L&M Pressworks
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Background

Prior to the investment in a JDF-based workflow, L&M Pressworks relied on a proprietary MIS and handwritten estimates. After job estimates were written up, the information was entered into our MIS, which we used primarily for manual inputs for shop floor data collection and production analysis. Every estimate began as a handwritten document and quote letter was typed. We estimated approximately 20 – 30 jobs per day, so handwritten estimating consumed a tremendous amount of time. Our MIS generated a job-ticket which was printed and inserted into the job bag.

In the prepress department, we used a Heidelberg Delta RIP as our workflow for generating inkjet proofs and imaged films for contacting to plates. There was no integration between MIS, prepress, press, or finishing. Due to the age of our two presses, we were not able to take advantage of ink zone presetting. The original workflow sequence was:

1. Handwritten estimate, typed quote letter.
2. Upon job acceptance by customer, job information was entered into MIS, which printed a job ticket.
3. Job bag delivered to prepress department for corrections, trapping, imposition, proofing, and platemaking. All job-related data was (re)entered in the prepress workflow and operators comments were written on the job ticket. Operators also logged production time and material consumption using shop floor data collection terminals.
4. After the prepress work was completed and plates made (the traditional way), the job bag was forwarded to the press department. Press operators got the job ticket and read it for printing instructions. All job-related data was entered on the press by the pressman, who also used shop floor data collection terminals to log production time and material consumption.
5. When printing was finished, the job bag was delivered to the finishing department, where again the operators manually entered job-specific data to set up the cutter, and other bindery systems. Operators used shop floor data collection terminals to log production time and material consumption.
6. Upon completion of the entire job, we manually printed box and shipping labels. Invoices were generated by the MIS.

Refer to Workflow Diagram below…
Objectives

Maximizing both: efficiency and productivity. JDF is one of the best ways to improve with today’s technology in the printing industry. It will also allow us to become and remain competitive with the large conglomerates in our industry.

Methodology

As we looked at competitive MIS products and learned more about JDF, it became clear to us the best solution was to stick with one vendor if possible from front to back. Particularly when discussing the MIS, it is very important for good connectivity. Prior to our MIS acquisition, we had previously installed Heidelberg’s Printready prepress system. We also already had a Heidelberg press JDF capable. So it made the most sense in the end to stick with Heidelberg as much as pos-
sible. In our digital press department, we installed Xerox iGens, with the prior knowledge Hei-
delberg and Xerox were working together on connectivity to both MIS and Printready.

One of our primary goals with all our acquisitions over the last three years has been toward maximum efficiency and maximum connectivity via JDF - which will get the maximum produc-
tivity in the end.

Implementation Story

Due to the inherent inefficiencies in our prevailing production workflow methods, as well as the
equipment, L&M Pressworks starting embarking on a plan to increase efficiency and production
through automation. We became very interested in the concept of JDF and educated ourselves on
the philosophy and inherent benefits of deploying a JDF-based workflow. The main enthusiasm
came primarily from the fact that everyone realized that we had to improve our production meth-
ods. Due to this, we had no major obstacles in getting overall buy-in from our production staff.

We were very anxious to implement a system that could quickly modernize our production. Our
investigations led us to the Heidelberg Prinect workflow. We completely modernized L&M
Pressworks over a period of approximately 3 years, as follows:

2005 – Prinect Printready workflow, including Signastation; Prosetter Violet CtP; CompuCut
for Polar cutter
Prinect Prinance MIS with Direct Access

At this point we realized an immediate improvement in efficiency, especially in estimat-
ing. We suddenly saved about an hour per estimate. All estimates are now entered di-
rectly in the system and we also saw a reduction in errors due to the ability of the system
to automatically generate the quote, job ticket, and all other relevant documents based
on the original entry from the estimate.

The number of sales per administrative personal increased, while at the same time we
required fewer people for production. This system has been instrumental in enabling us
to double the number of jobs in only two years.

Another direct impact came from the use of Prinance Direct Access, our web-based or-
dering system. Now approximately 20% of all jobs are submitted through Direct Ac-
cess, which saves an additional 10 minutes per estimate, ensures more accurate
estimates, and facilitates better customer communication.

Our prepress department also benefitted by the automation. Prinance delivers a JDF to
the Prinect Printready system for highly automated processing, including imposition
templates. The use of template libraries and auto-generation of templates due to JDF
saves between 2 and 10 minutes per job, depending on the complexity. In our shop no
tow jobs are the same, so we rely heavily on the automatic imposition template genera-
tor. In addition, since the JDF from Prinance contains all of the customer and job data,
this information does not have to be re-entered in prepress which saves time (about 25
minutes per job) and eliminates errors by about 80%, partially because our proofing be-
came more accurate.

The system also uses JMF messaging to report proof and plate production back to Pri-
nance, making cost analysis easy and more accurate than before.
2006 – Purchased and installed new SM74 with Prinect CP2000 Center
Realized first benefits from presetting Polar Cutter with Compucut

As soon as we installed the SM74 we instantly benefitted by reduced makeready time and waste. This was primarily due to the automation of the machine, not directly to integration. We did, however, realize huge increases in efficiency by transferring PPF’s from Signastation to Compucut to preset the cutting machine. As I mentioned, each job we do is different – few are alike. We require a different cutting program for about 90% of our jobs. On many jobs, using Compucut save up to an hour per job, depending on complexity. Other, simpler jobs benefit by savings between 10 and 20 minutes per job. Because we are cutting about 10-12 jobs per day, we are saving nearly two hours per day in cutting alone. The use of automation and CIP-PPF integration for cutting increased accuracy and resulted in fewer errors.

2007 – Purchased SM102 with Prinect CP2000 Center and Prinect Prepress Interface (ink-key presetting), upgraded SM74.

The installation of the new SM102 and Prepress Interface produced additional improvements in efficiency. We integrated Prepress Interface with both presses and saw our makeready time’s drop by about 10 minutes per makeready, in some cases 15 minutes. We also realized a reduction in waste by about 100 sheets per makeready. This was a tremendous benefit to the bottom line. Prior to the installation of the two new presses and Prepress Interface, customer OK’s used to take between 4 and 5 hours with 10 – 12 pulls. Now we are in register and up to color with 2 – 3 pulls, and customer OK’s are done in a fraction of the time.

At this point in our JDF implementation, we also extended the integration of Prinance to our pressroom. The same JDF information that is used for presetting the prepress workflow is now also used in combination with the ink-key presets from Prepress Interface to preset many parameters on both presses. Press operators now load a job from Prinance using the Prinect CP2000 Center. We estimate that this saves about 5 minutes per job and also reduces errors. In addition, the press is collecting production data and forwarding it to Prinance for accurate costing. We have not yet refined this part of the JDF implementation but are planning this for our next stage of deployment.

Another benefit that we have realized as a result of the JDF implementation is the improvement in customer satisfaction due to higher and more consistent quality as well as faster turn-around times. Customer complaints have been greatly reduced, which has resulted in reduced reprinting due to less-than satisfactory print. We used to reprint a job about once per month; we now reprint a job about once every three months.

So far, the implementation of the integrated Prinect JDF workflow has increased our sales by about $1.5 million per year, but more significantly increased our capacity by an anticipated $10 million per year. Our business plan is to continue exploiting the benefits of the Prinect JDF workflow to drive efficiency of equipment and continue increasing sales without increasing staff.

Our biggest challenges have been the implementation and realizing connectivity between systems and devices. Heidelberg has helped to manage this process. One of our challenges has been get-
ting shop employee’s to change old habits and adapt to the new methods which have been implemented. We are slowly overcoming the challenges associated with the adoption of new technologies and the overall the training of our staff. The deployment has not been as easy as we had originally anticipated.

**Resulting Workflow/Processes**
The implementation of the Prinect JDF System has changed our workflow dramatically. Our current workflow sequence is:

1. The basic information for the estimate is started by salesperson using Prinance Direct Access or with electronic worksheet.
2. The estimate is then created automatically in Prinance from the Direct Access info (auto populated)
3. The customer Quote/Bid is auto-generated from the estimate electronically with same information, which is significantly faster than the way we used to perform the same task.
4. The JDF Job ticket is then automatically generated from the Prinance estimate. All PO’s, etc., are also automatically generated.
5. Prepress picks up the same JDF file from Prinance and generates proof and plates with ease.
6. Pressman takes JDF file from prepress for automatic setting of ink zones, job info on the press. All time is recorded back to Prinance for costing. We have realized a complete circle of info with presses and the Prinance management system.
7. Cutting is programmed automatically with prepress JDF.
8. Management can also monitor presses with same info.
9. Delivery ticket is generated from Prinance with same electronic info.
10. All documents are now automatically generated from the Prinance System. This saves us a tremendous amount of time and greatly reduces errors.

Our current workflow is illustrated in the following diagram.
L&M Pressworks workflow after Acquiring JDF Capabilities

- **Job Entry**
  - Entered to Prinace via Direct Access, Online or Manually

- **Estimate**
  - JDF Started with Prinace

- **Bid**
  - Prinace Generated

- **Entry in Customer Service**
  - Prinace Generated

- **JDF Job Ticket**
  - Prinace – Last 3 Steps Automated

- **Prepress**
  - Prinace Pushed to Printready via JDF

- **Press**
  - All Preset from Prinace and Prepress Data Via JDF

- **Bindery**
  - Cutting Via Prepress Data, Compucut

- **Delivery notes and labels**
  - Generated by Prinace

- **Management**
  - Each Step is Automated Timekeeping in Prinace
  - PO's Generate Costing as Materials are Used.
ROI

NPV (Net Present Value) and ROI (Return On Investment) Calculation

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NPV (Net Present Value) | $4,807,320
ROI (Return On Investment) | 1354%

Summary
The amount of redundant job entry with each step is eliminated. The potential for mistakes is reduced significantly. The overall speed for workflow is increased significantly as well.

The four most notable increases in through-put are:
- bidding/estimating
- prepress
- press make ready
- cutting programming

While our workflow within our shop is not yet 100% JDF, it is close. We would estimate out of all of our employees, nearly all utilize or input to the JDF file on every job. We are very excited to add the final pieces of equipment and software to complete the JDF workflow within our shop in the next year or so. We see JDF as a tremendous tool giving us a tremendous competitive advantage in our marketplace.