

*Jürgen Schönhut Memorial
CIP4 International Print Production Innovation Award*

JP Graphics, Inc.

2010 Winner

**Best Process Automation Implementation —
North America**

Application Outline

Executive Summary —

JP Graphics, Inc. is a \$4.1 million commercial printer employing 25 hard working individuals. We have flourished in the industry by providing customers with great service, fast turnaround times and high quality products, all at competitive prices. The company was created in Jim and Rochelle Stoffel's basement in 1969 as Jim's Printing, primarily producing wedding invitations. We have gradually expanded over time, increasing output and size, and evolving into a successful commercial printer with a special emphasis on customer service. Continuous investments in new technology and the acquisitions of numerous printing companies have facilitated rapid development of the Appleton, Wisconsin based printer.

The Stoffel's son, Rod, joined the company in 1990, purchased the business in 1998 and changed the company's name to JP Graphics, Inc. Rod's aggressive business style and hunger to expand his enterprise has resulted in the steady and continued growth of the company. Investments in new technology were a major part of JP Graphics' ability to preserve quality and speed as the industry evolved. CTP technology, multiple presses, new bindery equipment, and the acquisition of numerous print companies has helped JP Graphics maintain the edge over competitors and remain successful in the market.

Business continued to progress with the addition of a new 40" - 5 color press and an Automated Platesetter added in 2007. In order to maintain efficiency as JP Graphics expanded, it was clear to Rod that a new MIS system would be needed to manage our everyday business and production processes. In the past, every step of the workflow had been isolated and communication between each department was inefficient and laborious. Business suffered and we were vulnerable to slow turnaround times and error-prone data. The company grew considerably while only taking small steps in the evolution of data management processes since the days of the Stoffel's garage. A large leap in efficiency was needed to maintain profitability in a market which would only become more competitive.



*JP Graphics President & CEO
Rod Stoffel*

JP was introduced to the HIFLEX MIS and Webshop Web2Print solutions in mid 2007 and after a detailed review of these systems, as well as visits to several HIFLEX users, we were convinced that their solution would meet our needs. JP then implemented HIFLEX MIS and Webshop in Q1 of 2008. The goals of the implementation were two-fold. One, Web2Print order integration with MIS: to have online orders automatically inserted directly into the HIFLEX MIS Orderbook with hands-free, online order administration and two, increase our transparency, communication, administrative and production efficiency, utilizing HIFLEX JDF process automation for improved speed and turnaround times. These improvements would ultimately make us more profitable by streamlining the entirety of our workflow.

We had been experiencing many workarounds and multiple data entry points with our legacy EFI System, that made it difficult to achieve the workflow improvements we were looking for. As a

result of the lack of integration with PSI, we typically entered the same information multiple times and in multiple systems. This disconnected workflow required us to rekey data an average of five to seven times for every job.

The results of the completely integrated HIFLEX MIS were immediately apparent. With the fully JDF capable HIFLEX workflow they were able to achieve true automation and experience the benefits of their “enter-once-use-many” system that transfers data seamlessly to all departments at JP Graphics. The benefits of HIFLEX AutoPilot and the Super CSR user concept were also going to be vital to our revised workflow. Each department in our facility had become its own secluded ‘island,’ but with our new MIS and its JDF functionality, we have eliminated our multiple data entry points and no longer need to re-enter the same information over and over again.



HIFLEX Estimating enables our JP Graphics ‘Super CSRs’ to estimate jobs, create full JDF production plans, and generate printing and folding sheet layouts, within a matter of moments, giving us a huge productivity boost.

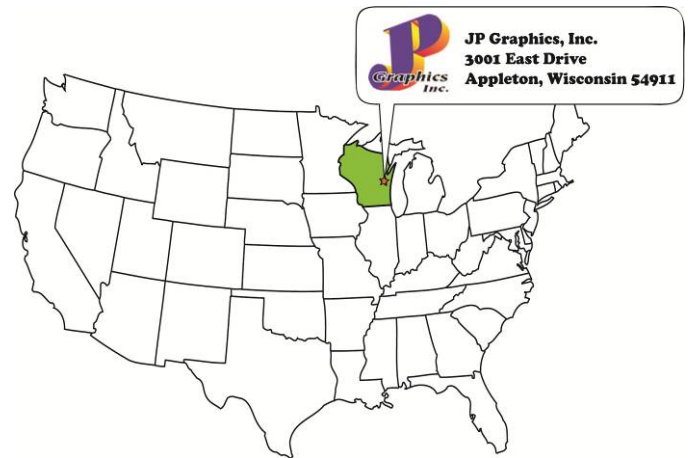
These benefits were enhanced by the installation of HIFLEX Webshop System, which was purchased in conjunction with the MIS. With this powerful, JDF Web2Print solution we are able to offer an expansive portfolio of products that buyers can choose and specify in the same detailed fashion that we previously could only provide by estimating in our MIS. We also now have the ability to target multiple markets with easy rebranding due to the HIFLEX Webshop Drupal Content Management System. Orders from this online storefront also have the benefit of integrating directly into the HIFLEX MIS which eliminates administrative costs by reducing the touch points needed to get the jobs through to production.

Using the JDF data generated by the HIFLEX systems, JP was able to integrate directly into their Kodak Prinergy software. Wasting time by manually creating impositions was no longer a problem. Our process of estimating a job and preparing it for press by scribbling on paper had been entirely replaced by HIFLEX MIS and Kodak Prinergy. These systems will never misplace data, and have communicated flawlessly together.

With the installation of the HIFLEX MIS, HIFLEX Webshop and the direct integration into our Kodak Prinergy prepress system, the secluded ‘islands’ which had been the separate departments in our facility have become a single, united printing Pangaea. We have seen extraordinary increases in our effectiveness as a business overall, with significant decreases in time to production and an increase to the accuracy of data throughout, all of which will be quantified and explained in the following pages.

Section I. Background — Please provide a description of the subject workflow environment and conditions prior to implementation:

When constructing a plan for the future of JP Graphics, an MIS implementation was an obvious next step in the development of our company. We had been consistently adding new equipment and had even moved into a 50,000 square foot production facility in 2004 to make room for our growth. However, the rapid expansion of the company had left us with outdated work processes in each department, and our small company mentality just wasn't going to cut it anymore.



JP Graphics new and modern 50,000 S/F building located in Appleton, WI with significant room for expansion, poises the company for its ambitious growth plans.

SITUATION PRIOR TO IMPLEMENTATION

Our workflow prior to installing an HIFLEX MIS was almost entirely manual, requiring many steps and containing a number of redundancies. An estimate would be calculated by PSI and then sent to the customer for approval. If we won the job, the estimate would be converted into a job ticket and a hand drawn imposition would be created. This imposition was then handed off to the prepress department where it was created in preps imposition software. Files from the customer were placed manually by the operator and then sent off to the pressman.

For a process that requires speed and precision in order to deliver accurate information back to customers, as well as other departments within the company, our workflow was more like a practice in repetition and futility. Because a large portion of the workflow was performed by hand, it would inevitably cause us to waste time as we transcribed data into a digital format or performed minute tasks such as searching for the information we needed. Whether it was communicating a quote to the customer, preparing the job for press, or simply referring to old jobs which required an expedition through mountains of job dockets, each employee was fighting a losing battle against time.

Our old workflow clearly had considerable room for improvement and since we added a significant amount of new machinery and resources over the years, it was time to implement a system to help manage all of the steps leading up to, and after the actual printing of a job. At this point, we knew that the installation of an MIS would give us the largest number of improvements for our investment, integrating every department and replacing the inefficient processes that we

had utilized since the company was a much smaller size.

About six months into the HIFLEX implementation, the economy took a turn for the worse and our local market began to shrink. With the loss of income from local businesses, our only option was to make up for this void in jobs by expanding our market coverage. While sending salesman to distant locales and setting up branch offices in order to generate sales in other regions was certainly an option, it would have been a costly one. As an alternative, our strategy was to utilize the internet as a way to generate sales from locations outside of our immediate area. It was pretty clear to us that we made the right decision to invest in HIFLEX Webshop at the same time we invested in HIFLEX MIS because it gave us the vehicle to address this concern and the changing market for the future of printing.

We have always been proud that we put the customer first, and an online presence is an effective way to increase the methods by which we can help our clients. Time utilization is important to maintaining profitability for us, **as well as our customers**, so providing multiple methods by which they can obtain estimates and order what they need simplifies the process for both parties. Our goal was to implement a Web2Print solution that would help buyers quickly and easily create their desired product and receive an accurate estimate in a timely fashion but most importantly for the vast array of products that we and our competition have always offered. We found this capability in HIFLEX Webshop.

Section II. Objectives — The primary objective of JP Graphics as a company was to make the process of moving a job from one end of the workflow to the other much easier starting with on-line orders and ending with delivery. However, we realized that we needed to integrate in steps to keep the plant and business running and therefore; we needed to choose the foundation to do this in a system and an open platform which could support our primary goal. In evaluating our processes, we identified a number of areas and steps as detrimental to the efficiency of jobs. First and foremost were the manual processes which were vital to getting a customer's job printed. Calculating estimates and drawing impositions by hand are not ideal in the fast paced environment of printing. In order to manage the amount of equipment and resources that we have and remain competitive, a number of workflow changes needed to be made.

We constructed a list of goals in order to determine where we would like to be and what needed to be done to get there. This actually became a two part process, the first part occurring when we decided to implement an MIS and the second when we decided to choose a Web2Print solution. With the goal of streamlining the entire facility and increasing our profitability, we began to look for an MIS system that would suite our needs.

This process happened in two parts. The first step was finding a way to streamline our workflow and an MIS system was an obvious solution. We simply needed to find the system that was the right fit for us.

Key objectives for MIS Implementation:

- Find an alternative to calculating estimates by hand
- Find an alternative to hand drawing impositions
- Integrate all Departments and eliminate the re-entering of data 5 – 7 times
- Improve transparency
- Improve data accuracy
- Improved response time to customer
- Establish automated JDF link to Prepress
- Establish automated JMF link back to MIS

The second part of our effort to improve the workflow within JP Graphics came about as we saw a reduction in local business due to the deteriorating economic situation. We needed to branch out, and offer our print services online as the most cost effective method of doing so.

Key objectives for Web2Print Implementation:

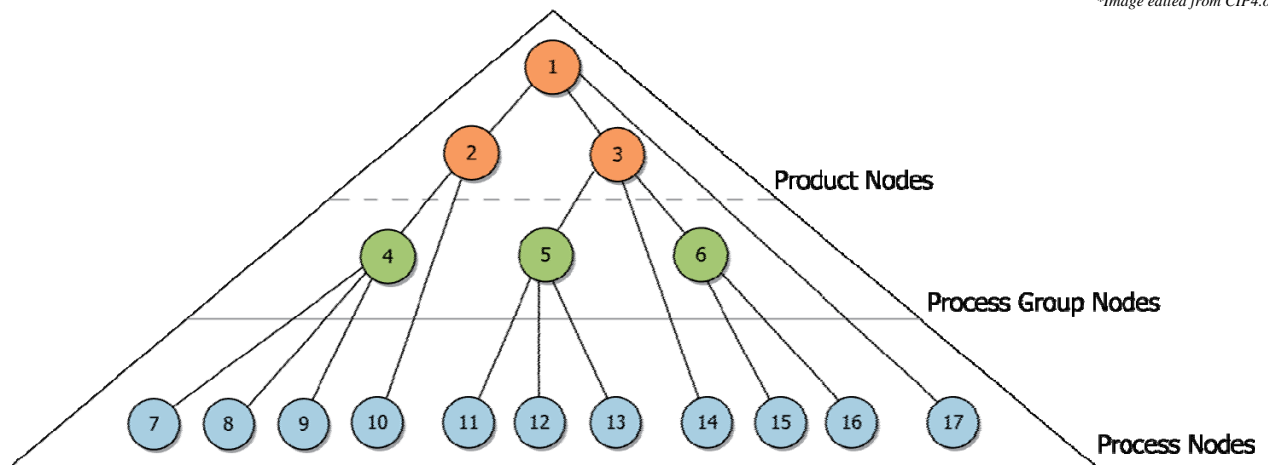
- Expand sales territory without additional sales reps
- Offer a wide array of printed products online with accurate estimation (no price listing)
- Increased visibility for our customers
- A solution for estimating the massive number of jobs from brokers
- Integration of Web2Print with MIS
- Customizable system for complete control
- Hands-free ordering making smaller on-line orders viable (currently admin costs higher than order)
- Way to reduce unnecessary phone calls

Section III. Methodology — We had identified the improvements that needed to be made within the company, and had decided on the basic path that we wanted to take. We simply needed to find a Management Information System that could help us enhance our efficiency. Having seen the power of JDF and the benefits that it provided at other companies, we made the decision to include JDF integration on our list of criteria. Unfortunately our first foray into the world of the Management Information Systems did not go as smoothly as expected. We purchased the PSI system based primarily on the price at which it was offered. Implementation began in 2006, but it quickly became clear that this MIS did not meet our expectations or requirements for current and future needs. Having spent \$150,000 on the system only to find that it was a less than perfect fit, we decided to abandon it and find an alternative that would better suite us.

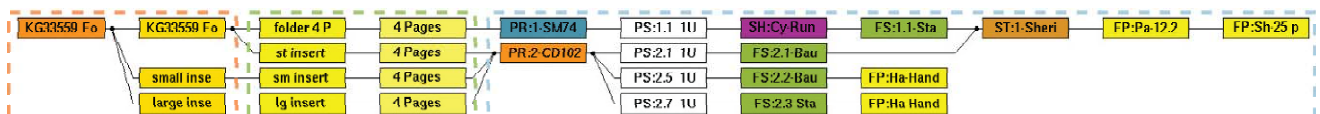
During this second selection process we held steadfast to the criteria and goals we had set for ourselves, determined not to be swayed by price alone. It was especially important that we purchase a “future proof” system that would be able to support us for years to come, no matter what new equipment we purchased or how large we would grow. Integration and automation were of the highest importance as the return on investment for this type of system would be immediate, especially in our case, where manually processes often caused bottlenecks in the workflow. JDF capable solutions were the obvious choice for this level of functionality, so we narrowed our selection to the top JDF enabled solutions.

We had seen HIFLEX before choosing the first MIS system and revisited their solution when our initial investment fell flat. The core JDF data structure found within the HIFLEX system made the integration into our Kodak prepress system a snap. Although this integration wouldn’t come until much later in the process, it was obviously a feature that weighed greatly on our decision for the benefits it would bring.

**Image edited from CIP4.org*

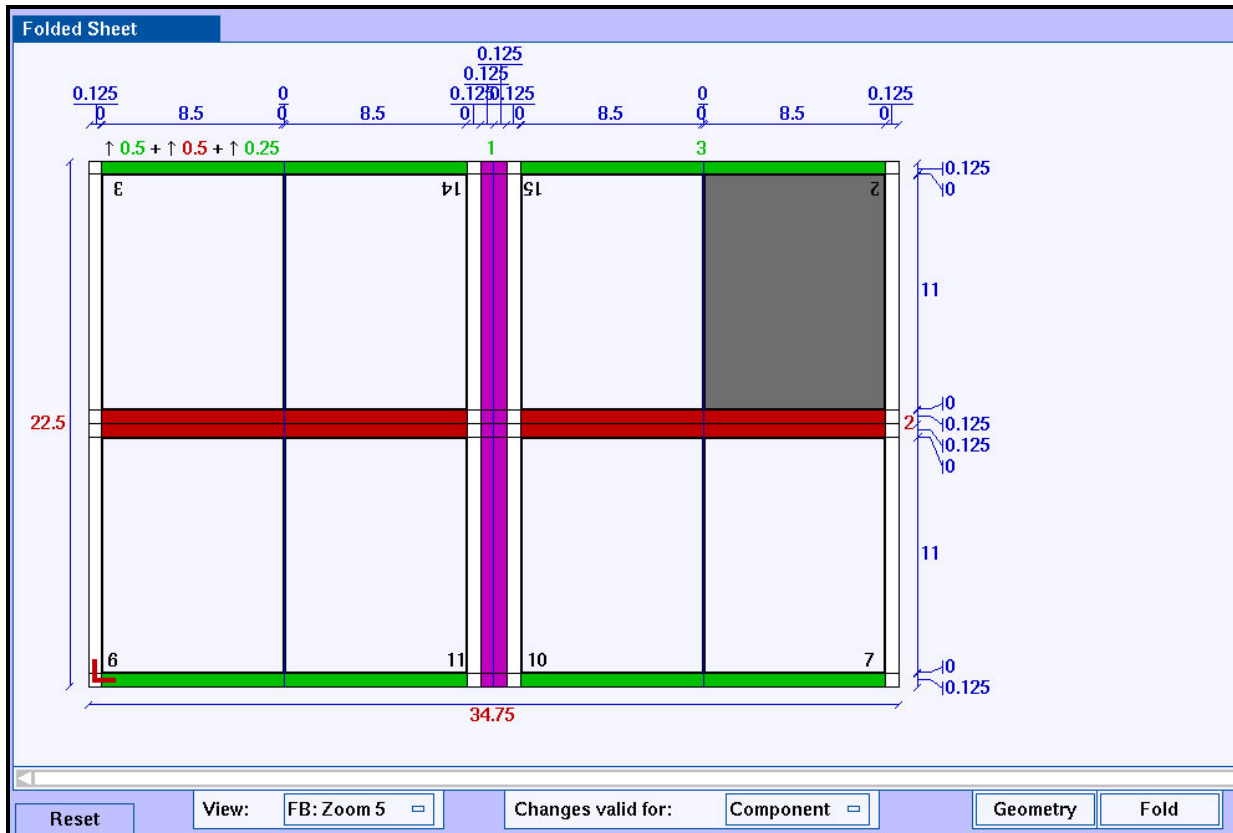


The JDF structure is split into 3 groups. The intent is defined first, followed by the different parts of the product, and finally the different equipment that the product will need to pass through to be completed.



This is an estimate created in our HIFLEX MIS. The process is broken down into the same hierarchy as defined by CIP4. This format is easy to understand and is used by our staff to determine the required steps of an order at a glance.

Of course, a JDF link to prepress doesn't mean much when you draw impositions by hand, which is why the extensive functionality of HIFLEX Estimating put it head and shoulders above their competitors. Not only is the system easy to use, but it has a feature called "AutoPilot" which uses our specific equipment and work processes to create a complete estimate with minimal data input. An imposition is also automatically created, eliminating the time and energy needed to draw it by hand.



Printing and folding sheet layouts are created automatically in HIFLEX for each job we estimate. This data is transferred to Kodak Prinergy via JDF when the job becomes an order.

The MIS provided a large leap in efficiency, but our end goal was to automate as much of the process as possible. We purchased the HIFLEX Webshop Web2Print solution in conjunction with the MIS because of direct integration of orders placed through any one of the websites that Webshop allowed us to custom brand. The biggest draw for going online was the number of estimates that brokers would request and the low quantity of these estimates that would actually turn into jobs. The traditional method of estimating would just waste too much time, meaning there was a minimal or no benefit in profit. In order to handle the vast number of estimates, the HIFLEX Webshop-Web2Print system would be implemented and any desired number of products could be estimated directly by the customer and priced in a matter of seconds. This drastically reduces the cost and time associated with processing these orders, removing the touch points within JP Graphics and simplifying the process for our customers.

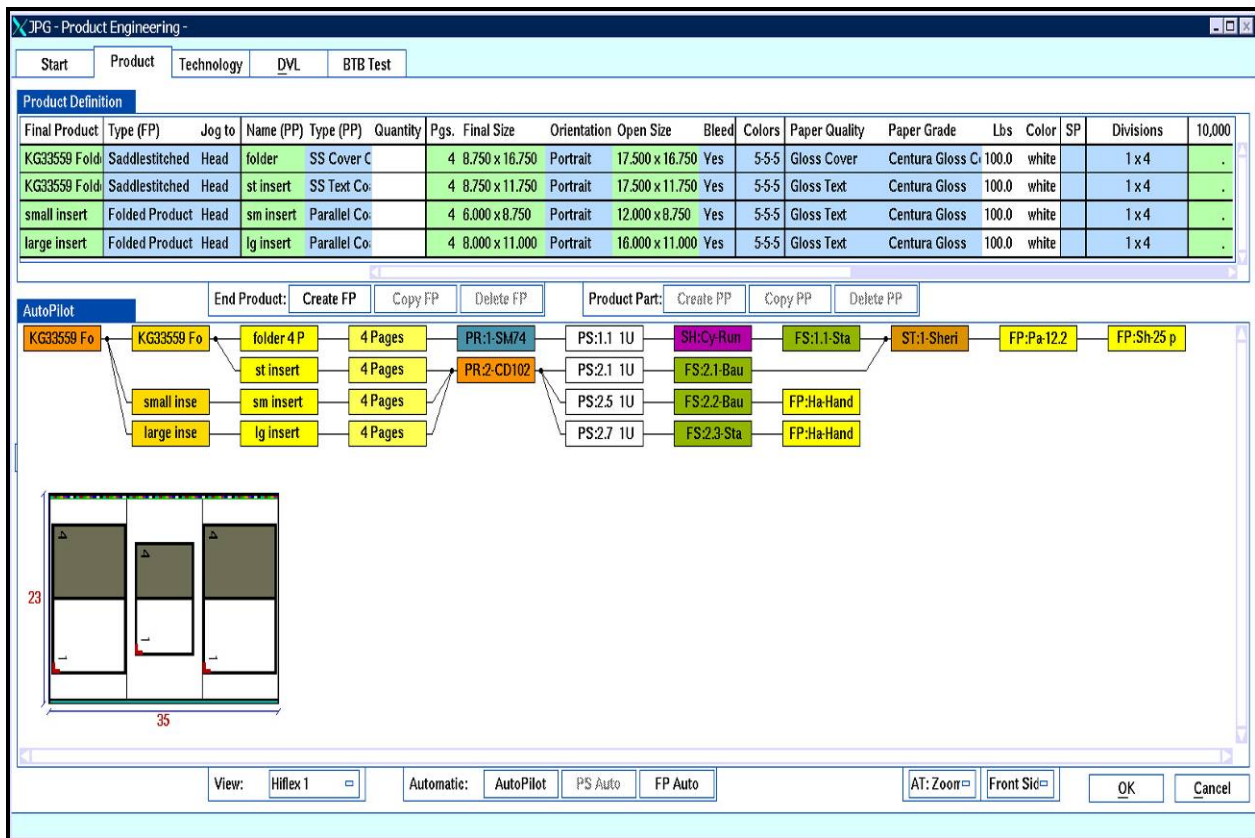
Overall we were simply looking to get deeper into Computer Integrated Manufacturing. Integration was paramount to ensuring data consistency and accuracy, and JDF/JMF automation would make the entire process much easier while removing human error from a vital portion of the workflow.

Section IV. Implementation Story —
1. Implementation of the first MIS

In 2006 we installed EFI’s PSI-MIS, but were unable to achieve any significant results. As a result, we picked up a few efficiencies but our workflow remained relatively unchanged. We used the Estimating functionality of the MIS, but the imposition was still drawn by hand and entered manually into the prepress system. Integration was non-existent, and it became apparent that we had only changed a single variable within the entire workflow when we had been trying to streamline the whole process. There was no JDF automation to speak of, and implementing any sort of connection between departments seemed to be a lot further off than we had anticipated. Our \$150,000 investment resulted in a minimal improvement, so we decided to drop it entirely and find a new system that would meet our needs.

2. Implementation of the HIFLEX MIS

The HIFLEX implementation began in January of 2008, including HIFLEX Estimating, HIFLEX Orderbook, and HIFLEX Scheduling. After configuring HIFLEX for our specific equipment, and a week of training on site at HIFLEX headquarters, we were ready to use the system. Estimation is much easier with HIFLEX and their ‘Super CSR’ user concept, which focuses on simplifying the estimation process. Printing and folding sheets layouts (which include imposition) are created automatically, so estimating and the creation of a jobs imposition have become one seamless process.



The screenshot displays the HIFLEX software interface. At the top, there are tabs for 'Start', 'Product', 'Technology', 'DVL', and 'BTB Test'. Below this is the 'Product Definition' section, which contains a table with the following data:

Final Product	Type (FP)	Jog to	Name (PP)	Type (PP)	Quantity	Pgs.	Final Size	Orientation	Open Size	Bleed	Colors	Paper Quality	Paper Grade	Lbs	Color	SP	Divisions	10,000
KG33559 Fold	Saddlestitched	Head	folder	SS Cover C		4	8.750 x 16.750	Portrait	17.500 x 16.750	Yes	5-5-5	Gloss Cover	Centura Gloss C	100.0	white		1 x 4	.
KG33559 Fold	Saddlestitched	Head	st insert	SS Text Co		4	8.750 x 11.750	Portrait	17.500 x 11.750	Yes	5-5-5	Gloss Text	Centura Gloss	100.0	white		1 x 4	.
small insert	Folded Product	Head	sm insert	Parallel Co		4	6.000 x 8.750	Portrait	12.000 x 8.750	Yes	5-5-5	Gloss Text	Centura Gloss	100.0	white		1 x 4	.
large insert	Folded Product	Head	lg insert	Parallel Co		4	8.000 x 11.000	Portrait	16.000 x 11.000	Yes	5-5-5	Gloss Text	Centura Gloss	100.0	white		1 x 4	.

Below the table is the 'AutoPilot' section, which shows a workflow diagram. It starts with 'End Product: KG33559 Fo' and branches into 'folder 4P' (4 Pages) and 'st insert' (4 Pages). The 'folder 4P' further branches into 'small inse' (4 Pages) and 'large inse' (4 Pages). The 'st insert' branches into 'sm insert' (4 Pages) and 'lg insert' (4 Pages). The workflow then proceeds through 'PR:1-SM74' and 'PR:2-CD102' to 'PS:1.1 1U', 'PS:2.1 1U', 'PS:2.5 1U', and 'PS:2.7 1U'. From 'PS:1.1 1U', it goes to 'SH: Cy Run', 'FS:1.1-Sta', and 'ST:1-Sheri'. From 'PS:2.1 1U', it goes to 'FS:2.1-Bau'. From 'PS:2.5 1U', it goes to 'FS:2.2-Bau' and 'FP:Ha-Hand'. From 'PS:2.7 1U', it goes to 'FS:2.3-Sta' and 'FP:Ha-Hand'. The final steps are 'FP:Pa-12.2' and 'FP:Sh25 p'. A diagram at the bottom left shows a layout with dimensions 23 and 35. At the bottom, there are buttons for 'View: Hiflex 1', 'Automatic: AutoPilot', 'PS Auto', 'FP Auto', 'AT: Zoom', 'Front Side', 'OK', and 'Cancel'.

A complete JDF production plan and workflow diagram for the entire job from beginning to end is created automatically by HIFLEX which saves JP Graphics 30-50% of the time and administrative costs for every job we produce.

3. Implementation of HIFLEX Webshop


HIFLEX Webshop was implemented alongside the HIFLEX MIS. Webshop allowed us to create multiple, individually branded websites using the power of the Drupal Content Management System’s open source platform. We have complete control of the design of each website, as well as the products we offer within. A direct link to the HIFLEX Orderbook allows online orders to go straight into the MIS.

FAST PRINT TODAY

Login

Home
Services
Products
Resources
Contact
Account
Shopping Cart

Configure Product/Quantity | Shipping+Proof Options | Cart | Payment | Upload File(s)



Poster
The standard options for this product are highlighted in the table below. Pricing for this product is listed below in the options table.


If you would like to adjust the standard options, please select alternate values in the table of options below. The price will automatically update as new options are chosen.


Select a desired quantity to proceed to the next step.


Poster 1 Sided


Product Pricing includes bleed.


Finished Size	Pages	Colors	Paper	Bindery	Finishing	Coating
11 x 17	2 Pages	Black 1-Side	80 Lb Gloss Text	Trim	none	none
14 x 20		1 PMS 1-Side	100 Lb Gloss Text			Gloss Coating 1 Side
17 x 22		2 Color 1-Side	80 Lb Gloss Cover			Dull Coating 1 Side
18 x 24 or 17 x 22		4 Color 1-Side	100 Lb Gloss Cover			
23 x 35						


50 Pcs.
\$ 314.23 


100 Pcs.
\$ 319.53 

250 Pcs.
\$ 335.43 


500 Pcs.
\$ 363.07 

1,000 Pcs.
\$ 418.35 

2,500 Pcs.
\$ 585.82 

5,000 Pcs.
\$ 862.70 

*All prices exclude tax and exclude delivery costs (these will be individually estimated and presented before ordering)

Add Quantity 

Print This Page

Welcome to Fast Print Today.

The Webshop ‘Product Chooser Bar’ uses JDF Structure to enable customers to easily choose a wide array of printed products and detailed product specifications for an immediate quote.

Best Process Automation Implementation — North America

Page 10 of 22

JP Graphics Web2Print Strategy

In order to increase our profitability in a local market that had begun to shrink, we implemented a three pronged strategy with our HIFLEX Webshop system. We targeted brokers, current customers and new customers with multiple uniquely branded websites.

Existing Customers-

The first was an extension of our current corporate site. Our current customers can order items online and track them with ease. Webshop makes ordering easier for customers as well as employees within our company. For example, customers can directly price out a job before it has become an order and see the effects of choosing e.g., different papers, colors, page sizes, page quantities or finishing has on the final price. They are thrilled with this level of detail they can choose from at their fingertips. Internally, we don't have to spend any time on performing the multiple, variety of estimates they do themselves – this is a true win-win scenario. Finally, the customer knows exactly what the prices are for a number of different product configurations they self-quoted and can make a quick decision and place an order with us.

Print Broker Customers-

The second site was created for larger distributors to access prices for individual products. This would allow us to save time and man power when it came to estimating the enormous number of jobs that print brokers would request (10 different brokers at approximately 1,000 estimates each per year). These hundreds of sales reps can now go online and instantly check our pricing instead of going through the normal channels and time delays.

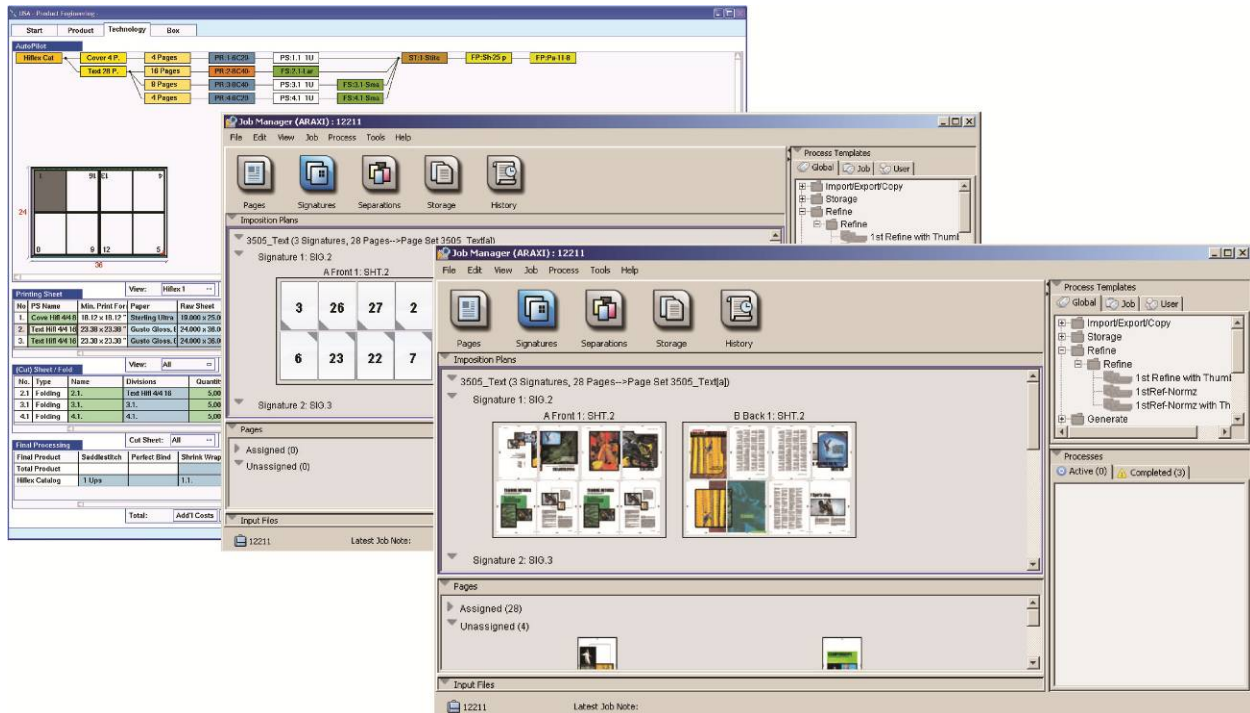
Open Storefront Customers-

The third website is designed for individual customers that may search for printing on the web. This open storefront is marketed online through internet search engines and similar methods with the objective of attracting new customers and their orders. Each of these websites helps us more easily take in and process customer orders, allowing us to focus on actual production rather than the steps leading up to it, which is not where our revenue is generated.

4. Implementation of JDF Link between HIFLEX MIS and Kodak Prinergy Prepress

The JDF connection from HIFLEX to Kodak Prinergy was established in early 2010. In this integration between HIFLEX and Kodak Prinergy, HIFLEX sends the JDF Stripping Data to Kodak Prinergy, which facilitates automatic job creation and includes the imposition created by HIFLEX.

JMF information is also sent from Kodak Prinergy back to HIFLEX, allowing costing data to be recorded and notifying users outside of the prepress department of milestones that have been achieved (like receiving files from the customer and the creation of plates).



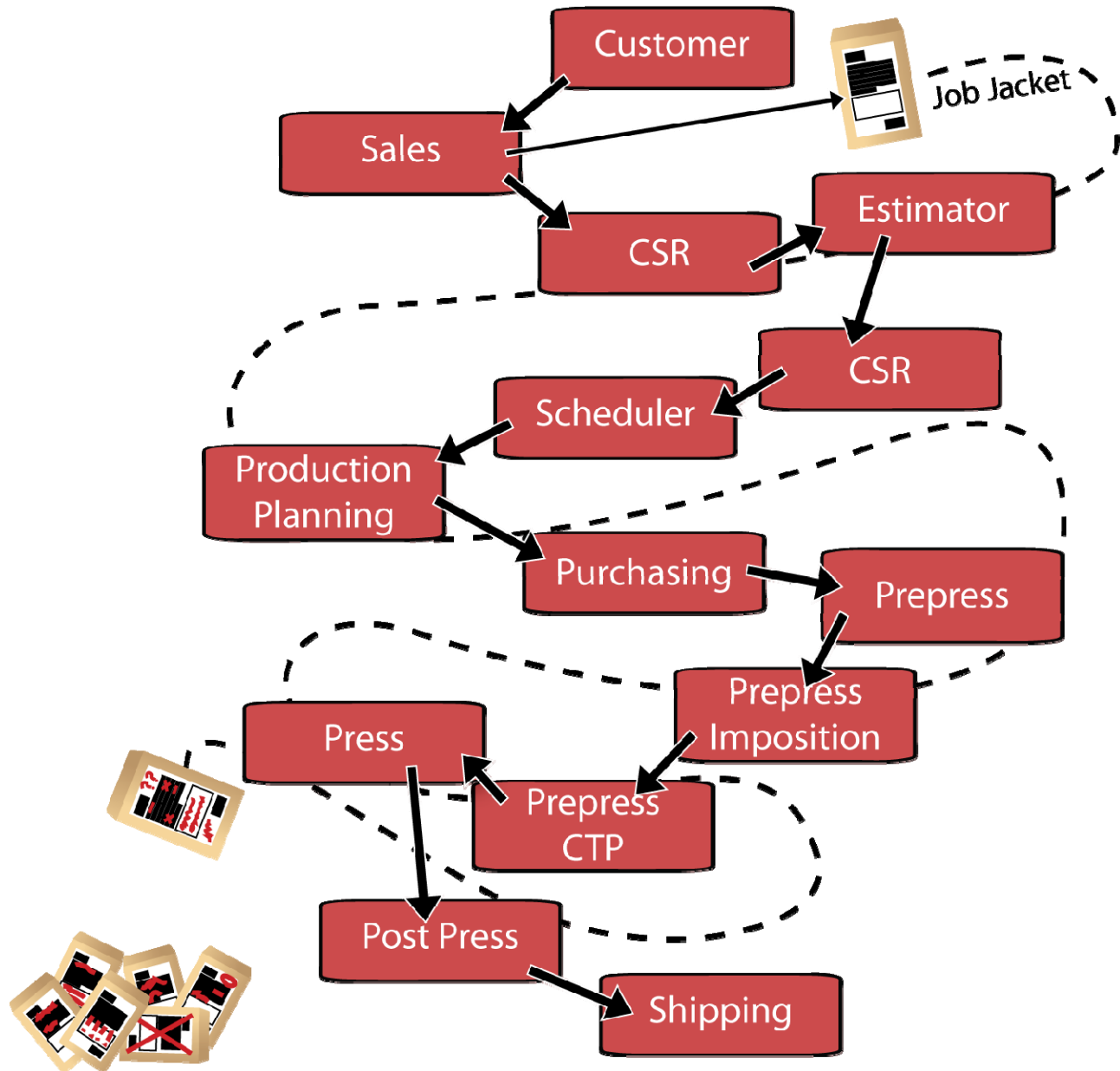
The top and middle screen shots above diagram shows HIFLEX MIS feeding layout information into our Kodak Prinergy System where it then creates templates automatically significantly reducing the prepress costs. With our HIFLEX File Uploader Tool, customers get an email at order creation and then upload files directly to the template for their job shown in the bottom right diagram.

5. Planning Ahead

Looking forward, we intend to further utilize the power of JDF automation that HIFLEX provides to drive our fully JDF capable Horizon H744 Folder. With a software upgrade that Horizon offers, and because HIFLEX can drive this device with its JDF scheduling system, we can automate the setup and running of this device, reducing waste and improving profitability on all jobs. Any future equipment we purchase will also be JDF capable so we can maximize the automation in our plant. It is our ultimate goal to see the benefits that we've experienced in prepress to be mirrored in post press as well as in the press room.

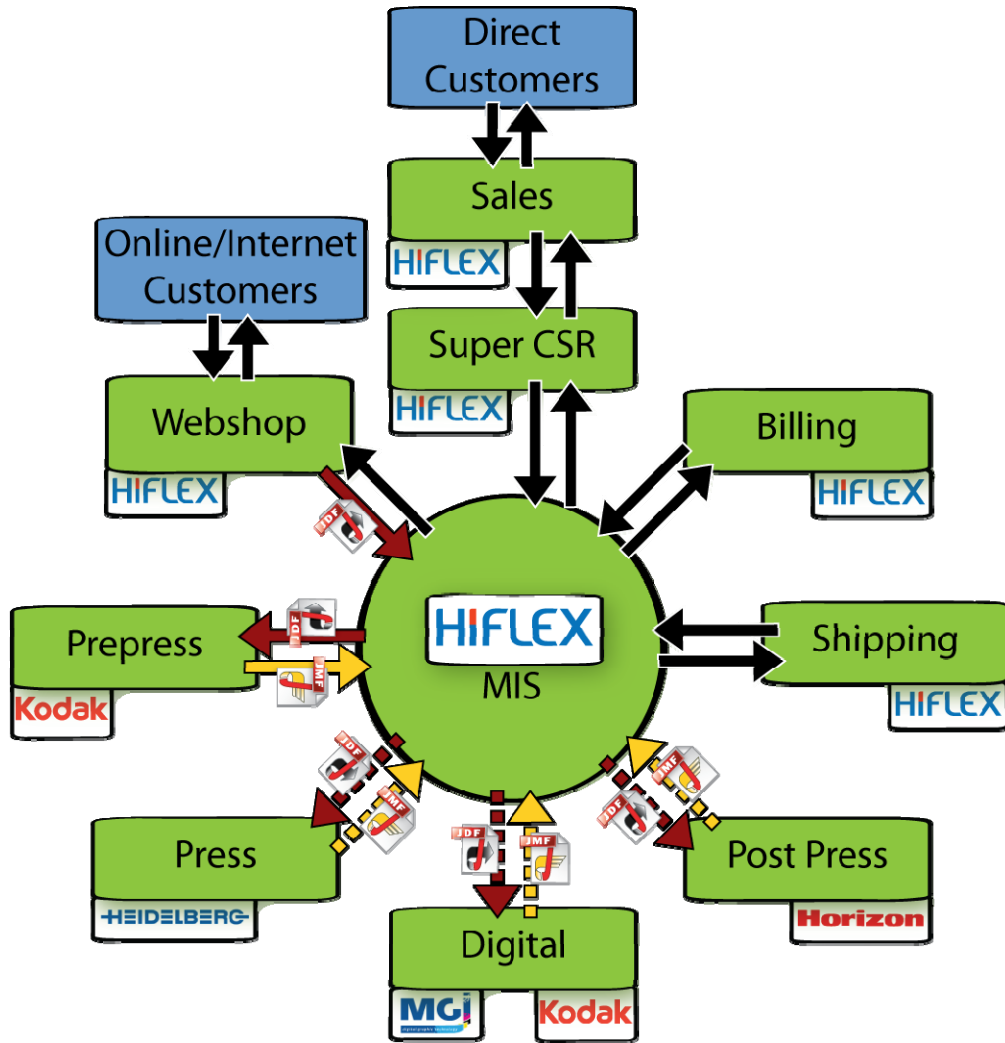
Section V. Resulting Workflow/Processes —

Workflow Diagram Prior to MIS, Web2Print and JDF Implementation



Before implementing a workflow powered by JDF, the day to day operation of JP Graphics was slowed down by a number of process bottlenecks and redundant process steps. The above diagram shows that these islands are connected with one directional arrows. **Please note - in reality, these islands were not connected at all in our previous workflow. The connecting arrows are only present in the diagram to depict the direction of workflow steps. The transfer of information between workflow steps was almost exclusively manual.**

Workflow Diagram after MIS, Web2Print and JDF Implementation



The above diagram illustrates our new HIFLEX JDF Workflow. All islands are now actually integrated with the bidirectional exchange of information. All processes are integrated either through JDF or other means. Islands are now connected and efficient transfer of information is now achieved. Significant improvements in our workflow and efficiency became obvious after the HIFLEX MIS implementation and increased substantially with the deployment of HIFLEX Webshop and the HIFLEX-Kodak JDF integration.

Legend

- Communication exchange facilitated by the MIS
- Established JDF connection
- Established JMF connection
- Future JDF/JMF integration

Summary of Benefits after Implementation

- Estimates calculated by the Super CSR, who utilizes HIFLEX AutoPilot to estimate orders in a matter of seconds.
- Response time to the customer has improved with faster estimates and quicker turnaround in prepress
- JDF/JMF link has been established between the MIS and prepress systems, resulting in time savings and the reduction of human error
- Automatic imposition generation and automated JDF transfer of this data along with other JDF specifications to Prinergy drastically cuts prepress time
- Integration of Estimation, Quotation, Order Entry, Job Tracking, Customer Relationship Management, Material Management, Prepress, Scheduling, Shipping, and Billing
- Customer and Job data is stored and accessed in the MIS for consistency and easy access reducing the importance of job dockets
- No daily production meeting has resulted in time savings for at least 8 people a day
- Billing is much more accurate because of the costing data input into HIFLEX for every piece of equipment as well as materials
- Increase in sales territory due to increased online presence in 3 different forms
- Accurate online estimates that uses our specific work processes and pricing
- An online interface (Webshop Product Chooser Bar) makes selecting products fast and easy
- A solution for estimating the massive number of jobs from brokers saving us thousands of dollars
- Integration of Web2Print with MIS for automated order entry resulting in significant time savings and a reduction in touch points
- Increased interest in our online presence now that we can deliver custom portals for larger clients

Section VI. Optional Detail —

Analysis of Time Savings and Potential New Business Generated by the Project

Elimination of Production Meetings

The consistency of data throughout the HIFLEX system and its availability to all employees has allowed us to eliminate our daily morning production meeting. The result is a 10 minute reduction of time utilization for eight different employees, which means a total of 80 minutes (1.3 hours) of company time can be spent on higher priority tasks per day. Calculating the average salary of these employees at \$25 per hour for 250 work days, means a total of \$8,125.00 saved every year.

Job Ticket

The job ticket has always been an issue of particular annoyance for the JP Graphics Company. We used to store all of the essential job data on a single job jacket, which would always result in employees chasing down the job ticket when they needed to find specific information, make changes, or update data. Eight or more different people dealt with the physical job ticket, and the processes involved in finding, checking, editing, and filing the job tickets would waste 20 minutes each day for every one of those employees, or 2.7 hours total. With our new HIFLEX Electronic Job Ticket (EJT), this means that 675 hours of work time is saved. To calculate the savings of using HIFLEX's EJT over the old job ticket system, we took the average salary of the employees (\$25 per hour) and multiplied by the annual time saved to give us a total of \$16,875.00 saved every year. This doesn't include the tens of thousands of dollars in mistakes that occur annually with the manual, written job ticket, that we will save because there is no chance for error in the HIFLEX Electronic Job Ticket.

Automatic Printing and Folding Sheet Imposition Generation by HIFLEX MIS

An average time savings of 30 minutes per imposition was achieved by replacing our old method of manually drawing the required imposition by hand, and instead utilizing the automatic folding sheet generation performed in HIFLEX Estimating. With an average of 2500 jobs processed yearly, we saw a total reduction of 1,250 hours of prepress time. Taking the \$25 per hour wage of the prepress operator into account, we've saved \$31,250.00 every year in prepress.

HIFLEX Super CSR

The HIFLEX Super CSR user concept has allowed us to merge the multiple user roles of CSR, Estimator and Production Planner into a single position within the company. For this reason, we have been able to do more work with fewer resources. With our first MIS, we would have needed at least two additional employees to handle the same amount of work. The initial resulting savings are equal to that of an entire wage reduction. At \$25 an hour average, and 250 work days, we have saved \$50,000.00 annually. As we continue to implement HIFLEX MIS, we expect additional headcount reductions in the future. More importantly, we can now handle peak periods of customer demand more efficiently which makes us more customer responsive. This is our number one goal and our strategy for the future of our business.

HIFLEX AutoPilot

HIFLEX AutoPilot saves us a minimum of 10 minutes on what would have been a 15 minute estimate on our old MIS (2/3rds faster). Every year we complete an average of 10,000 estimates offline, which means that we used to spend 2500 hours using traditional methods and only spend 833 hours with the assistance of HIFLEX Estimating and AutoPilot. The total savings is 1667 hours or \$41,675.00 in monetary terms (at the average \$25 hour that an estimator makes).

HIFLEX Webshop Web2Print system

Webshop for Brokers

One of the largest returns on our investments has been in the effect it has had on our business in dealing with print brokers. With our first MIS we would take each request for a quote and have to complete an estimate that would take at least 15 minute and could take quite a bit longer in many instances. On average our medium print broker customers required 1000 quotes per year. Because of the nature of doing business with print brokers and their particular need to quote jobs excessively, this resulted in an extraordinarily high administrative cost for doing business with them. To compound this problem, on average, only 5-10% of these quotes turn into actual orders, which translates into a poor profit margin for JP Graphics and in many cases a money loser.

With the installation of HIFLEX Webshop, brokers are now able dynamically 'Self-Quote' the hundreds of thousands of products we offer. This means we have reduced the time spent estimating by 100% for this type of work, so for each medium size broker, an annual time savings of 250 hours is achieved. Estimators make \$25 per hour on average. The 250 hour time savings per medium sized broker for the 10 different brokers we do business with equals a \$62,500.00 monetary savings.

Because of the massive reduction in time and cost of estimating with HIFLEX Webshop, we have begun targeting brokers of even larger sizes that we could not formerly even consider approaching due to the fact that we would not be able to handle their estimating demand requirements. There are thousands of this size print broker nationally. Our goal is to acquire 25 of the largest brokers in the country. These brokers typically average 5000 quotes annually, which made it impossible for us to estimate with the old MIS and Web2Print Systems. **Because of the JDF structure and the dynamic nature of the HIFLEX Webshop and the automated ordering capability that it provides**, we can let brokers and all other print buyers 'self-quote' and do so by entering complex specifications directly into our Webshop System. Based on 5000 estimate requests annually, the cost savings per large broker is: 1250 estimating hours x \$25 per hour = \$31,250 annually in administrative costs. If we were able to acquire 5 additional large scale brokers, which is only 20% of our targeted goal of 25, we would save 5 x \$31,250 or \$156,250.00 annually in administrative labor costs.

These potential buyers immediately receive pricing online, which means that we also significantly improve our chances of satisfying our customers where the number one most important thing to them is the speed of receiving quotes. Based on streamlining and automating this targeted market area of business, we stand to gain the following:

The average order size for brokers is \$2000.

5% of 5000 estimates is 250 converted orders.

250 x \$2000 = \$500,000 in new sales for each large scale broker we acquire.

\$500,000 x 5 new large scale brokers = \$2,500,000.00 in new business.

Another side-note: We would not be able to process these orders without having a completely automated internal workflow. This is why our goal of total integration from Web2Print to MIS and through to delivery is so crucial to us and our primary objective. Without this, JP could not obtain these key business objectives. We also see a reduction of traditional estimating, and its associated costs, in our other on-line storefronts which target current customers and new customers respectively. The estimates are automatically generated in Webshop and sent to the integrated HIFLEX MIS Orderbook. The entire process from a request for a quote, to the placing of an order is completely touch point free. Inside Orderbook, the job can be sent to Prepress via the automated JDF connection.

Webshop for Current Customers

With the easy to use interface and ability to get a quote almost immediately, we expect to see a rise in orders from our current customers. Our Webshop system allows customers to directly price out their work without delay. In this way we become a part of their creation process much earlier, and are no longer a last step. For example, a customer can see if they can do a 4-color brochure on their budget, or if a 2-color version would be more feasible. When the customer is pricing jobs on our website before they are even ready to print, JP Graphics becomes their first choice for print production. For this reason we expect a minimum of a 5% increase in our annual orders from current customers. With 2,000 orders being placed via traditional methods (not online) we are expecting a significant move toward online orders as well as 100 more orders annually. With orders coming in at approximately \$2000 each, that equates to an additional \$200,000.00 per year.

Time/Cost Savings when Current Customers use Webshop

When orders go through our Webshop system the Estimator doesn't have to touch them, resulting in a 15 minute decrease in time per estimate. We have been encouraging current customers to utilize our Web2Print portal to simplify their ordering process and expect to see at least 10% of our standard orders turn to Webshop orders. Essentially we save 15 minutes on 250 orders for a total yearly time savings of 62.5 hours or \$1,562.50 (at \$25 an hour for the Estimator). This is a very modest estimate, as we expect to see a larger move to online ordering for our current and new direct sales customers as well as an increase in business for the increased speed at which the customer receives their quote.

Webshop for New Customers

An increase in orders is expected from our recently launched 'Open' Webshop storefront, which allows customers who have never done business with us before to quote and place orders online instantly. With a marketing campaign to spread the word about our new uniquely branded site, we expect to see a 10% increase in the number of orders we currently produce. This estimate is modest and only anticipated first year sales. Sales will continue to increase as the website becomes more popular. We are also investing significantly in ways to direct traffic to our sites using SEO or Search Engine Optimization which is crucial to the success of any on-line business. This insures that when a print buyer searches for websites that provide printed products, that JP Graphics storefronts are in the top 10 to surface which in turn usually get picked. With a current total of 250 orders a year at an increase of 10%, we expect 25 new orders. With an average price of \$1,500 per order, that is a \$375,000.00 increase to our gross sales income.

Automatic job creation in Kodak Prinergy

All of the essential job information is transferred from HIFLEX Orderbook to Kodak Prinergy via JDF. Imposition, job name, job number and a variety of other information is instantly created in Prinergy. With this direct JDF connection to Kodak Prinergy, we save 2 minutes per manual job creation. We process 2,500 orders annually, which translates to a yearly savings of 83.3 hours or \$2,082.50. There is also an unquantified savings in time and money from the reduction of human error (due to the unpredictability of errors and their effects) by automating these processes, and other automated procedures within our company. Removing the need to constantly rekey data reduces the chances of typos and similar mistakes which diminishes the legitimacy of our data, and often costs us money.

Automatic cost booking (JMF)

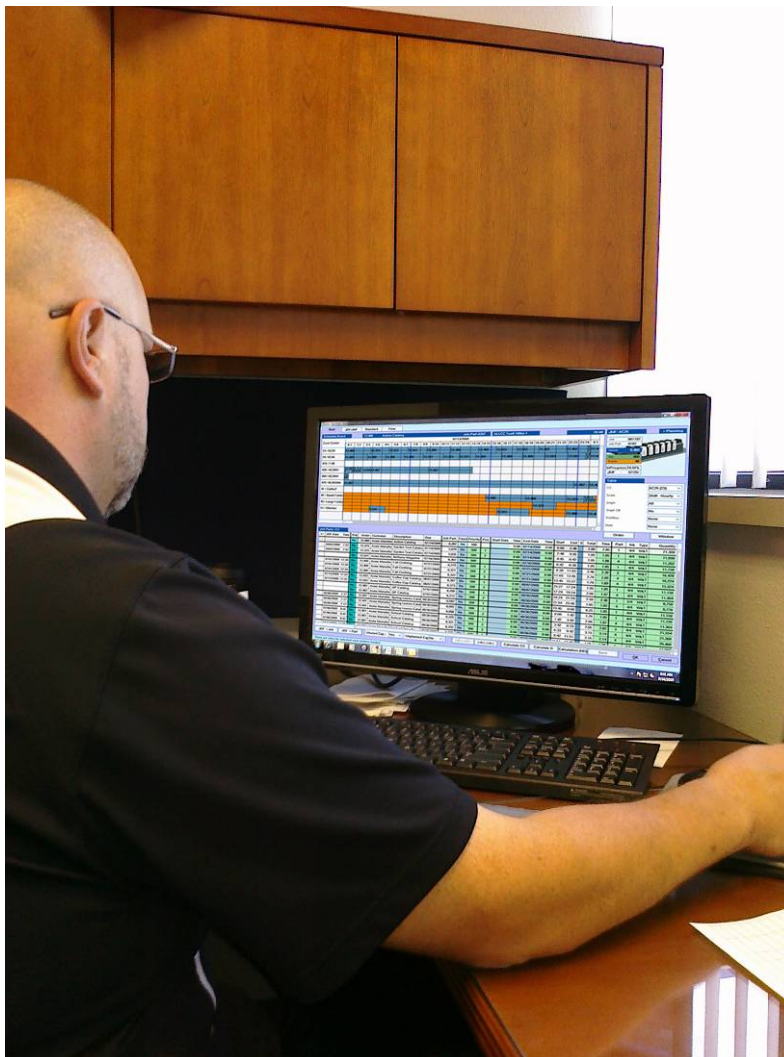
Prepress operators save 30 minutes per day in Shop Floor Data Collection with the JDF/JMF link between HIFLEX and Kodak. HIFLEX sends data to Prinergy, but the opposite is also true. Prinergy sends costing information back to HIFLEX, notifying the system of chargeable and non chargeable changes to the job in prepress. With an hourly cost of \$25 per hour for a prepress

operator, we save \$12.50 a day or \$3,125.00 annually.

Scheduling

Without a unified, easily accessible scheduling system, employees would often be “chasing information.” The status of customer approvals, plate creation, and paper delivery were all communicated by word of mouth. This would easily result in 15 minutes of wasted time per day. Since at least eight different employees need to know the status of a job at any given time, a total of 2 hours was wasted each day. This equates to 500 work hours wasted annually.

This much sought after data is now easily accessible in the HIFLEX Scheduling system allowing anyone to immediately check the status of i.e., approvals, plates and paper. The entire process of searching for answers by checking status in multiple departments has been eliminated, saving 500 work hours or \$12,500.00 annually.



JP Graphics utilizes the HIFLEX Scheduling Module to determine exactly when jobs are printed, and to view real-time information regarding i.e. the status of customer approvals, plate creation, and paper delivery.



Summary of Savings After Implementation of MIS, Web2Print, and the JDF Link to Prepress

Elimination of Production Meetings

10 minute reduction for 8 employees = 80 minutes or 1.3 hours

1.3 hours saved for every 250 work days in a year = 325 hours

325 hours at \$25 per hour = \$8125

Total: \$8,125.00

Job Ticket

20 minute reduction for 8 employees = 160 minutes or 2.7 hours

2.7 hours saved for every 250 work days in a year = 675 hours

675 hours at \$25 per hour = \$16,875.00

Total: \$16,875.00

Automatic Printing and Folding Sheet Generation in HIFLEX MIS

30 minute reduction for all 2,500 jobs in a year = 1,250 hours

1,250 hours saved a year at \$25 per hour = \$31,250

Total: \$31,250.00

HIFLEX Super CSR

Increase of work equal to 1 worker at \$25 an hour for 250 days (8 hrs each) = \$50,000

Total: \$50,000.00

HIFLEX AutoPilot

10 minutes saved on every 10,000 estimates = 100,000 minutes or 1,666.7 hours

1,666.7 hours at \$25 per hour = \$41,667.50

Total: \$41,667.50

Automatic Job Creation in Kodak Prinergy

2 minutes for all 2,500 orders = 5,000 minutes or 83.3 hours

83.3 hours at \$25 per hour = \$2,082.50

Total: \$2,082.50

Automatic Cost Booking

30 minutes saved every 250 work days = 7,500 minutes or 125 hours

125 hours at \$25 per hour = \$3125

Total: \$3,125.00



Scheduling

15 minutes saved every day for 8 different employees = 120 minutes or 2 hours

2 hours multiplied by 250 work days = 500 hours

500 hours at \$25 per hour = \$12,500

Total: \$12,500.00

HIFLEX Webshop Web2Print System

Savings for current Print Brokers

15 minutes saved on 1,000 quotes = 15,000 or 250 hours

250 hours at \$25 per hour = \$6,250

\$6,250 for all 10 brokers = \$62,500

Total: \$62,500.00

Income from newly targeted large brokers

15 minutes saved on 5,000 quotes = 75,000 minutes or 1,250 hours

1,250 hours at \$25 per hour = \$31,250

\$31,250 for 5 large brokers = \$156,250 Total: \$156,250

Total: \$156,250.00

Time/Cost Savings for current customers who use Webshop

10% of 2,500 orders = 250 orders made in Webshop

15 minute reduction for all 250 orders = 3,750 minutes or 62.5 hours

62.5 hours at \$25 per hour = \$1,562.50

Total: \$1,562.50

Annual savings after MIS, Web2Print, and JDF implementation:

\$385,937.50

Summary of new Potential Business Opportunities

Streamlining and Target On-Line Marketing Plans

JP Graphics Potential new Business Opportunities:

Large Scale Print Brokers Scenario

5% of 5000 orders = 250 orders won

250 orders at \$2,000 each = \$500,000 for every large broker

\$500,000 for 5 large brokers = \$2,500,000

Total: \$2,500,000.00

Current Customers Storefront - Sales Projections

5% increase of 2000 orders = 100 orders in Webshop

100 orders at \$2000 per order = \$200,000.00

Total: \$200,000.00

New Customers - Sales Projections

10% of current orders (2500) for 1st year = 250 additional orders

250 orders at \$2,000 each = \$500,000.00

Total: \$500,000.00

Additional gross income expected from new business opportunities:

\$3,200,000.00

Closing Statement:

In summary, HIFLEX Webshop and MIS and the JDF/JMF integration have satisfied our needs and given us the platform for our future plans of profit, sales and growth. The listed total labor savings of \$385,937.50 are a minimum, direct labor savings calculation. There are many other unlisted aspects of this JDF workflow that this investment provides. Furthermore, the benefits of this JDF workflow to our future sales and marketing potential are astronomical. The aforementioned projections of \$3.2 million in potential new opportunities are conservative estimates of what we expect to achieve. The return on our investment for JP Graphics is multifaceted and becomes more and more significant as time passes. As we continue to automate our business, we become more profitable. At the same time, as we become more profitable, we also become significantly more able to service our customers and with this JDF workflow, we become far more customer responsive. We are finally able to grow our business significantly because we can handle estimates and orders, at volumes that we were previously unable to achieve with our legacy workflow.

In closing, the three areas where we have been able to achieve significant gains at JP Graphics are in Profitability, Customer Responsiveness and Sales Growth.