

*2012 Jürgen Schönhut Memorial
CIP4 International Print Production Innovation Award*

W&R Etiketten

Winner

**Biggest improvement in quality production
& customer responsiveness as a result of
process automation**

Executive Summary

W&R Etiketten
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The Netherlands
www.wr-etiketten.nl



Based in Tilburg near Breda in the south of the Netherlands, W&R Etiketten produces labels for various industries, ranging from food, transportation and logistics.

The company's turnover in 2010 was €6.2m and W&R Etiketten employs 39 people.

Its production equipment includes

- MPS EP 7 colours UV-flexo, delaminating/laminating unit, silkscreen unit, 410 mm wide
- MPS EF 6 colours UV-flexo, delaminating/laminating unit, 340 mm wide
- MPS EC 5 colours UV flexo, 340 mm wide
- MPS EC 3 colours UV flexo, IR dryer, 340 mm wide
- 2 Xeikon 3300 digital presses, with X-800 workflow, 5 colour press, 330 mm wide
- GM D-coat machine
- 5 Diecut machines FIT, 280 / 340 / 410 mm wide, also used for blank labels
- Leomat 280 mm wide

The prepress room is equipped with

- 2 Mac G5 workstations
- 2 PC workstations + pc running as ftp server
- Use of all standard programs
- EskoArtwork Desktop Illustrator / Photoshoptools
- FlexRIP, screening en Kaleidoscope color mgt. Software
- Automation Engine 10 of EskoArtwork

As for their Webshop, W&R Etiketten uses the Web4Labels application of CERM. The JDF-integration was setup between Web4Labels, CERM, Esko Artwork Automation Engine 10 (AE10) and the Xeikon press. The platemaking for the flexo presses is outsourced to their partner Athena Graphics.

Prior to the integration, the data transfer between the departments of customer service and the prepress department was entirely manual, resulting in double data entry and a high risk of errors.

Step & Repeat was performed entirely manual as well and there was no automated data collection from the Xeikon press to CERM. The integration has led to a bidirectional (JDF/JMF) connection and an integrated end-to-end solution covering the entire value chain from brand owner, to the administrative back office, prepress and production department.

This bidirectional integration is situated

- on "product"-level 'single label' (administrative data, colors, barcode, preflight, time tracking, approval status) between Web4Labels, CERM and AE10.

- on “production-job” level (step & repeat, data-capture, job-status) between CERM, AE10 and Xeikon

The “product”-concept is clearly an added value to the label printing companies. Each individual label is identified in a catalogue. As label printing is very much a repeat-business, time savings are enormous when you can fall back on this catalogue.

The benefits are the increase in overall quality in the preparation of the job-tickets which has led to a significant drop in the number of job tickets that cause errors at the presses or rewinders. Apart from the increase in quality is W&R now able to manage much more orders with the same amount of people. Quantities tend to drop down and number of different SKU’s tend to increase dramatically. This latter is a given factor coming from the market.

The Xeikon digital press was the answer to this need of the market. CERM and AE10 where the answers to the need for a faster throughput in administration and production to face the increasing amount of smaller runs and growing number of SKU’s. This had a positive impact on the average lead time of the jobs. The integration of Web4Labels has increased the customer loyalty, eliminated time consuming customer service and sales efforts that are not profitable for smaller orders and finally eliminated manual intervention on single proofs, follow up of proofs and S&R.

This gain in overall quality has been highly appreciated by the brand owners and the integrated workflow with Web4Labels was warmly welcomed by existing and new customers. It has led to a higher customer fidelity, less pressure on price and an image in the industry towards suppliers and customers as being a visionary printing company.

This document is the proof that JDF-projects are highly profitable even for small to medium sized family owned companies. It’s a proof that when moving to digital printing, JDF becomes a inevitable part of the workflow. When JDF-integrations are well described in white-papers between suppliers, a JDF implementation project can be executed very rapidly.

Section I. Background

W&R Etiketten is a Dutch label printer near Tilburg. When Mr. Willemsz took over the company some 20 years ago the company only had 1 press and has now evolved to a company with a very modern machinepark (see executive summary for the list of equipment). In 2009/2010 Mr. Willemsz decided to invest in a digital press to answer the growing need for smaller runs with lots of different SKU’s. This is a trend in label printing that he (and the entire label printing business) has been experiencing for quite some time.

Mr. Willemsz principal reasons to invest in this automation project were obvious. With his new Xeikon machine he was now able to give an answer to his customers, being able to produce short run label jobs. However his back office had to be organized in an efficient way to face this problem as well. The first objective was to be able to handle more jobs with the same amount of people. Secondly, he wanted to know and understand which jobs he would better run on his digital press then on his conventional presses. Making this choice was up till now being done with some ‘gut-feeling’ instead of being indicated with some real figures. And next to that he was looking for an end-to-end solution in which the brand owners, the back office (administration), prepress and production was integrated in a streamlined way and in which the repetitive manual tasks could be automated to avoid manual errors. This should lead to an overall quality improvement and tremendous gain in efficiency. With the latter solution W&R Etiketten wants to make the difference with other label printing companies.

That is why W&R went looking for the latest technology in workflow-automation. W&R had already installed CERM back in 2002. Being satisfied with this solution and having looked at other CERM installations, W&R decided to stick to CERM and talk to existing CERM-partners to select an integrated solution. Therefore, in the beginning of 2010, W&R invested in the AE10 of EskoArtwork. The use of

CERM had to be taken to a higher level as well to make it possible to integrate with AE10 and to benefit from all features from both suppliers. This re-engineering project was started in the beginning of 2010.

Q1/2010 – Business process & Manufacturing Environment – before re-engineering project

- Financially solid and fast expending company with growing focus on short-run digital labels.
- W&R Invested in it’s first digital Xeikon press.
- A Management Information System which is JDF-compliant, but those features are not used as there are no other JDF-compliant solutions in the company and use of the software is not 100% efficient.
- No cost & time transparency in the production processes in the pre-press department or the shopfloor.
- Need for a state-of-the-art prepress production workflow, where for now all tasks in the prepress department were done manually.
- No online facility for brand-owner interaction, except from FTP upload.
- Experiencing difficulties in following-up the proofing cycle of the growing number of SKU’s.
- No idea as to the prepress work performed on labels that are never ordered/produced.
- Customer service and prepress department involved in huge amount of re-keying of information from end customer, same for pre-press department: often dangerous.
- In prepress, no automatic way of doing quality control, due to paper-based order processing.
- No electronic scheduling
- No shop-floor data collection

Year 2010 – Equipment used

- CERM v6.1.60 MIS
- Illustrator & Quark editing tools
- Flexo Presses

Year 2010 – Brief workflow description

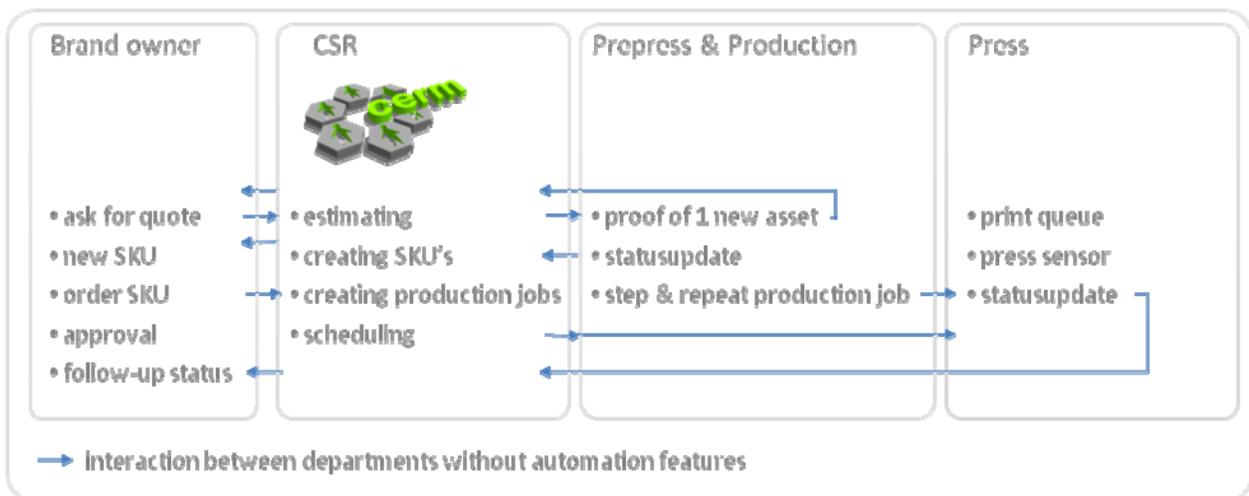


Figure 1. Year 2010 – Workflow presented prior to the start of the Re-engineering Project

It's obvious that when W&R Etiketten experiences a growing number of smaller jobs with multiple SKU's, the pressure on the Customer Service department was heavily growing. This because the administrative and prepress overhead per job remains the same, regardless of the size of the job. Statistics in section IV show the increase on data to handle.

The lack of integration between brand owner, back office and prepress-production and finally the press resulted in many tasks being performed manually by the personnel of customer service and the prepress department. Next to that, these tasks are very much repetitive so an ideal scenario for automating processes.

In label printing/packaging, automation is even much more possible than in commercial printing as production relies a lot on 'finished goods' references and reprints. The manual tasks performed by the customer service included:

- when making a quote, not being able to rely on quantitative figures to choose between digital or conventional
- having to make quotes for renewals puts extra pressure on the estimating department
- searching for artwork to make sure they are discussing the right product reference
- asking the prepress department about the status of the label (files arrived, proofed, proof ok ...)
- entering details of colors, ink percentages, barcodes and other by hand in the MIS
- transferring data for the single proof and the S&R to the prepress department by hand (CD)rom, email, 'paper' job-ticket and product-sheet), writing down existing data
- asking the prepress department to resend an existing proof when an order for reprint comes in, so that the customer is certain he/she is ordering the right product
- sending the proof to the customer and putting it in their proper 'todo' list for following up
- entering the data on a manual scheduling board, updating this board whenever a proof-status of a label changes and the status of the job in production changes
- all tasks related to purchasing paper, putting the job on the scheduling board, follow-up of multiple statuses

The manual tasks performed by the prepress department included:

- manually retrieving files and folders (stored on the prepress-operators individual computers, by filename!)
- re-entering administrative data on the proof or PDF-report: e.g. customer ID, product ID, customer name, contacts, address, substrate, label orientation, etc...
- Manually re-entering the Step & Repeat specifications in the interactive S&R application
- Rewriting technical information, time spend and status info into quality control sheet to send back to customer service.
- Paper-based scheduling of jobs and presses.

Section II. Objectives

The overall objectives of the integration project are twofold. On the one hand reducing administrative overhead due to growing number of smaller jobs, originated by changes in the market and led by the company's strategy to go for digital production. On the other hand, obtaining more insight in production figures by retrieving data from the different departments, without having to put data in manually during production.

Therefore the objectives can be categorized as:

- reducing administrative processing costs by consolidation of fragmented information
 - o being able to fall back on quantitative tools to make the choice between production digital or conventional
 - o having a tool for the brand owner to connect to W&R's back office

- eliminating double entry of data
- rendering information accessible throughout the organization
- collecting and centralizing the up-to-date product description in MIS
- reducing errors through standardization
 - in the estimating department
 - in the customer service department
 - in the prepress department, incl. plate-making
 - on the press
- automating tasks
 - estimating
 - preflight
 - the proofing cycle
 - aggregation of multiple SKU's on one platelayout (ganging)
 - Step & Repeat
 - prepress and production status feedback (job milestones)
- gaining a quantitative insight into the operations of the production department
 - quantifying time spent on getting an approved one-up production file
 - getting information back on the production at the presses (speed, uptime, time spend on a job, updating jobstatus)

In order to quantify the objective, W&R Etiketten collected some figures. In the statistics in Section VI we mention them as half-year figures, what makes it possible to compare the evolution during the last one and a half year. (1-6/2010 – 7-12/2010 – 1-6-2011)

For easier quotes and repeat quotes, brand owners - or by extension the sales representatives of W&R Etiketten who are at the customers-site, on the road or at the phone with the customer - should be able to make a new quote with a simple online tool. This will take some pressure off the estimating department, give the sales representatives a tool to be able to answer very quickly to the needs of the customer and improve customer loyalty.

Where new labels are concerned, W&R Etiketten should be able to save time primarily by reducing the input of data in the CERM product catalogue. This can be obtained in 2 ways

1. by giving the brand owner a tool to create new labels on the internet and upload the image. This tool will not work for all W&R's customers but for a well selected customer segment that is eager to use the latest technologies.
2. by retrieving as much data as possible from the prepress environment (and vice-versa) about product data and about changes in product status between EskoArtwork and CERM.

On job-level, we should be able to save time by sending data from CERM to AE10 about step & repeat and concerning the status of the job (S&R made, plates/platelayouts made) in the other direction. Cerm should provide a tool that helps the CSR to make the choice how to aggregate multiple SKU's to optimize the platelayout.

Proofing cycle in general should be much more automated looking at the dramatically increasing number of different SKU's (different labels). Primarily by means of customer interaction via the Internet and by task launching of the AE10 by CERM, and an automatic e-mailing system, alerting the customer that proofs are made and/or still expected for jobs scheduled on the press.

A quantitative approach in the prepress department is necessary to gain insight into the operations that are performed on the images which are not included in the initial quote and which lead to supplementary costs and to have an insight in the number of designs that were handled but finally not ordered. The duration (costs) of these is very much forgotten.

Information on status should easily be accessible throughout the organization, preferably on a central scheduling board. Information should be accessible for the brand owner via the Internet. Scheduled information should be provided in real-time and in a digital way on the shop floor. Shop floor information (clocking and consumption) should feed the post-calculation of the jobs and individual products.

Objective in HARD BENEFITS

Best-Case Scenario

Customer Service / Prepress	Item	Gain / item (minutes)	Number of Items per year	Gain / year (hours)
CS	Quotes	1 minutes	5,000	85
CS	Product ID-creation (MIS)	2 minutes	3,000	100
PP	Approval cycle	2 minutes	3,000	100
CS	Approval cycle	3 minutes	3,000	150
CS	Repeat jobs	2 minutes	3,600	120
CS	New jobs	2 minutes	3,600	120
PP	Automated S&R new jobs	4 minutes	3,600	240
CS	Follow up of proofing cycle	3 minutes	1,000	50
TOTAL				965 hours / year = 0.64 FTE

Worst-Case Scenario

Customer service / Prepress	Item	Gain / item (minutes)	Number of Items per year	Gain / year (hours)
CS	Quotes	1 minutes	3,000	50
CS	Product ID-creation (MIS)	1 minute	3,000	50
PP	Approval cycle	1 minute	3,000	50
CS	Approval cycle	1,5 minutes	3,000	75
CS	Repeat jobs	1,5 minutes	3,600	90
CS	New jobs	1 minutes	3,600	60
PP	Automated S&R new jobs	2 minutes	3,600	120
CS	Follow up of proofing cycle	3 minutes	500	25
TOTAL				520 hours / year = 0.35 FTE

Fig. II.1 Hard benefits objectives

SOFT BENEFITS

Apart from the quantitative benefits, W&R Etiketten desired an overall quality-improvement of the entire company. Quality relies for a big part on reproducibility. Reproducibility is certainly improved if information is stored into an MIS in an automated, reliable way. As stated before, a change to digital printing puts a lot of pressure on the CS-department. Taking this pressure away and having people at work with less stress was certainly a benefit that was set as a goal from the beginning.

Section III. Methodology

Phase 1 : Bringing the use of cerm to a higher level

Re-engineering the organization to optimize the administrative workflow is started Q1 2010. CERM gets ‘carte blanche’ to carry out the necessary organizational and workflow changes this company needs to fit in with the standard Cerm-workflow (see below). This workflow serves as backbone for the company.

Phase 2 : Integrate the use of cerm with the prepress workflow of EskoArtwork AE10

Once the backbone was put in place, the next step was to integrate the prepress workflow of AE10. Therefore W&R Etiketten obtained the necessary software, consulting and training of the EskoArtwork consultant together with the Cerm consultant. For this integration, there is a whitepaper available for AE10 – CERM integration customers.

Phase 3 : Connecting the Xeikon digital press with EskoArtwork AE10 and CERM

Meanwhile the digital press was put in production. AE10 was now able to make an automated step & repeat based on the JDF file coming from CERM. The stepped file should generate now an entry in the X-800 of the Xeikon press. On the other hand, real-time data and status updates should be send back to CERM.

Phase 4 : Integrating the Web4Labels application to come to an end-to-end solution

With the back office now fully organized and automated to a maximum, the first phase in order entry can be revised. The integration of the Web4Labels is the latest step to complete this end-to-end integration project.

Section IV. Implementation Story

Phase 1 : Bringing the use of cerm to a higher level

Milestone 1 : January 2010 - audit of existing workflow in administration. There was a simple audit held. Cerm presented the standard workflow of a label printing company and how CERM organizes this with their software according to Cerm’s best practices.

Milestone 2 : February 2010 - W&R Etiketten visited an existing CERM-customer having this workflow in place and was immediately convinced about the need of changing has actual organization to the one proposed. W&R Etiketten gives CERM ‘carte blanche’ to implement the standard workflow.

Milestone 3 : March 2010 - Standard workflow is being implemented at W&R Etiketten. All departments and people concerned where trained to a maximum. Falling back on a standard implementation scheme for labelprinters, training and consulting time could be kept to a minimum.

Upgrade to Cerm V7.01

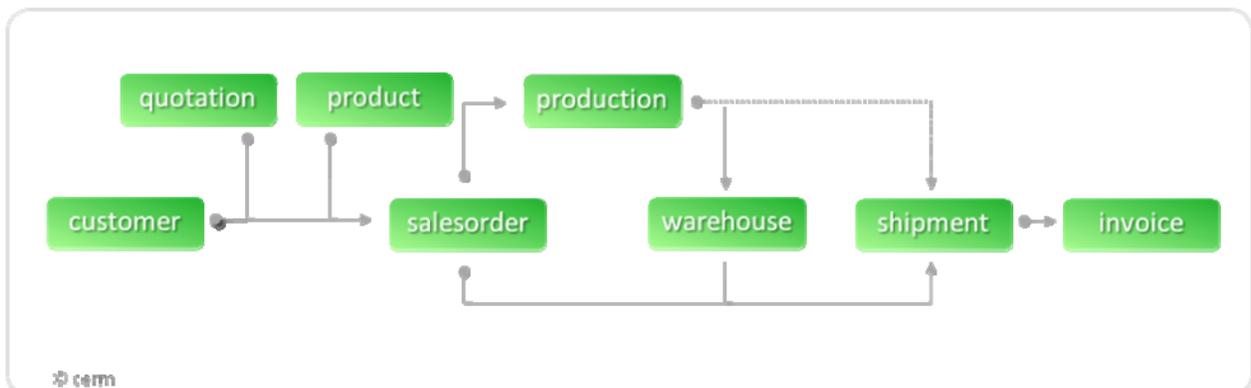


Fig. IV.1 Standard workflow according to Cerm’s best practices for labelprinters

Phase 2 : Integrating the use of cerm with the prepress workflow of EskoArtwork AE10

Milestone 4 : May 2010 until – EskoArtwork AE10 was put in place and training was started for AE10 users. Simultaneously, the JDF link was established with CERM. Proceeding to this project Cerm and EskoArtwork have written a white paper, describing the technical specifications, results and constraints of the JDF link between both systems. This white paper has been written based on previous experiences with similar projects. Being able to fall back on a whitepaper, gives consultants and customers tremendous advantages and time savings during the integration project. Within one day all JDF-exchanges of data between both systems were put in place.

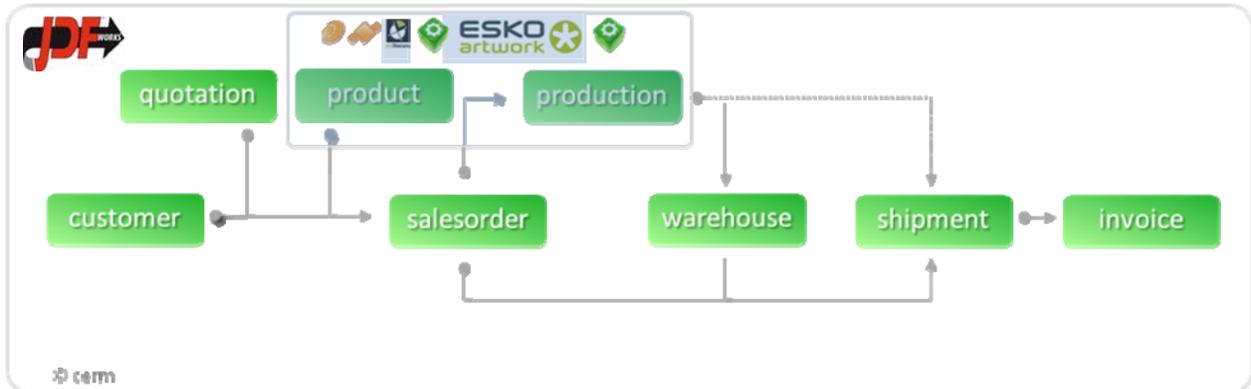
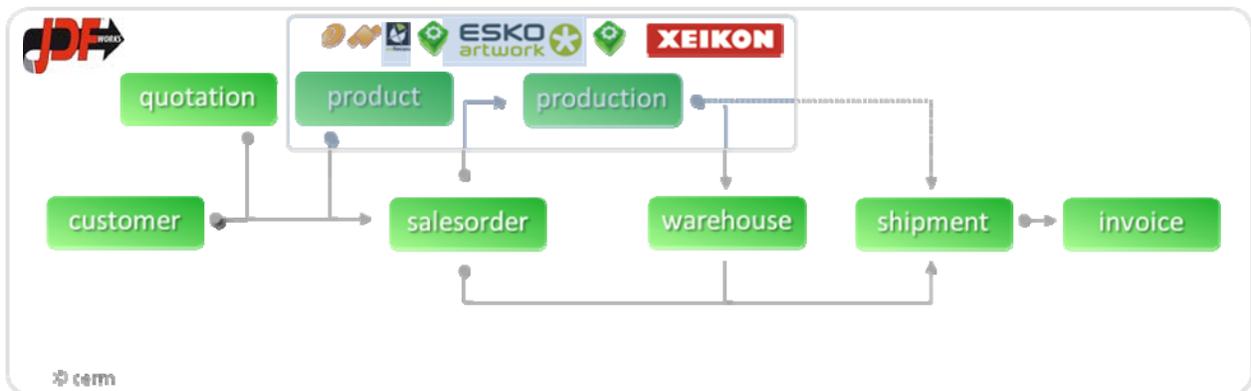


Fig. IV.2 Standard workflow showing the integration of EskoArtwork software

Phase 3 : Connecting the Xeikon digital press with EskoArtwork AE10 and CERM

Milestone 5 : November 2010

With the new Xeikon in place and being operational, connection with EskoArtwork and CERM had to be made as soon as possible.



Picture IV.3 Standard workflow shows where the Xeikon digital press clips on to the standard CERM workflow.

Phase 4 : Integrating the Web4Labels application to come to an end-to-end solution

Milestone 6 : Q1/2011 – the W&R Etiketten sales team is trained on how to show and communicate the benefits of the W4L module to their existing customers.

Milestone 7 : Q1/2011 – sales teams shows the W4L application to existing customers to get feedback from their customer base. The selected customers are enthusiastic and the initiative is highly appreciated. The specific webpage has still to be integrated in the existing website but is accessible with an intermediate weblink.

Milestone 8 : Q1/2011 – new website is put online that is much more appealing to the customers

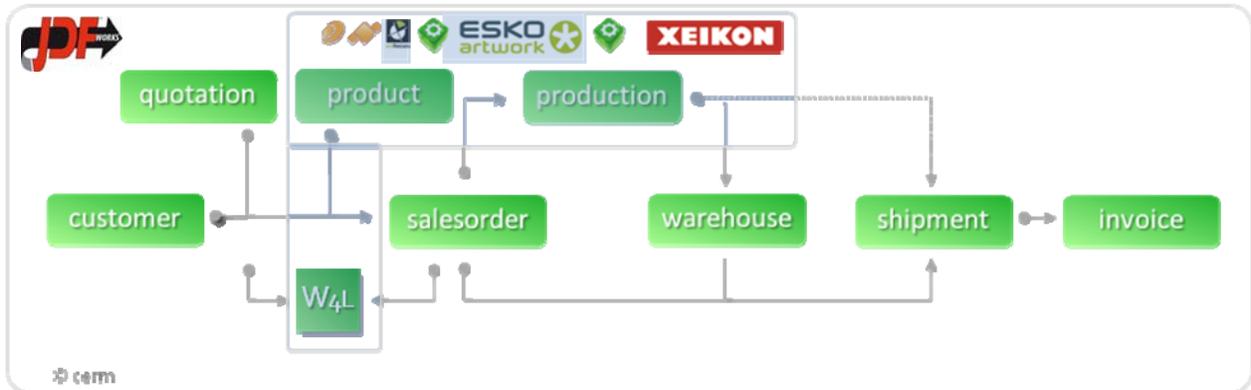


Fig IV.4 Standard workflow showing shows where the Web4Labels clips on to the standard CERM workflow.

Section V. Resulting Workflow/Processes

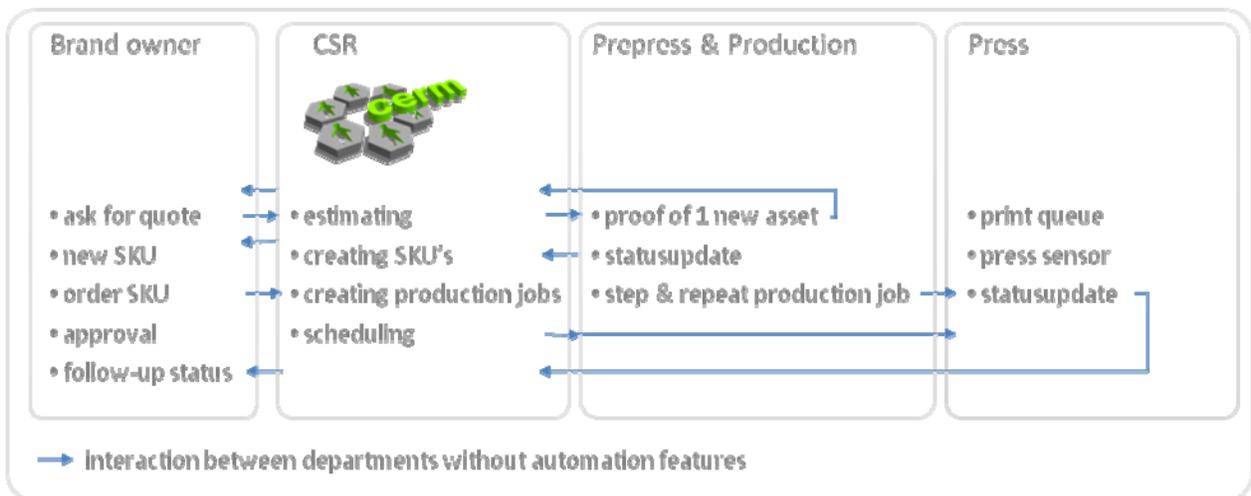


Fig. V.1 Workflow diagram at W&R Etiketten prior to the JDF integration

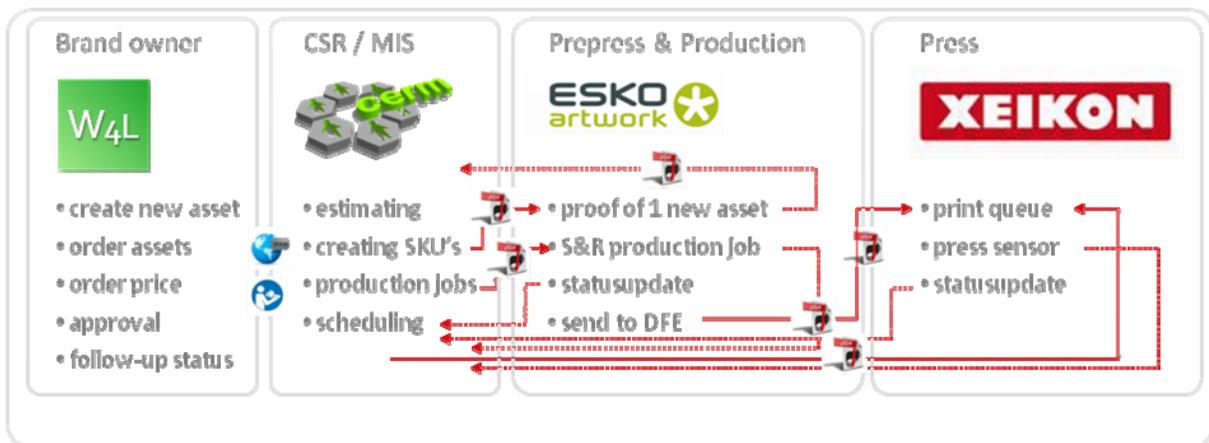


Fig. V.2 Workflow diagram at W&R Etiketten after the integration

Looking at the workflow, from left to right there are several steps in the standard workflow that are automated now, in most of the cases by using JDF/JMF integration.

Quoting

After the integration, brand owners (or the sales representatives) are able to make quotes online through the website for renewals of existing SKU's and for new labels, where before quotes were passed to the CSR through the traditional ways (mail, fax, phone call). The online quoting tool makes the comparison between the different ways of production for the label : traditional or conventional. Connection is made over the internet to the estimating engine, by use of web services.

For quotes that are not made on the internet, CSR now has a user friendly module available helping him to decide on which press the quotation should be made. Instead of doing this by 'gut feeling', the CSR has now a decision making tool, taking uncertainty away. Selecting the press, enables the system to send the right JDF-data towards the prepress and press.

The estimate made by the CSR can be put online and is immediately accessible for the customer so he can use it to order his SKU's. The line between customer and the company is much shorter that way; the customer experiences this as a user friendly service.

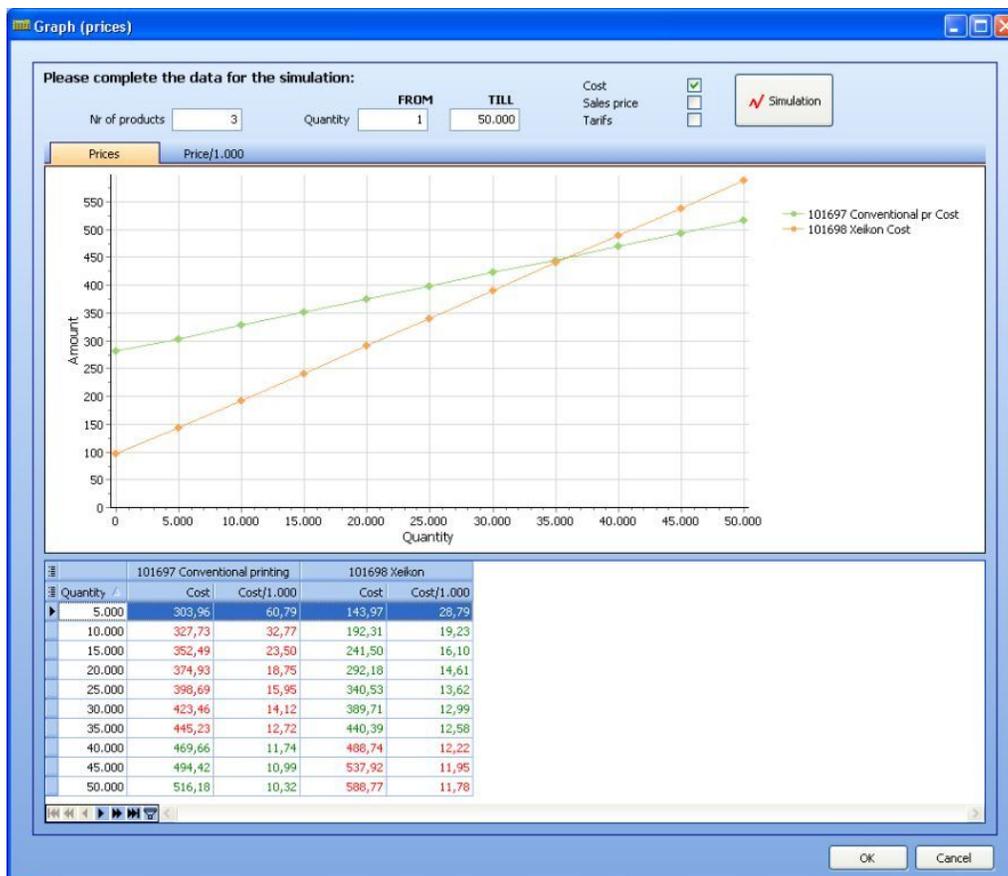


Fig V1.3 Shows the breakeven diagram of different production methods, used for quotation and jobcreation

New SKU

Within an existing family of SKU's, the customer can now create online a new SKU, identifying the label with all necessary references. Next to that an image can be uploaded.

Creating an SKU over the internet, will create the necessary file-structure on the prepress server and will create an entry in the CERM-database. When creation is done, the SKU is send by JDF to the AE10 workflow (without any manual interaction). Thanks to the task launching features now available in AE10 and CERM, CERM can start a ticket within the AE10 – application, again without any manual interaction, by sending a JDF-file. Depending on how the ticket is built, a number of tasks in the prepress department can be executed automatically like a preflight through an external application (Enfocus Pitstop), normalizing a PDF, extracting colors out of the PDF-file and sending them back to CERM (so the CSR doesn't have to type them in manually), creating low res thumbnails and a proof-report to visualize on W4L and in the CERM application, generate a status update and so on.

Within seconds the customers sees now online how the status of the product evolves. All this without any manual interaction from the CSR or the prepress department at W&R. These are huge time savings for the customer (he gets instant feedback) and for W&R Etiketten, where CSR and prepress department get time available for other tasks (or more jobs).

The customer has now the possibility to follow online the status of his individual SKU's and gets in an automated way an email notification of an SKU turns into the status 'PageProofed' (again through JDF). He then is automatically redirected to the online approval tool of CERM, to give his approval. (status update through JDF)

If the customer forgets to give his approval, he gets - again in an automated way - an email notification the day before printing is scheduled that one or more SKU's are pending for approval. One of the time consuming daily tasks of the CSR (checking the scheduling board for non approved SKU's, retrieving the proof, contacting the customer ...) is therefore taken over by this "approval engine".

Possible statuses are:

- DigitalArtUploaded
- DigitalArtArrived
- SizeNOK
- SizeOK
- PreflightError
- PageProofed
- PageApproved
- Pagerejected

For SKU's created by the CSR, there is as well a big improvement in time savings, as data is send to AE10, data is send back through JMF to Cerm and the instructions to the prepress department are now being done in a unified electronic way.

W&R etiketten							Log off
Your projects							NEDERLANDS FRANÇAIS DEUTSCH
Size	Products	Material	Printing	Description	Your project ID		
rechthoek 36 x 123 mm (radius 2)	5 products	PP gloss white tc permanent	Full color - digitaal	Etiketten 36 x 123 mm			
rechthoek 59 x 97 mm (radius 2)	3 products	PP gloss white tc permanent	Full color - digitaal	Etiketten 59 x 97 mm			
rechthoek 60 x 123 mm (radius 2)	13 products	PP gloss white tc permanent	Full color - digitaal	Etiketten 60 x 123 mm			
rechthoek 78 x 146 mm (radius 2)	2 products	PP gloss white tc permanent	Full color - digitaal	Etiketten 78 x 146 mm			
rechthoek 85 x 159 mm (radius 2)	21 products	PP gloss white tc permanent	Full color - digitaal	Etiketten 85 x 159 - digitaal			
rechthoek 95 x 170 mm (radius 2)	2 products	PP gloss white tc permanent	Full color - digitaal	Etiketten 95 x 170 mm			
rechthoek 95 x 210 mm (radius 2)	1 products	PP gloss white tc permanent	Full color - digitaal	Etiketten 95 x 210			
rechthoek 102 x 270 mm (radius 2)	2 products	PP gloss white tc permanent	Full color - digitaal	Etiketten 102 x 270 mm			
rechthoek 125 x 190 mm (radius 2)	10 products	PP gloss white tc permanent	Full color - digitaal	Etiketten 125 x 190 - digitaal			
rechthoek 135 x 255 mm (radius 2)	54 products	PP gloss white tc permanent	Full color - digitaal	Etiketten 1 ltr t/m 20 ltr.			
rechthoek 146 x 170 mm (radius 2)	1 products	PP gloss white tc permanent	Full color - digitaal	Tabzz Voorzijde			
rechthoek 148 x 341 mm (radius 2)	1 products	PP gloss white tc permanent	Full color - digitaal	Etiketten 148 x 341 mm			

Fig V1.4a Shows the W4L interface at W&R Etiketten

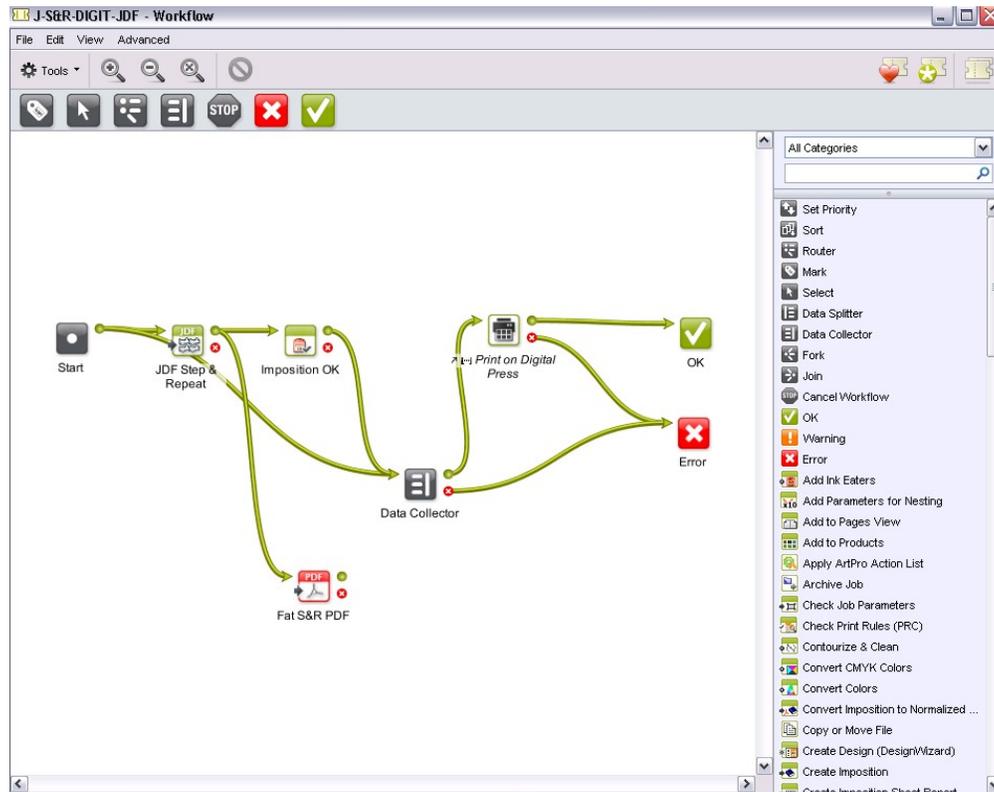


Fig V1.4b Shows the S&R workflow within AE10, that is launched through CERM by JDF using the Task launching features in AE10

Ordering SKU / scheduling / automated Step & Repeat

The customer can order now online his different SKU's, obtaining immediately the price of the order and an order acknowledgment. The same happens with sales orders being typed in by the CSR. Automatically an order acknowledgement is send, without manual intervention of the CSR. The customer experiences this as professionalism as he gets always in the same way an order acknowledgement, nearly immediately after placing his order.

The CSR can use a number of decision making tools to see which SKU's he can combine within the same job. Instead of looking all this up manually and combining them into one job, the software does it now for him. Next to that, the CSR can use a feature for ganging: putting different SKU's on one plate layout. This business decision making tool looks at the different quantities of the different SKU's and optimizes the S&R to have the minimum of plate changes (in case of flexo) and overruns (in case of flexo and digital).

Prior to the automation this was performed manually by the CSR on a piece of paper. This is a very critical aspect in digital label printing, since less rewinding, less overruns and less waste is needed when ganging. Time spent on ganging is now reduced to a fraction of it's original.

While creating the production job, all material is automatically reserved and the (possibly ganged) plate-layouts are send through JDF to the AE10. The job is being put on the scheduling board. Again through task launching the AE10 makes a fully automated S&R, applying the necessary colour profiles, curves and using all data linked to the SKU's (as they are both know in AE10 and CERM).

If the S&R can be fully automated, W&R Etiketten is sure that all parameters applied are the same as it was before which is a benefit looking at repeatability and reproducibility and overall quality improvement. Out of the AE10, CERM gets the necessary JMF-feedback on the S&R and the plate making that is visualized throughout the company. The status of the production job is being made available on the internet for the customer.

Aside from the time savings mentioned here, a gain in productivity is obtained through automated reservation of all material and the use of the electronic scheduling board.

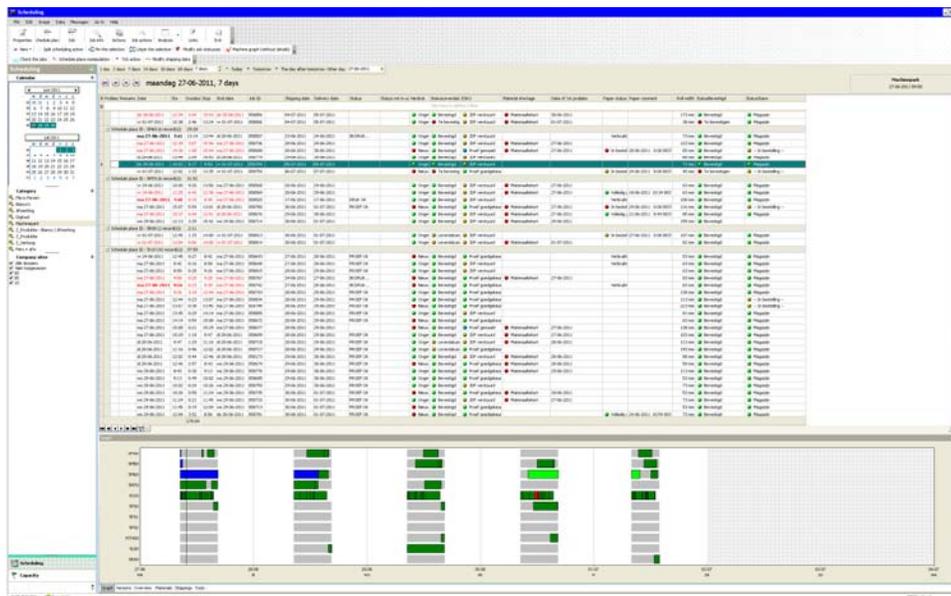


Fig V1.5 Shows the scheduling board with different SKU's and job statuses, made visible throughout the company by use of JDF / JMF.

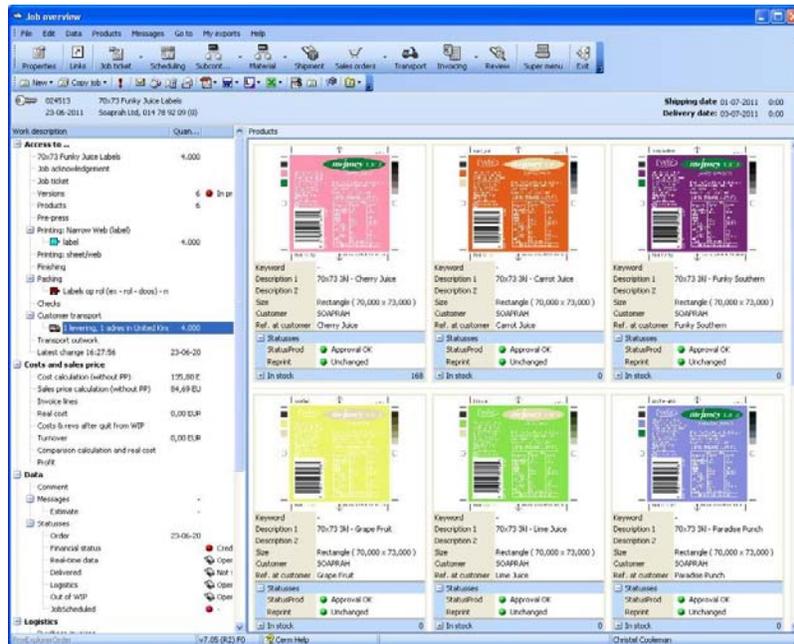


Fig V1.6 Shows the different SKU's within one job

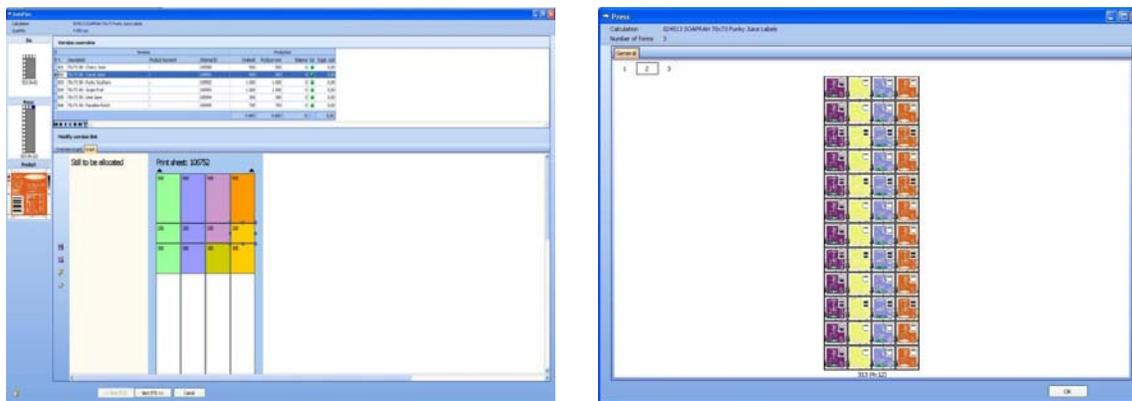


Fig V1.7 Shows the ganging feature within CERM called 'Autoplan' to optimize the plate layouts for automated S&R afterwards in AE10, initiated by the JDF link

Send to press

Out of AE10, the stepped file is send to the X-800 print queue of the Xeikon digital press. The press operator does not have to go looking for the files and rekey the stepping parameters anymore. The PDF is put in the right folder and put in the print queue of the press. This means again the there is no manual search or rekeying necessary to print the job.

The Xeikon generates the necessary JMF messages to update the status of the printing job and to generate insight in the speed of the machine and perform the necessary analysis on the performance of the press. Consumption is counted automatically when the papers' unique barcode is scanned. Fig V.10 shows a graph of the real-time speed of the machine that can be visualized to the operator or the manager of the department or company.

This information was not available in the MIS before. Before, clockings were mostly done by hand, what is not as accurate as electronically. Statusupdates are now available immediately.

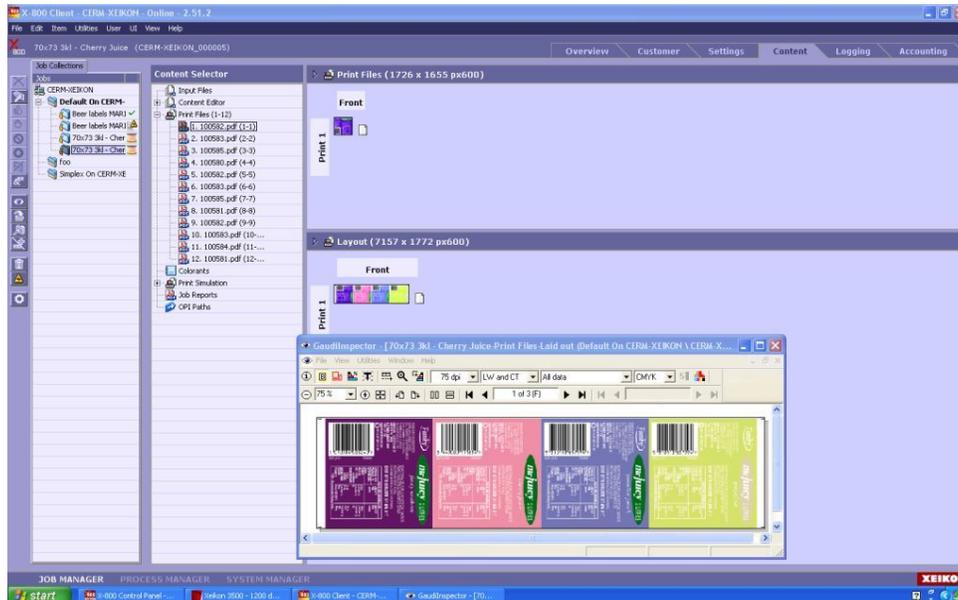


Fig V1.9 Shows the interface of the X-800 of a ganged printjob originated by CERM / AE10

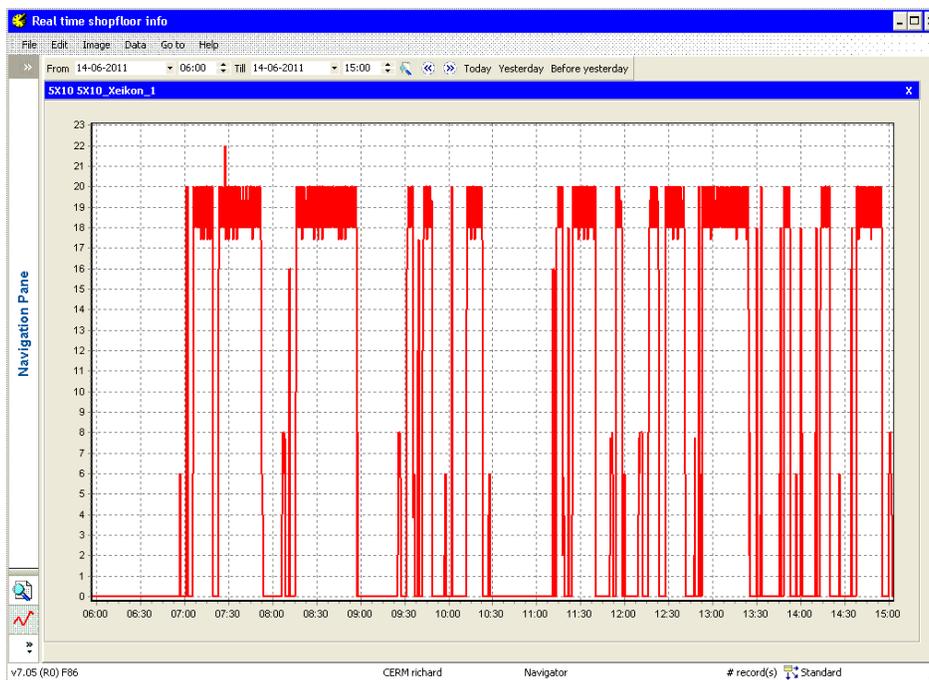


Fig V1.10 Shows a graph with realtime speedinformation coming back from the Xeiikon using JDF/JMF

Section VI. Optional Detail

- W&R Etiketten creates about 3,000 new SKU's per year, which means at least the same amount of single label proofs. In 2010 about 5.800 different SKU's where printed. The ratio between new SKU's and reprints is about 50/50.

- W&R Etiketten makes between 5,000 to 6,000 estimates per year. Applying the same ratio as above would mean about 2500 – 3000 estimates per year for reprints (but with different quantities and perhaps other number of SKU's)
- In total, W&R Etiketten has about 7.200 production jobs a year to produce nearly 8,600 sales orders. Combining or ganging different SKU's in 1 job is therefore important.

Table VI.1 shows the evolution of these numbers. First of all, there is a significant increase in number of estimates, new SKU's and sales orders. This indeed confirms the changing market trends and justifies the investment in digital. The average turnover per sales order drops 10% in the last half year. This is compensated by a growing number of sales orders. I need to remark that the last half year figures are slightly misleading since the last week of June is still missing. Most likely the average turnover per sales order would stay more or less the same.

The most remarkable trend in these numbers is the decreasing amount of production jobs compared to the increasing amount of sales orders. Nearly 45 % of all sales orders are being ganged in production jobs. This is clearly the result of the correct use of the software. A growing number of ganged jobs are good because it brings the administrative overhead down (less paperwork) and ganging means as well less overruns and thus less waste. In general, the added value per ganged job increases significantly.

number of	1st half year 2010	2nd half year 2010	1st half year 2011	increase in 1 year
quotes	2.346	2.669	3.038	29,5%
new SKU's	1.456	1.559	1.858	27,6%
diff. SKU's produced	2.657	3.087	3.468	30,5%
sales orders	4.221	4.428	4.988	18,2%
production jobs	3.897	3.348	3.475	-10,8%
average ganging %	8,3%	32,3%	43,5%	
turnover	3.068.954	3.188.352	3.225.190	5,1%
average turnover / salesorder	727	720	650	

Table VI.1 numbers of the last 3 half years

Given that this project mainly focuses on the digital press, W&R Etiketten should be able to rely nearly a 100 % on automated procedures. This is clearly the case, looking at the proof- and the S&R-workflow, 2 of the most time consuming parts of the jobs of the customer service and the prepress department. With this automation, even a growing number of jobs can be handled with the same crew.

The ROI is significant, with a payback period of less than 1 year.

Benefits taking into account are

- the saved man hours in customers service and prepress as stated in Fig. II.2
- increase in added value, due to optimizing of production (50 % of the companies new added value)
- a lump sum of 6.000 and 8.500 EUR respectively for less waiting times and fewer reruns
- less production jobs is less waste (50 m per job à 333 mm wide (=450x50/3 *0,5 EUR = 3.750 EUR / year)

We do not even take into account the savings of less overruns thanks to the ganged jobs. If we did the return would even be more significant.

Cash flow and ROI statement				
BENEFIT DRIVERS	YEAR			
		2010	2011	2012
	0	1	2	3
Benefits				
Recurrent savings in CS department 625 h x 35 €		21.875	21.875	21.875
Recurrent savings in PP department 610 h x 29 €		17.690	17.690	17.690
Increase in added value of 50 %		70.306	70.306	70.306
Fewer errors, resulting in less waiting times		6.000	6.000	6.000
Less production jobs is less waste		3.750	3.750	3.750
Fewer errors, resulting in fewer reruns		8.500	8.500	8.500
Total benefits realized		€ 128.121	€ 128.121	€ 128.121

Costs	Year 0	Year 1	Year 2	Year 3
Total	€ 15.000	€ 97.000	€ 28.500	€ 26.000

Benefits	Year 0	Year 1	Year 2	Year 3
Annual benefit flow	€ -15.000	€ 31.121	€ 99.621	€ 102.121
Cumulative benefit flow	-15.000	16.121	115.742	217.863

Discounted benefit flow	Year 0	Year 1	Year 2	Year 3
Discounted costs	€ 15.000	€ 91.509	€ 25.365	€ 21.830
Discounted benefits	0	120.869	114.027	107.573
Total discounted benefit flow	-15.000	29.359	88.662	85.743
Total cumulative discounted benefit flow	-15.000	14.359	103.022	188.765

Initial investment	Year 0	Year 1	Year 2	Year 3
Extra licence Web4Labels	€15.000	€0	€0	€0
Hardware CERM - extra servers	€0	€8.000	€0	€0
Implementation / training/consulting costs reengineering CERM	€0	€28.000	€7.500	€5.000
Ongoing support costs CERM	€0	€10.500	€12.000	€12.000
Investment in EskoArtwork for integration		€35.500		
Implementation / training/consulting costs EskoArtwork	€0	€8.000	€0	€0
Ongoing support costs EskoArtwork		€2.000	€4.000	€4.000
Internal project Management	€0	€5.000	€5.000	€5.000
Other costs	€0	€0	€0	€0
Total costs	€ 15.000	€ 97.000	€ 28.500	€ 26.000

ROI measures				
Cost of capital	6%			
Net present value	€ 188.765			
Return on investment		113%	178%	223%
Payback (in years)	0,48			
Payback in months	6,0			

Improvement in Quality and Customer Service:

The following feedback from W&R Etiketten has been experienced:

- Response times to estimates have improved thanks to an easy-to-use estimating module making automated comparison between digital and conventional presses
- Easy-to-access W4L module enables customer to make easy quotes for reruns, which is in label printing nearly 50% the case. This has been highly appreciated by the customer base and is an extra motivation for the sales people to attract new customers
- Out of the estimating module comes automatically a technical description of the SKU, that is now much more reliable. This has had a positive impact on the reproducibility of an existing SKU and has led to less production mistakes
- The overall order processing has improved significantly, the same amount of people in CSR are capable of handling a sales order growth of 11 % over the last half year
- The ganging of jobs gives W&R a competitive advantage
- The CSR has immediate access to the status of a sales order or job and is now able to give the customers an immediate answer
- Customers can look directly into the system to consult the status and place an order. There are no figures available at this point, but this will lead to fewer phone calls and less pressure on the Customer Service Department
- Due to the more effective JDF workflow, on-time deliveries are up to 90%

The innovative aspect of this use case can be summarized as follows

- it's a state-of-the-art JDF integration with 3 important players in this niche market
- the integration is based on a standard workflow and is therefore easily repeatable in the future
- this case shows that an automated workflow is indispensable in the competitive digital label printing market and that JDF shows the way in this.

Comment from Mr. Jack Willemsz

“Thinking out of a changing market, you cannot escape from a far-reaching automation. Smaller runs, shorter lead times and an ever growing degree of diversification originated by the brand owners ask for an efficiently automated workflow. To obtain this, the overhead costs per job must be kept as low as possible.

To optimize the production process, we needed insight in the inventory, (material) costs and (production) times. Thanks to CERM, EskoArtwork and Xeikon we now have created an optimum workflow and we have the necessary tools in hands to steer our growth and to optimize it.

This far-reaching automation of the different systems has given us above all an organizational structure that is ready to face the new challenges of the fascinating business.

The improved service towards the customers has a positive impact with existing customers and towards potential customers. This will encourage a growth, without investing 1 cent in extra sales forces. Automation stimulates even our sales !”