Executive Summary — Fälth & Hässler AB in Värnamo, located in southern Sweden, was founded in 1997 following an amalgamation of Fälths Tryckeri AB and Hässlerband AB. More than 60 employees are producing high quality, image intense, printed material, such as glued or thread bound soft and hardcover books, catalogues and magazines.

Prior to the JDF implementation we had an old, outdated ASCII based MIS software called Flisa, which had been developed internally. This software could neither produce nor understand JDF/JMF, so we decided to implement a new MIS system with a JDF enabled workflow.

After a short selection process we decided to install HIFLEX MIS. We also migrated from our Fujifilm Celebrant prepress system to the new JDF enabled XMF prepress system. After the link between the prepress system and the MIS was established, we connected the MIS to the manroland-PrintNet system in the press department.

The main benefits of the new JDF workflow are:
- Response times for job inquiries could be reduced by 50%.
- Rate of complaints due to production mistakes has been reduced by 80%.
- We have had a 10% reduction in staff, but have experienced a more calm work environment with less stress from customer communication.
- Increased flexibility that has paid off in customer loyalty: with Top-30 customers share of their print volume could be increased.
- More cost effective production workflow allowed us to achieve a more attractive price point.
- More prompt and reliable in statements to production status due to JDF transparency. Number of phone calls (looking for information) was reduced by 30%.
- Customer’s trust and satisfaction increased by flawless production performances.
- Job run-through shortened by 25% and on-time delivery was reduced by nearly 90%.
- Search time for reprint data reduced by 80%

HIFLEX MIS sends JDF data to XMF and manroland’s PrintNet and receives XMF feedback. Our objectives for the next months are the JDF link to our perfect-binder from Müller Martini and the start-up of our newest investment: the JDF-enabled HIFLEX Webshop.
Section I. Background — Fälth & Hässler AB in Värnamo, located in southern Sweden, was formed in 1997 following the amalgamation of the long-established Fälths Tryckeri AB (printing company founded in 1916) and Hässlertaband AB (bindery founded in 1902). Now the company is managed by Anders Ekberg. With more than 60 highly trained employees, Fälth & Hässler is one of the largest book printers in the country. These employees are working around the clock from Sunday evening to Friday afternoon.

Our main products are high quality, image intensive printed material that has a spine, such as glued or sewn bound soft and hardcover books, catalogues and magazines. Our extensive prepress department has the knowledge and tools to add a “wow effect” to the images we retouch and print. We also provide services like database driven publication and page production based on a tailored CMS solution. In addition to the personalized print and campaigns, advance copies for marketing “books-to-be”, is the output from our digital Xerox printer. An outstanding example of these early copy books was, without doubt, an IKEA furnishings book (see below) that was printed for 21 countries in 16 languages.
We house a Screen thermal CTP engine, a “ZAC” processor and a Xerox iGen3 digital printer (all supplied by Fujifilm), as well as two new manroland 700 direct drive 8-color perfectors (see image at page 6), alongside highly automated perfect and thread binding lines.

Our Photo Studio can offer a total solution – from shooting to a finished print product. A major advantage of a photo studio is that we control the whole production from the photo shoot on. Our professional photographer personally assists our customers with a mobile photo studio.

To ensure that such large projects run smoothly, the company’s business philosophy includes using the latest technology. This focus on productivity means that we are always willing to embrace new technologies and solutions. Christer Ringblom, information systems manager at Fälth & Hässler, explains: “We pride ourselves on being at the cutting edge of technology to make sure we deliver the best possible levels of service to our customers, as efficiently as possible.”

Fälth & Hässler is FSC certified and always aims to produce high quality products with the smallest environmental footprint possible, doing their part to decrease CO2 emissions. So far, our entire production is certified as complying with the ISO 14000 and EMAS environmental management standard.

Situation prior to JDF implementation

We started our journey to complete JDF integration with components that could neither produce nor understand JDF/JMF:

We had:
- an old and outdated ASCII based MIS software called Flisa, which was created internally
- a non-automated prepress workflow (only RIP-functionality used in Fujifilm Celebrant)
- a stand-alone software (Preps) to create imposition layouts

None of the suppliers could provide us with support or develop the new functions that we needed for the future. With the knowledge that sooner or later we could be facing a software error without any experts to ask for help, we were literally forced to find a modern solution with extended functionality and support. For this reason, we decided to purchase a professional MIS solution.

Section II. Objectives — Prior to implementing JDF in our company, we had to re-enter all information in the different systems. As business began to increase, we had to transfer more and more information, which is why the production cycle had become longer and longer. So the situation prior to implementation can be characterized as a typical workflow of a commercial printer who doesn’t utilize JDF.

While estimating in the former system, the software did not guide us to select a proper imposition, because that system had no plausibility check. So it had no knowledge regarding the limitations in
our production. We could place a layout of a sheet that would not fit to the paper, making it impossible to manufacture, but the system thought it would be possible. We had to check the estimate once or twice again, just to check the liability. A lot of our print runs are special format papers which give this problem an enormous dimension. There was no way to use JDF out of a system that does not understand JDF production. The logical way for us was to replace the system.

As mentioned above the estimate and order module in the former system did not provide all technical data for the departments which were involved in the production, neither did it store information in a structured way regarding the outwork or other needed meta data.

As it was text based, no graphical overview was available regarding what kind of layout the estimator had in mind for the production. When the operator at the CTP device had to build the impositions, stripping was based on his own knowledge and could end with another solution or in worst case, find out that the pages do not fit the layout at all!

In sum, the objectives were:

- Reduction of make-ready time and increase of utilization percentage
- Increase efficiency throughout production and administration
- Eliminate the need for manual data capture
- Reduce error risk (one database – multiple usage of information)
- Single instance of jobs across the production cycle
- Minimal prepress intervention
- Jobs should be placed directly from MIS into workflow queue
- Delivery of accurate costing from prepress
- Lower material usage (especially paper waste)

**Section III. Methodology** — When we decided for process automation it was crucial for us to be able to set up a JDF-based communication between administrations, prepress and press with the most suitable technology on the market.

We checked several MIS systems that are available on the market. At that time we already knew that HIFLEX is a technology and market leader in the field of JDF networking. That is why we decided to implement HIFLEX MIS in our workflow. The reasons were HIFLEX’s vast experience with successful JDF implementations and the system’s high-level JDF capabilities.
As illustrated in the diagram above, we recognized that the system was capable of being adjusted completely to our individual needs, by the means of integrated GUI builder and workflow modules for business process engineering.

Section IV. Implementation Story —

1. Implementation of the HIFLEX MIS


2. Change of prepress system: New Fujifilm’s XMF system replaced Celebrant

We replaced our old prepress system Celebrant with Fujifilm’s new XMF system. With its JDF architecture it can communicate easily with our MIS system from HIFLEX. Its flexible JDF job bag technology allows us to response to changes rapidly. This gives us the flexibility and ease-of-use that we need to maximize our productivity, quality and efficiency.

3. Implementation of the JDF interface between HIFLEX and Fujifilm XMF

Later we completed the implementation of the JDF interface between HIFLEX MIS and Fujifilm’s XMF prepress system. When the “Fujifilm” button is pressed, HIFLEX sends full JDF stripping data to XMF.

The order has been created automatically in XMF. Relevant data, such as customer name, customer number, job title, print run, product type or paper type are sent from HIFLEX to XMF.

Above left is a complete JDF Layout dynamically created by HIFLEX at the estimate stage. This layout information is then sent via JDF directly to XMF, illustrated in the above right screen, where XMF reads the JDF Stripping Parameters created by HIFLEX and automatically generates the imposition templates or page submissions.

4. Implementation of the JDF interface between HIFLEX and manroland’s PrintNet

The JDF connectivity between HIFLEX MIS and PrintNet from manroland was finished in 2008. All relevant printing parameters (e.g. format, paper, number of plated, length of run) and job in-
formation (e.g. customer names, job numbers) are sent via JDF from the HIFLEX MIS to PrintNet system.

In Fälth & Hässler’s JDF workflow, PrintNet is the gate for press presetting. It receives administrative (job number, title, delivery date, etc.) and technical data (sheet dimensions, grammage, name of colors, gross and net amount to print, etc.) from the HIFLEX MIS. A specialty: our HIFLEX MIS receives the PPF from Fujifilm’s XMF and includes them into the JDF data stream that goes to PrintNet. The effect is that a.) the HIFLEX scheduler sees a real plate preview of the scheduled jobs and b.) there is no hassle with JDF-PPF assignment at the press system since they arrive already bundled. This saves plenty of time and avoids paper waste significantly (wrong manual assignment of PPF files is eliminated).

5. Plans for the future

In the future we want to have a fully integrated production. We made a big step to this goal, only our postpress department is not connected yet. We are using a perfect binder from Müller Martini which is JDF enabled. That will help us to take the automation of our workflow to the next and highest level.

The increasing online-market is very important for us. Therefore we have just decided to implement the JDF enabled Web2Print solution from HIFLEX. We want to offer a 24/7 service to our customers, while reducing costs for sales, quotations and administration. Actually we are translating, adapting and testing the Webshop. The Webshop will be online in autumn 2010. With the new Webshop we go for new customers from others regions and countries.

Section V. Resulting Workflow/Processes —

Workflow diagram prior to JDF implementation
Prior to implementation the JDF workflow we had a home-grown MIS system that could neither produce nor understand JDF/JMF. We had to re-enter all information in the different systems. We had to transfer more and more information, that is why the production had become longer and longer. So the situation prior to implementation can be characterized as a typical workflow of commercial printers who don’t utilize JDF.

Resulting workflow diagram

Now we are using a JDF based workflow that produces and understands JDF! Grey lines stand for our futures plans which will be realized latest in autumn.
Resulting workflow in more details!

We have now an increased level of automation due to JDF-connectivity between HIFLEX MIS, Fujifilm’s XMF prepress system and manroland’s PrintNet system. Data relevant for production only has to be entered once in the HIFLEX MIS and subsequent systems are provided with the necessary job specifications. Redundant data entry is overcome. All needed modifications of the order or of the scheduling is entered in HIFLEX and then via JDF transferred to the prepress and press system, where jobs are automatically updated.

Resulting JDF workflow with HIFLEX MIS
New orders are entered once into HIFLEX MIS. The production sequence is automatically generated and the job information is ready to be passed on to the subsequent XMF prepress system and the manroland’s PrintNet.
Resulting JDF workflow with XMF

With order entry in HIFLEX MIS the job is automatically created in XMF via JDF. Job data (order name, order description, customer name and address, contact person, etc.), technical data for job create (job parts such as cover/content, production plan, number of pages, etc.) and process parameters (screen ruling, colors, etc.) are automatically transferred from HIFLEX MIS to XMF prepress system via JDF.

Imposition layouts are prepared in the process of pre-estimation in HIFLEX, which sends full JDF stripping data to XMF.

HIFLEX MIS receives CIP3 (PPF-) files from XMF and converts these into CIP4 (JDF). HIFLEX now sends extended JDF data to PrintNet. The press workflow (see next page) receive a single data stream containing JDF with embedded color profiles.
Resulting JDF workflow with manroland’s PrintNet

The final planning is no longer done on a paper printout using a pencil. Now we use a JDF enabled scheduling system that includes order parameters sent directly to the press console.

The enhanced transparency in the production process allows for flexibility when it comes to job scheduling. This allows optimal production planning and coordination of deadlines, as it gives an exact overview of the jobs that are ready to fill available capacity.

Just before the job goes to the press, the JobPilot in the PrintNet system receives all administrative data (order ID, customer), and technical data (the relevant printing parameters such as information about the product, the format, the press run, the paper, the number of plates) via JDF from the HIFLEX MIS. No manual entry of the job data into the PrintNet system is required. This ensures precision and matching data on the job tickets and the jobs stored in the PrintNet system. The press operator is shown the digital job ticket, before the job starts. Using this, he can check the current instructions on the job.

All print relevant data such as print runs, paper quality, paper weight (grammage) and a preview of the printing sheet are now available in the PrintNet system, coming directly from HIFLEX MIS. The scheduler carries out the rough planning of the job sequence. This means he can change the job sequence according to both job status and capacity by setting priorities.

JDF data is applied and used by the press system to identify and select templates with matching job specs of previously printed jobs. This allows presetting of additional parameters such as press ventilation strips or powder settings so that the press make-ready is much faster. So, for example, approximately 170 parameters can be loaded into a machine. The deployment of this HIFLEX JDF workflow leads to quicker machine make-readies and elimination of error-prone and redundant, manual press console data entry.

Once the printing process has begun, real-time feedback of the production progress, including machine speed, number of good copies and waste proceeds and percentage of job completion is sent via JMF back to HIFLEX MIS. This real-time reporting also flows directly and automatically into the HIFLEX Production Monitor, HIFLEX Scheduling and HIFLEX SFDC. Production planners and order processors are always informed of current order status. These scheduling screens are also viewable from anywhere inside of the plant or from any remote location. The JMF-feedback includes order number, sheet number, the current press status, speed, number of “good copies” and number of “waste paper”. Additionally, shop floor data that was fed into
HIFLEX’s Shop Floor Data Collection System (SFDC) is also visible in the HIFLEX Scheduling application.

Section VI. Additional Detail — We like to make our investments work hard for us and always endeavor to get most added values from our software and hardware, maximizing production capacity and without raising our overhead. Having invested in JDF technology, the integration was a natural step for us to maximize the effectiveness of our job flow from estimate to press. The quality of our print products is consequently higher, because the efficiency throughout production and administration has increased. We are very satisfied with the effects of the new JDF workflow and it is sure that the workflow will have a lasting effect on customer satisfaction and their loyalty.

Christer Ringbloom states: “Almost all jobs created through the HIFLEX MIS are sent directly to XMF, where the job is automatically generated, imposed and ready for processing. Jobs are placed in the XMF Workflow queue with many of the production settings, from pagination to imposition, predefined. This means that our operators don’t have to re-input these settings manually which of course saves time and reduces the margin for error.”

We have observed and received the following feedback from our customers:

- Response times to job inquiries could be reduced to 50% which had a direct effect to sales and customer satisfaction. This is thanks to the JDF structured estimate system (see screen on page 9).
- Thanks to the JDF structured MIS the production plan build in the estimate phase is much more reliable and secure. The rate of complaints due to production mistakes has been reduced by 80%.
- The overall order processing of orders is much calmer and less stressful in our company. Although we have decreased staff by 10%, we still have more time for customer contact being more relaxed.
- At the same time, the process control is significantly increased which makes customer’s demand for flexibility much easier to handle. This increased flexibility is expressed in customer loyalty. With 80% of our top-30 customers, we achieved an increase in our share of their print volume.
- With respect to pricing, the impact has been significant. The more cost effective production workflow allowed us to be more price-attractive to customers. The upcoming HIFLEX Web2Print solution, that we are preparing right now, will lead to even more automation on standard jobs which will give us an additional competitive edge in the price-driven market.
- Once the job is launched, we are more prompt and accurate in statements about production status because our JDF workflow provides optimal transparency. The number of phone calls by customers, looking for information, was reduced by 30%.
- The modern, professional XMF production system ensures a secure and fast processing of customer layout files. Problems of file processing are eliminated and we see this not only as a factor of production efficiency but of customer loyalty. More than 15,000 flawless files were processed that left a positive impression on our customers increasing their trust and satisfaction.
- Due to our more effective JDF production workflow, job turnarounds have been shortened by 25% and on-time deliveries are up nearly 90%.
- In case of customer’s ordering reprints, the search time for old layout data was reduced by 80% thanks to the JDF bridge between HIFLEX MIS and Fujifilm’ XMF.
Christer concludes: “We’re really delighted with the results that the JDF integration is bringing. We were also extremely impressed with HIFLEX MIS, Fujifilm’s XMF and manroland’s Print-Net and the way that they could all integrate in the open JDF workflow supported by HIFLEX MIS. From day one, the project involved a great deal of commitment from all parties, something which has ensured it’s been a successful integration.”