRIMIR 2011 study "Transformative Workflow Strategies for Print Applications" by InfoTrends. Adapted from InfoTrends & Madison Advisor Workflow Models

In order to achieve this level of connectivity and the corresponding increased productivity, it has usually required that you have access to an IT Professional or Software Engineer's programming skills. We are now starting to see production workflow software solutions come to market that are designed to address the new requirements outlined above and targeted at the skills of the PrePress operator.

These solutions are designed with a higher level of built in intelligence to support the automation of a wider range of applications. Going beyond the production of templated products and pages, and addressing the variability of day to day production. Many of these solutions use the pipeline automation model. This type of system supports the use of tasks, actions, and filters that can be configured through a rule based engine, providing an almost endless control of processes.

The availability of pipeline automation systems that support print and marketing service providers has been growing recently. Those who have implemented these types of systems have achieved significant benefits in reducing production time and costs.

One of the more interesting solutions to come to market is the new Xerox FreeFlow Core. This new technology was designed to power a new platform of product offerings. and shouldn't be confused with the FreeFlow Process Manager, their legacy workflow application. FreeFlow Core takes a fundamentally different approach from the ground up, expanding some of the features and functionality beyond what is currently available or even possible through Process Manager. Core goes beyond workflow-making decisions to include prepress operator decisions as well. This gives customers a more granular control of prepress operations. For example, the newly designed Imposition node. Rule based behaviors now allow a single template to support a much wider variety of imposed layouts, as well as automatic media size selection and orientation of layouts.

Xerox is marketing FreeFlow Core in three upgradable configurations; FreeFlow Core Base; Advanced Prepress; and Advanced Automation. The first two configurations Core Base and Advanced Prepress include new implementations of many of the process nodes that are currently available in Process Manager. These configurations and the supplied nodes can be used in the creation of a linear workflow, while the Advanced Automation configuration adds rule based workflow capabilities to the system to enable fully flexible and variable workflows. This includes the automatic selection of workflows from hot folder, MAX or JMF input. FreeFlow Core also facilitates the selection of an execution path in a non-linear workflow, including the selection of an output device within the print and finishing nodes. Once these workflows are designed, you can save the workflow-making decisions and the document processing presets and reuse and combine them to deploy new workflows saving time and ensuring consistency in future production flows. FreeFlow Core is built on a robust architecture from which future functionality and solutions can be added.

Integration Strategy

FreeFlow Core is also an important component of Xerox's integration strategy which strives to lower the barriers to connectivity with disparate systems and processes. Their strategy, leverages your infrastructure by providing interfaces that can be configured to align with output from your existing systems.

JDF/JMF+XSLT, MAX, and Hot Folders support a wide range of integration formats and connection points within the production workflow, with each component addressing a different need. JDF (Job Definition Format) and JMF (Job Messaging Format) have been around since the late 1990's, and have been implemented in varying degrees in many if not most of the print production hardware and software available today. While usually not plug and play, this documented specification has fostered the integration of disparate process components. For integration Xerox uses an XSLT processor, to support highly configurable and flexible data transforms between a wide array of disparate JMF-based inputs. With XSLT, the JDF tickets submitted via JMF can be transparently reformatted from any format to a ticket FreeFlow Core will consume.

The next integration platform component is MAX (Manifest Automation from Xerox). This unique component creates a universal bridge between the various order management systems including; MIS/ERP, Web Services, Web to Print systems, etc. It does this by accepting a manifest file with order records. These may contain information including but not limited to; customer details, order number, count, media, filename, barcode information, bill of materials, and shipping information. The manifest file from each of the order management systems, is then mapped and directed to workflows for automatic routing and production processing through FreeFlow Core.

Lastly, the Hot Folder configuration includes the ability to execute a command line application or script. This interface is agnostic to the scripting language, meaning that you can write scripts in your language of choice and execute them automatically as part of job submission.

In preparation to take advantage of MAX or other submission methods, an endless variety of production plans can be constructed in FreeFlow Core and assigned to hot folders for input and routing. The typical MAX integration uses a single HF to submit to multiple workflows with the workflow selection being automated.

Enhanced Solutions

FreeFlow Core supports the development of products designed to have a tighter and more robust integration with other production systems. To date Xerox has released the following enhanced solutions;

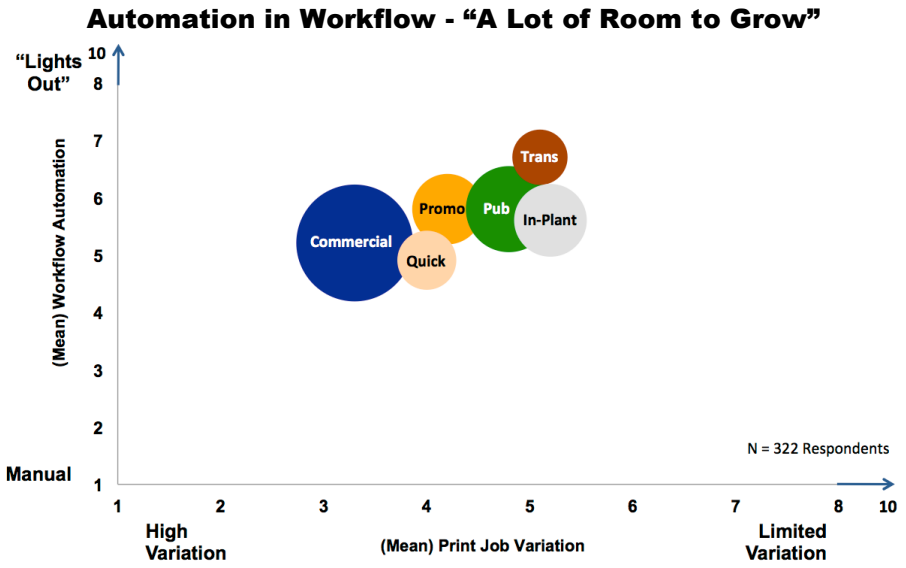
Xerox IntegratedPLUS Finishing Solution—a solution that, in conjunction with the newly designed Imposition node and FreeFlow Core, automates job production from order entry through online or offline finishing, with minimal operator intervention.

XMPie StoreFlow—a comprehensive B2B andB2C all-in-one Web to Print solution that integrates directly to the FreeFlow Core production automation system, providing an end to end workflow.

FreeFlow Digital Publisher—an integrated solutions that enables service providers the tools to repurpose print content into media rich mobile and online content.

Need and Opportunity

With the many changes in market demand and requirements, the need for process automation is critical to the survival of print and marketing service providers. Not only does it help them meet the new requirements, it provides an opportunity for them to reduce errors and costs as well. The PRIMIR Transformative workflow study looked at the current state and opportunities for workflow automation by market segment. As you can see from the chart below, there is significant opportunity for improvement across all segments.



Source: PRIMIR 2011 study "Transformative Workflow Strategies for Print Applications" by InfoTrends.

The new roles and requirements of print are finally starting to get the tools that are needed to support them in this evolving landscape of market demand and technology. Xerox seems ready to take it head on with their new FreeFlow Core technology and solutions.

About The Author

David Zwang is the principal consultant of Zwang & Company, a firm specializing in process analysis, and strategic development of firms in the fields of information publishing, design, premedia, and printing across the globe.

Since the early 90's he has consulted with many end users and manufacturers in the industry on a wide variety of issues. Projects include global production and data management solutions; book, magazine and packaging publishing technologies and processes; remote production systems development; color management and process collaboration systems. He has developed many industry training courses, and written countless articles for trade publications.