The Westdale Press Limited
The Westdale Press Limited, Cardiff, Wales, UK. Submitted by Alan Padbury, Managing Director.


Background: Situation before implementation of new JDF based Color Management Workflow:
- Old Workflow could not be integrated into the closed loop Color Management Workflow including presses, CtP and proofing device
- Postscript workflow, advantages of a specialist PDF system are not given
- No capturing of set up data for repeat jobs
- Manually measuring, no quality reporting
- Existing CtP capacity too low

Strategic targets associated with Prinect implementation
- Maximum Productivity with minimum set up time and waste material
- Two additional perfecting presses had to be filled with jobs out of prepress
- Need for a integrated Color Management system
  - Greater throughput of plates and proofs
  - Improved method of producing colour consistency and proof matching
- Need for a fast PDF based workflow system
- Preparing The Westdale Press Limited for JDF integration with MIS and production systems

Results achieved
- Higher quality consistency on all presses throughout all print runs
- Establishment of a Total Quality philosophy based on a standard applying to every job
- Use of Satin screening enabled us to retain customers with high value print jobs
- Less downtime with plate re-makes
- Savings in make ready time on our sheetfed presses of up to 2.5 h 7 day
- Reduced paper waste (annually 68 tons of saved waste paper)
- Reduced ink usage (via quicker makeready times and the use of satin screening)
- Elimination of 100 % of cost of non quality (complaints due to color deviation)

Financial result achieved:
- € 1.335.707,68 in savings
- 157 % Return on Investment after a 3 years depreciation time
- Break Even after 14 months

Company profile/Company structure and background — Westdale Printing Group Limited is a private limited company, which operates five wholly-owned print-related subsidiary companies all based in Cardiff: The Westdale Press Limited, Double Six Press Limited, Bay Graphics Limited, East Moors Bindery Limited and Inkompass Limited (for further clarification, please refer to our Group Structure & Information document herewith).

From our beginnings in 1984 as The Westdale Press Limited specializing in sheet-fed colour printing, a series of expansion programmes has enabled development of the sheet-fed plant and the addition of heatset web offset presses, a digital reprographic business, an extensive bindery with mailing facilities and the move into dedicated print management. Today, our Group offers the most comprehensive and versatile print production service in Wales and is recognised throughout the UK as a significant printing operation. In 2004, Group turnover was £14,800,000 with 140 staff employed across three Cardiff factories.

We are justly proud of our reputation for competitively-priced, high-quality leaflets, brochures, report and accounts, catalogues and prospectuses, achieved through continuous investment in new technology and a dedicated, expert workforce.
Group structure & information —

The Westdale Press Limited
Main trading company and web printing
Reg. No. 1787743

Inkompass Limited
Print management
Reg. No. 3757057

Westdale Printing Group Limited
Reg. No. 2457035

Double Six Press Limited
Sheeted printing
Reg. No. 4121706

East Moors Bindery Limited
Print finishing and mailing
Reg. No. 3764097

Bay Graphics Limited
Pre-press graphics and platemaking
Reg. No. 2082365

Organization chart —

Jill Cundy
Commercial Director

Bernard Atkins
Financial Director

Alan Padbury
Managing Director

Dean Pike
Deputy Managing Director

David Deere
Director

Colin Wilsper
Non-executive Chairman

Ian Davey
Group Quality Manager

Bay Graphics Limited

Sion Davey/Chris Jones
Pre-press Manager

Sheeted Shift Supervisors
(3)

Jonathan Chapman
Transport Manager

Jeff Gardener/
Dennis Keller
Bindery Managers

The Westdale Press Limited

Ian Brown
Customer Service Manager

Kevin Metters
Senior Estimator

Sales Representatives
(5)

Web print operatives
(20)

Web print operatives
(20)

Pre-press operatives
(20)

Pre-press operatives
(20)

Sheeted print operatives
(8)

Bindery operatives
(49)

Account Handler
(2)

Estimators
(2)

Account Staff
(2)

Administrative Staff
(5)

Key Account Handlers
(5)

Description of current Workflow/Workflow description (see 2.2.2 for Workflow chart) — Westdale entered the world of digital reprographics in 1994 with a Crosfield-based Sun Sparc system linked to an imagesetter, which produced film for assembly via our planning department for conventional plate-making. Rapid developments within the digital sector saw the decline of film-setters and, eventually, Crosfield as a pre-press vendor.

Consequently, the decision was made to change our pre-press supplier to Creo-Scitex, who produced a very stable method of producing imposed final film via their Brisque Impose workflow. The Dolev B1
filmsetter purchased with the system was used as a stepping-stone in the speedy progression to computer-to-plate outputting and the installation of one of the first Lotem platesetters in the UK. Further investment followed, resulting in the creation of our own custom-built pre-press department, providing showroom conditions for the Creo-Scitex digital reprographics equipment.

This digital workflow revolved around the creation of PostScript files from documents supplied in their native programmes, for example QuarkXpress. These PostScript files were processed to produce ripped files in the Creo-Scitex CT/LW proprietary format, which, in turn, could then be used to produce proofs or imposed via preps and output directly to machine plates.

Workflow chart —

![Workflow Chart](image)

The Creo Scitex equipment soon established itself as a reliable workhorse providing steadfast service over a number of years.

**Issues to be resolved —**

<table>
<thead>
<tr>
<th>No.</th>
<th>Issue</th>
<th>Priority</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Existing Brisques Workflow was not PDF based → Brisque processes PDFs, but advantages of a specialist PDF system are not given</td>
<td>B</td>
</tr>
<tr>
<td>2</td>
<td>Efficiency of manual Color Management including Heidelberg Presses and Creo/Scitex Prepress Workflow too time consuming → no closed loop Color Management available for that workflow</td>
<td>A</td>
</tr>
<tr>
<td>3</td>
<td>CtP device with 8 plates per hour became major bottleneck after installing a new Heidelberg Speedmaster SM102-10 color press</td>
<td>A</td>
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<tr>
<td>4</td>
<td>Capturing setup data for repeat jobs for all involved devices was not possible</td>
<td>A</td>
</tr>
<tr>
<td>5</td>
<td>Quality reporting on print jobs and protocols of deviation Proof to Print is impossible without manually measuring hardcopy of Proof</td>
<td>B</td>
</tr>
<tr>
<td>6</td>
<td>Tracking of jobs time consuming and not reliable, therefore plans to integrate all devices and workflow components</td>
<td>A</td>
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**Objectives:** Strategic targets associated with Prinect implementation — In order to maintain a competitive edge and ensure on-going business success, Westdale's objective was to source a new, more efficient pre-press system. A radical re-think of our existing system was triggered by:

- Increasing pressure from customers with regard to turnaround times
- The addition of two new Heidelberg sheetfed perfecting presses, which put ever-greater demands on our already-stretched pre-press department
- The need to provide a fast PDF-based workflow system as, despite continual upgrades, the PostScript workflow was beginning to show its age

**Key objectives of the new system:**

- Increased output of proofs and plates
- The need to complement out sheetfed and heatset web press line-up whilst resolving all issues presented by the existing system
- Improved colour consistency and proof-matching on press

With these objectives in mind, Westdale began to consider options available both from Creo-Scitex and other suppliers and drew up the following list of required capabilities.
Capabilities of the new workflow system — In order to meet our requirements the new equipment should preferably be able to:

<table>
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<tr>
<th>Criteria</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
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<tbody>
<tr>
<td>Greatly increase the hourly output rate of plates to supply a new press line up.</td>
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<td>x</td>
</tr>
<tr>
<td>Improve image registration to reduce make-ready times and improve print quality.</td>
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<tr>
<td>Efficiently process and impose PDF files and supply the ability to edit and adapt supplied files to enhance print quality and reduce downtime costs - E.G. trapping and colour editing.</td>
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<tr>
<td>Streamline the pre-press process with a user friendly interface that would allow a seamless transition from a PostScript based workflow. The system should be user friendly to reduce reliance on highly trained experienced staff that commanded high wage structures.</td>
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<tr>
<td>Produce fast, consistent and accurate hi-res proofs that could be reliably matched and measured on press. The objectives being to improve our colour management, increase consistency, enhance customer satisfaction and reduce paper waste.</td>
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<td>x</td>
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<tr>
<td>Provide automated archiving to remove reliance on manual methods. The aim is to reduce the labour costs involved in archiving large amounts of Data to CD. Fast and accurate retrieval of archived material.</td>
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<tr>
<td>Provide alternative screening technology - particularly the provision of stochastic or frequency modulated screening. The aim being to provide an alternative for more discerning clients - maintaining our market share and to take advantage of efficiencies gained from ease of registration and reduced ink usage.</td>
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<td>x</td>
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</tr>
<tr>
<td>Demonstrate the ability to harmonise the production processes - removing departmental independence and help bring a unified approach to print production.</td>
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<td></td>
<td>x</td>
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<tr>
<td>Be supported by a reliable, proven and established service network that would support our 24 hour operation at an acceptable cost.</td>
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<td>x</td>
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<tr>
<td>Not be constrained by the effects of proprietary products and their associated high costs.</td>
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<td></td>
<td>x</td>
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<tr>
<td>Be available at a competitive cost providing good return on the investment made.</td>
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<td></td>
<td>x</td>
</tr>
<tr>
<td>Provide measurable and recordable results that can be documented throughout the print production process.</td>
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Methodology: Integration technology available — Once the above list of required capabilities had been established, Westdale met with a number of suppliers, including Heidelberg. Heidelberg's new Prinect Printready System range of products appeared to be based on a common goal of harmonising the various processes required in print production via a JDF-based integrated workflow.

System considered — The Prinect system was presented via a series of comprehensive demonstrations to highlight the following apparent advantages to Westdale:

- Prinect Printready System would provide a flexible PDF-based pre-press solution, enabling efficiencies in time and cost throughout the pre-press process
- Suprasetter, Heidelberg's high-speed plate setter, would provide out-putting speeds nearly 4 times quicker than Westdale's existing devise
- The integrated and finger-printed colour management system would greatly enhance our ability to match proofs on press thanks to programmable finger-printing of countless paper stock characteristics
- Colour control provided by the Print Colour Management facility plus the implementation of Prinect Image Control software would guarantee a standard print colour process
- The speed and accuracy of data capture and exchange between the Prinect Image Control console and the press would ensure consistent control and measurement of colour throughout the print run
By utilising JDF-based information throughout the system, the downloading of data to control ink key settings would provide a head-start in the make-ready process, generating cost savings both in terms of paper usage and time on press.

The constraints of a closed or proprietary system would be removed thanks to the JDF language enabling the integration of products from different suppliers.

By combining a JDF-based MIS with Prinect Printready system, the entire print production process could be encapsulated, with up-to-date information flowing freely between all departments, however disparate.

The unity and close cooperation of Heidelberg's pre-press and press systems presented a strong case to Westdale for a complete production solution. Boasting an all-Heidelberg press line-up, we were particularly interested in:

- The JDF-based workflow, which offered the possibility of linking all key production processes.
- The colour management system, which presented greater accuracy, flexibility and simplicity of use compared with other systems looked at.

**Decision criteria** — A completely open mind was kept throughout the decision-making process and applied equally to all suppliers. Although we did not wish to restrict any decision to a pre-determined set of criteria, we considered the key capabilities as outlined in section 2.1 above to be of paramount importance to our final decision and worked purely towards finding the system that best met these requirements.

**Decision** — Westdale chose Prinect Printready System over its competitors based on its apparent ability to meet all of our requirements and objectives. Our decision was further supported by Heidelberg's reputation for service and support, experienced at first hand over many years as Westdale's primary press supplier. An important factor in our decision was the link between press and pre-press which, in our opinion, would help to unify these two previously disparate ends of our business. Moreover, we considered the benefits of JDF information exchange utilized in much of the system to be a forward step for the future, offering the ability to enhance and streamline the production process.

**Implementation Story** — Project plan and timeline — All procedures within Westdale are based on a Plan-Do-Check-Act cycle, hence, each stage of the installation process was planned in advance, with contractors and suppliers chosen following site visits to determine the suitability and logistics for housing the new equipment. The installation programme was designed to ensure minimal disruption to our business, thereby avoiding any adverse affect on production schedules or customer satisfaction. Once implemented, the programme was continuously monitored and adjusted where necessary to accommodate unforeseen events as they arose. Time allowed for the completion of the project from site preparation to initial production stage was around 8 weeks.

**Milestones** — The project plan had four main stages as outlined in the diagram below. Each stage of the plan would represent a milestone in the installation process.

**Critical path** — Because of the fact that the Heidelberg Suprasetter thermal platesetter was to be the first unit in the UK Westdale kept its existing equipment running in order to avoid any downtime caused by at least a degree of trouble that can be expected with a product that was new to the market. Consequently a time sensitive critical path became less of a priority and gave breathing space to both parties.

**Project plan** — Westdale were initially more concerned with the quality of the installation as opposed to the speed of the installation. However regardless of this contingency plan a pre-installation meeting was
held between Westdale and Heidelberg representatives to relay our requirements and determine a coherent and unified approach:

- **Project Manager**: The appointed installation project manager of Heidelberg was introduced and arrangements made for site inspection prior to the installation.
- **Network**: Networking requirements were the need to link the existing pre-press equipment to the new being established as a high priority, a network specialist would do the installation of the hub and networking required for the new system.
- **Electric**: The electrical contractor was chosen to prepare the site for installation.
- **Hardware and Software**: Heidelberg outlined the necessary requirements for the Apple Mac based Prinect Printready System cockpits, Westdale sourced the required hardware and software.
- **Diagram/Site plan**: A diagram or site plan of the proposed installation was laid out so that the studio could be prepared in advance of the installation date and to avoid any incorrect positioning of vital sources of power etc. The diagram also detailed actual power requirements to avoid any delays at the point of installation.

**Timeline** — The decision was made to purchase the Heidelberg Prinect Printready System in May and following the DRUPA exhibition 2004 the installation dates were quickly agreed. Timescales were very tight with Heidelberg keen to install the new system as soon as possible. Heidelberg gave Westdale a tall order with only three weeks lead time to prepare for the installation. However because we were purchasing the new Heidelberg Suprasetter which would not be ready for immediate delivery it was agreed that an alternative loan image setter would be supplied.

**Installation** — Installation of the hardware was a fairly smooth exercise. The finer points of the actual install were accompanied by the usual teething troubles associated with new installs. Some third party products however caused frustrating delays. The actual installation took approximately three weeks to complete. The existing equipment covered our production requirements during the installation and acted as back up until very recently. By utilising the two systems Westdale ensured minimum disruption to their client base.

Having completed the installation a degree of networking issues were encountered which proved a big issue to overcome. The usual in-experience by operators with new equipment played a part in the early months of the new installation. Procedures and relationships with the new manufacturer took time to establish. Service response times were questioned and procedures established.

**Training and testing** — The training schedule for Westdale was difficult to arrange based on the shift patterns that are worked here. However a duly considered schedule for on site training was established and split into two prioritised groups:

1. The first priority group were the two supervisors and five Number One operators who are required to be able to run the entire system.
2. The second priority group were the Number two operators or Mac operators that process files up to the imposition stage.

Training was extended due to the number of staff involved and did require several site visits and the use of a team of trainers. Training was hampered by a few installation problems which meant that trainers spent time fixing some initial problems with the equipment.

The fact that the equipment was completely new to the operators did present a challenge but the required progress did materialise with trainers supervising a period of live production at the end of the initial training period. Operator experience continues to increase enabling more extensive use of all facets of the system.

Training for the Prinect Image Control was carried out at our offset press site *Double Six Press Limited* following an extensive PCM service (Print Color Management service). All operators received introductory training which was again supervised through a period of live production by on site specialists to establish competence and confidence in the use of the system. Procedures for the accurate use and recording of color control procedures were established.
Experience gained from previous installations meant that Westdale presented a demanding set of test procedures once the equipment had been installed. Accurate calibration of the imagesetters and proofers were a vital component in achieving the desired end result. Once the PCM had been completed the final calibration with definitive curves and profiles were archived to a master disk for emergency back up and as a reference point for further developments.

*Installation and configuration* — Now finalized our current installation configuration consists of three Prinect Printready System Cockpits working via a central server that create imposed files relayed via JDF information created on the Prinect Signa Station. The imposed PDF-files are processed via Prinect MetaDimension (RIP) where a decision is made to output to either the Suprasetter or Topsetter which each have their own MetaShooter (imaging software console).

The configuration has given us a very big outputting capacity in terms of numbers of plates per hour. The plate outputting capacity does however now out run the proofing capacity quite considerably with the proofing speed becoming the weak link. The HP5500 provides Hi-resolution proofs at a much faster rate than the previously employed Iris.

Archiving is automated via Super DAT drive which provides huge data capacity but retrieval has been problematical. As an ideal the archiving system sounds very good but in reality needs improvement.

*Obstacles* — Many issues have been resolved as part of a combined team effort between Westdale and our subsidiary repro company Bay. The main outstanding obstacles that need to be overcome can be limited to four main points and are defined as:

1. Increased system wide stability with less downtime due to file corruption and system failure.
2. Improved duplex proofer performance - either in the form of a superior more reliable machine or an upgrade to the existing version.
3. Improved archiving facility - the archiving and retrieval needs to be drastically reviewed to increase.
4. Improved service support and improved engineer knowledge of all aspects of the system. The current service provision does not support 24 hour constant working and call out response and part availability sometimes letting the overall experience down.

**Resulting Workflow/Process:**

- **Best cost/benefit realization as a result of process automation implementation:**
  
  Quality improvement achieved — Due to the installation of the Prinect Color Management components and the services performed at our side to calibrate proofing devices, CtP and presses, enabled the following quality improvements:

  1. Following the PCM and the calibration process far less colour matching issues were encountered on press with greater customer satisfaction and less spoilages.
  2. Consistency of colour throughout print runs became far more achievable with the use of Prinect Image Control.
  3. Make ready times were reduced as a result of Prinect Image Control which provided an accurate reference point for the printer and a source of consistent control throughout the run.
  4. Settings for individual print runs could now be easily stored and recalled which improved the accuracy and speed of repeat work.
5. The use of Satin screening was enabled by the perfect calibration of the press and allowed us to retain existing customers that were keen to see their work produced with this technology and opened up possibilities of new work from clients that insisted on this form of screening as a standard.

Savings — The Westdale Press was able to achieve these savings based on the following Heidelberg presses: Speedmaster SM 102 10 Color, Speedmaster SM 102 12 Color, Heidelberg Web 8 und Heidelberg Web 16. The Savings enabled by the Prinect Color Solution include the following areas of improvement and figures:

1. Less downtime with plate re-makes
2. Faster makeready times: by analysing the data returned from the press hall for the same titles - printed before and after the installation of Prinect Printready System - we can confirm that a 15 minute time saving per makeready is being achieved. This could potentially produce on average 2 and a half hour per day in machine time.
3. Reduced paper waste (annually 68 tons of saved waste paper)
4. Reduced ink usage (via quicker makeready times and the use of satin screening)
5. Elimination of 100 % of cost of non quality (complaints due to color deviation)

Return on Investment (discounted to the date of the investment)

<table>
<thead>
<tr>
<th>Year</th>
<th>Investment In €</th>
<th>Depreciation In €</th>
<th>Savings In €</th>
<th>Net Savings In €</th>
<th>Discounting factor</th>
<th>Discounted benefit In €</th>
<th>Return on Investment In €</th>
</tr>
</thead>
<tbody>
<tr>
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<td>851.122,65</td>
<td></td>
<td></td>
<td></td>
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<tr>
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<tr>
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<td>2.350.226,70</td>
<td>1.499.104,05</td>
<td></td>
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<td>1.335.707,68</td>
</tr>
</tbody>
</table>

The benefit of the features of the Prinect Color Solution at Westdale leads to a Return on Investment of 1.335.707,68 €. That leads to an interest of 157 % for the depreciation timeframe of 3 years! The amortization time for the investment is 14 month.

Beyond the above mentioned savings there is additional savings potential based on the new workflow due to the higher capacity and new capabilities of the new Prepress workflow. These savings are not factored into the calculation since they do not relate back directly to the investment into the Prinect Color Solution, but are a side effect of that investment.

1. The Prinect Printready system allows greater throughput of work enabling larger pagination jobs to be processed a lot quicker especially when combined with the faster proofing and plate output capacity.
2. An immediate improvement was realised with the improved register of image on press when using plates produced on the Topsetter when compared to those produced on the exiting equipment. Fewer plates had to be re-made to counter register problems and therefore less downtime and operator frustration was being incurred.