> If my books had been any worse, I should not have been invited to Hollywood, and if they had been any better, I should not have come.
>
> *– attributed to Raymond Chandler*

Dear Reader,

We live in momentous times. This year we've seen the Arab Spring, the Euro crisis that has claimed the heads of at least three European prime ministers so far, and continuing uncertainty in the printing and publishing industries. What next one wonders?

What next is up to all of us to decide and pursue, regardless of the turbulence surrounding us and our businesses. The harsh economic environment is something that we all must face, alongside the limitations of our own abilities and efforts.

The only answer is to look for inspiration and to put new ideas into practice as well as you can. The technology is there for it, and the suppliers are willing to work with you so let's all just get on with it. We may not feel particularly inspired, but at the very least it's what our customers expect.

Enjoy!

Laurel, Nessan, Paul and Todd

In This Issue

Don't stop now

Nessan Cleary has been to see both mono and colour versions of the Kodak Prosper press and is impressed by the print quality. But Kodak still has to persuade paper mills to develop suitable papers and deal with its own business issues.

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Because I am Just a Cloud, a Cloud

Laurel Brunner looks at cloud computing and how this is starting to impact the printing industry, with a number of industry suppliers looking to the cloud to provide services. This includes everything from MIS to workflow.

see page 17

The Seven Pillars of Digital Prepress

Laurel Brunner analyses the skills necessary for printers to survive in the digital age. Not surprisingly, knowing how to get the most out of the Internet and cloud-based computing plays a big part in this, as well as a better understanding of providing print as a service, rather than a product.

see page 23

Regular Features & Special Treats

News Focus

MGI has released a new digital printer, the Meteor DP8700 XL, which takes paper from 70 to 350gsm and plastic up to 400 micron.

It runs at 71ppm and claims a monthly duty cycle of 600,000 pages. It comes with a Fiery RIP, a built in light table and a spectrodensitometer for colour calibration. Resolution is 3600 dpi.

Heidelberg has unveiled an inline system combining a digital book production line from Hunkeler, and the Eurobind Pro adhesive binder. This makes it possible to switch between digital and offset print content on a single adhesive binder. With a speed of 6000 cycles per hour only one adhesive binder is needed for the cost-effective production of short and very short runs and long industrial-scale runs comprising up to 50,000 copies.

Shuttleworth has updated its MIS to version 5, with a new interface based largely on the familiar appearance of Microsoft Outlook. Next year Shuttleworth will add drag and drop capability from Outlook, a built in dashboard, enhanced reporting and support for mobile devices.

Enfocus has licensed its PitStop technology to Onyx Graphics, which has used it in a new SmartApps PitStop

Pro plug-in for Acrobat for the wide format sector. It uses a wide format-specific preflight checklist that creates a reliable "digital master".

The Economist Intelligence Unit, which is sponsored by Ricoh, found that more than one third of business leaders surveyed believe their organisation would be unable to keep up with technology, while one third of IT industry leaders believe their businesses will disappear altogether, and six out of ten think the markets in which they operate will significantly alter between now and 2020 and bear little similarity to today.

Taopix, developers of software for creating photobooks, has a new platform, Taopix Portfolio, a suite of three solutions intended to drive more volume through digital presses and silver halide machines. It includes a new user interface, plus tools for enhancing pictures and automatically importing photos into pages, as well as links to FaceBook and Flickr.

Screen has introduced a new thermal platesetter for the flexo markets. The PlateRite FX1200 features Screen's proven thermal imaging technology that enables output up to 4800 dpi for high quality production of flexible packaging, labels, cartons and corrugated packaging.

Fujifilm has issued a new plate, the Brillia HD PRO-T3 which uses unique new Fine Particle Dispersion technology that dramatically improves on-press performance.

EFI has integrated its Auto-Count direct machine interface technology with Heidelberg's high-speed Polar XT cutting equipment to enable customers to have real-time reporting and scheduling capabilities for this manual step in the production process.

Dynastrip has launched version 7 of its eponymous imposition program, which now boasts smarter Layout Reflow with more dynamic behaviours for imposition objects and marks, quick access to object libraries and templates and new options for marks and Automation. DynaStrip 7 also features convenient pulldown menus for rapid access to all object libraries and sheet templates, directly from the light table main interface.

Grapo Technologies, manufacturers of wide format hybrid and flatbed UV printing machines, has been bought by a group of private investors and will be named SigmaJet. The group is making significant investments in areas of manufacturing, R&D, training and customer support and is opening a new state-of the-art demonstration facility in Bratislava, Slovakia, in January 2012.

GBC has launched the Magnapunch 2.0, a tabletop paper punch designed to increase productivity and profitability. The heart of the Magnapunch 2.0 is the proprietary edge detection technology that virtually eliminates mis-punches. Add to that the GBC advancements in 'smart' technology, enabling faster set-up and change-over times for custom and uncommon size applications.

Punch Graphix's Q3 figures show a slowdown in sales but with a recovery expected in the next quarter. Sales fell by 20.6% compared with the same period last year. Sales during the period from January to September are down 6.8%, from €99.6 million to €92.8 million.

Heidelberg's preliminary figures for the second quarter of 2011/12 show incoming orders of €668 million, which is slightly up on last year's Q2 figures, and sales of €636 million. However Heidelberg is anticipating weaker than hoped for sales in the second half of the year given the global economic situation, so that it is unlikely to reach its target of a break-even pre-tax result for this financial year.

The Flemish **Innovation Centre for Graphic Communication (VIGC)** has found that it is possible to use much lower total area coverage for deep blacks, representing a considerable cost saving of round 10 percent. The long-held belief in the industry is that the TAC should be between 320% and 360%, but the VIGC investigation revealed that 260%, or even 220%, is more than adequate, as long as the conversion is carried out with the correct profiles.

HP Scitex has demonstrated three new wide format printers. This includes the FB7600, which builds on the FB7500 flatbed press but now includes new inks, in-line saturation control for backlit applications, hot folders and job queue, to help PSPs expedite their workflow. The device can print up to 95 full boards an hour and has a new point-of-purchase print mode that produces 55 full boards an hour with indoor quality.

HP has also announced two new DesignJet printers, both using the new 792 latex inks. Both the 2.6m wide L28500 and the 1.55m wide L26500 offer 1200 dpi resolution with outdoor display permanence of up to three years unlaminated or five years laminated.

Callas has updated its pdfToolbox to version 5.3, which now supports Apple Mac OS X 10.7 (Lion). It is now possible to restrict the area rendered when generating images to an existing page box (such as the trim box) or a custom area so that preview images can be generated without having to output different PDF files for different workflow uses.

Adobe has said that it will abandon its Mobile Flash plug-in in favour of HTML5, effectively throwing in the towel in its long running battle with Apple, which has refused to allow Flash on its iPhone and iPad devices.

Xaar has sponsored the PrintIT! programme for a fourth year. This engages students in topical design projects using the latest print techniques to demonstrate just how diverse and interesting the print industry can be.
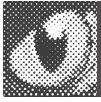
A Review 1

Colour management made easy

Over the years more than one company has tried to promote their colour management products with the promise that it turns this black art into child's play. Anyone that has had a go at hands-on colour management knows that it's quite a delicate and complex matter, so we have never really believed such statements.

That is, until we saw the latest version of the Bodoni Press Sign print control system, including the new 4CX technology. While the Bodoni Press Sign system is just as feature rich and advanced as any control system you would consider for total control of the press fleet, including digital printers, Bodoni has created a 'Quick Route' for jobs that need colour adjustments. This is very

The Bodoni 4CX technology analyses a single colour bar, and adjustments to achieve correct grey balance are then applied to the output queue. Here, Managing Director Ian Reid demonstrates the process.

handy if you don't have the time, or the capability, to take the long route of re-calibration, re-linearisation and re-characterisations – a task that can easily take several hours, if not days.

Using the 4CX technology, where CX stands for Colour Exchange, a colour bar is analysed, and adjustments to achieve both grey balance and correct Lab-values for the primary colours are applied to the output queue. Within minutes the output will now be colour corrected to any

target colour standard. Truly impressive, and the closest thing to being "child's play" that we have ever seen.

But behind this easy option there is a solid understanding of applied colour management and ISO-compliant

Ian Reid, founder of Bodoni, is active both in the BPIF technical committee (British Printing Industries Federation), and TC 130, the international committee of ISO experts for graphics technologies.

workflows. Bodoni, established in 1990, has the background and experience to make something that actually is very complex, look very easy.

The Press Sign print control system is modular software with features to both calibrate and linearise presses and digital printers, and analyse the performance compared to known standards, such as ISO 12647-2 for offset. This analysis considers aspects like density, dot gain (or TVI, Tone Value Increase in ISO language), grey balance, trapping and overprint. A scoring system summarises all this, where tolerances can be set-up and the printed sheets judged accordingly. Normally a score at or above 80 percent is judged to be an OK print run. Thanks to the DIDA module (Dynamic Ink Density Adjustment), the press operator is helped to minimise variation during the print run, and so increase efficiency.

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Other modules handle ink saving and ink optimisation, like the InkWize module, which can be considered as a Colour Server, holding all information on the relation between "wet ink" and the corresponding dryback values, as well as best possible match to spot colours. All the colour data and all of the measurements made are held in a SQL database, and can be accessed through an internet server. Bodoni has developed apps to make the information available to smartphones and iPads, so the production manager can be automatically alerted if there is a problem in the production.

Coming back to the 4CX technology and the issue of correct grey balance, there are in fact two common methods to tackle this. First there is the ISO method, much influenced by FOGRA, which focuses on meeting set values for dotgain (TVI). Then there is the American way, represented by Gracol (General Requirements and Applications for Commercial Offset Lithography), where the focus is to a lesser extent on TVI, but more on achieving correct grey balance.

Bodoni combines both methods in an elegant and pragmatic way, and, we would add, one that is very swift. For users that are less concerned with ISO standards, or Gracol, the 4CX technology can be used to achieve good grey balance to any output, and so achieve a pleasing end result.

A typical example of this is large format output, where the printer often has a much larger colour gamut than litho, but that might be difficult to control, especially on a wide range of substrates. With Bodoni Press Sign and 4CX technology it should only be a matter of minutes to get the colours right. As far as we can judge the 4CX technology can be applied over a wide range of applications, both to achieve ISO-compliant print, and for a streamlined hybrid media production, meaning mixed litho and digital print.
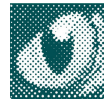
Say What?

This month's Say What booby prize goes to HP, or at least whoever writes the press releases for the wide format printers, for a press release announcing new additions to the latex printer portfolio. We waded through nearly 2000 words but there was precious little information on the actual printers being announced. Plenty of waffle on the eco-friendly nature of latex printing, but little on the products in question bar their names.

This of course leads us to suppose that there isn't very much to those products and they're best forgotten about – let's face it, HP didn't even remember to include the details about them in their own press release.

Indeed, the whole press release was so busy trying to sell us the benefits of latex printing that it read as if the writer was trying to convince him or herself. We, being more cynical, as is the wont of working journalists, were not convinced.

A Review 2

iOS 5

Following on from last month's launch of Apple's iCloud and iOS 5 services, we've had a chance to play with them now. Generally speaking, iOS 5 is very impressive with everything working as expected. But then we've not had any issues with battery drain on either an iPhone 4 or iPad 2, though we have found that the iPhone sometimes has difficulty finding a phone network if the 3G is turned off.

There are some other glitches. Firstly, it's really handy to have one's calendar automatically updated on whatever device one happens to be using at the time, without having to think about which version is up to date. But sometimes, when one changes calendar events in one device, they revert back to the previous entry, as the new entry is automatically synced with iCloud, which has obviously got confused as to which event is the more up to date.

Even more annoying, when you travel to a different time zone and your iDevice automatically corrects the time, all the calendar events change time, so that they were all an hour out during a trip to Germany, which is an hour ahead of the UK. Now that never used to happen before iCloud.

Then there is Reminders, which could have been a really useful function. But why oh why is Apple unable to implement a proper To do function? How hard would it have been to tie the Reminders into iCal? That way the Reminders would not only be about upcoming events, but could also remind us of things done in the past. This would be extremely useful, for example, when doing invoices or tax returns. For this we rely on keeping iCal up to date with what we've been doing, so it would have been really handy if completed Reminders could have been saved to the Calendar.

There's a new messaging system, iMessage, which on the surface adds an extra layer of message functionality on top of SMS messaging. But since it uses data rather than text, the messages now come from your data allowance rather than your text allowance which could be a big deal

for some depending on whether or not you are close to your monthly data cap. You can revert back to SMS but we think it would be better for iPhones to have the option to force it to only use WiFi, defaulting to SMS when you leave a WiFi network, for those who worry about their 3G data cap. And of course it's worth noting that if you are using an iPad with a pay as you go SIM card then you might not want to pay for your messages. Also, the system takes a while to switch between iMessage and SMS adding an unwelcome time delay to messages, which makes SMS text conversations difficult.

Strangely, you can't synchronise notes with iCloud unless you set up one of Apple's @me.com email accounts. You have to be careful how you name these accounts as you can't change them once they're set up. Personally we're not sure if we really want yet another email address.

Apple has also added iCloud support for its Pages word processor and for us this is proving to be one of the killer applications. Having recently suffered business meltdown when the logic board on a main computer blew, whilst away from the Time Machine backup drive, we really appreciate knowing that all work in progress is fully backed up all the time and instantly available to other devices.

How useful is this? Well, we had held off updating a MacBook Pro to Lion because Snow Leopard has been quite stable on it and we weren't convinced about the benefits of Lion. But now that all mobile devices are automatically up to date we really miss not having the same functionality on the main work machine, so much so that we've ended up doing more work on an iPad recently simply because that work would also be available on the iPhone whenever one left the office. This does of course mean being even more tied into the Apple eco-system than ever before, but the sheer ease of use that iOS 5 and iCloud have introduced makes it worthwhile.

Green Shoots

Novus Imaging has launched a new environmentally friendly wide format printer. The 3 metre wide machine is a full greyscale hybrid device. The new Aquepoxy ink technology is an aqueous solution that is more adhesive than other water-based inks, and works on most rigid substrates including acrylic and glass. It also can do without the high intensity lamp curing used to cure UV inks.

At the Green Printing in China 2011 Green Awards *Kodak* has won the 'Green Equipment Award' for its Prosper 1000 Press Platform. Kodak was also recognised for its environmental initiatives including water-based ink, long-lasting printheads, and print on-demand software.

Kyocera has introduced two new printing and document control technologies, to reduce ink, paper and energy consumption. ColorLock and AccessLock are based on the company's Java-based HyPAS (Hybrid Platform for Advanced Solutions) technology that runs on some Kyocera multifunctional printers (MFPs). ColorLock only allows authorised persons to print colour and AccessLock controls who can use MFPs as determined by network administrators' parameters.

GreenPrint Technologies of Portland, Oregon, in the US has developed a utility that classifies networked printers according to their cost and efficiencies. The GreenPrint Advisor uses a traffic light system so that if a user prints to a red or yellow designated device, when a green one is available it warns the operator with a message. The message estimates the possible savings if the output were to be printed on the green one. The codings can be automatically generated or customised.

Forest certification system, PEFC, has teamed up with PrintCity for next year's drupa to inform exhibitors and visitors of the benefits of forest certification for the print sector. Thorsten Arndt, Head of Communications at PEFC International, commented: "The industry has made substantive strides in the past few years towards greater sustainability. PEFC is eager to support this transformation, which is becoming ever more important with an increasing number of customers and consumers paying attention to the environmental attributes of the products they are purchasing."

For more green news, check out The Verdigris Project:

Verdigris

http://verdigrisproject.com

A Review 3

The remote control for digital presses

Chromix, the American vendor of colour management solutions, has introduced an extension to the Maxwell quality management system called Digital PressWatch. The purpose of the solution is to monitor the print production from volume digital printers, and get an early warning if the quality drops or varies too far outside given tolerances.

We wrote about Maxwell way back in the March 2008 issue of Spindrift, so a recap of the main features of the solution might be of use. Chromix Maxwell is an online
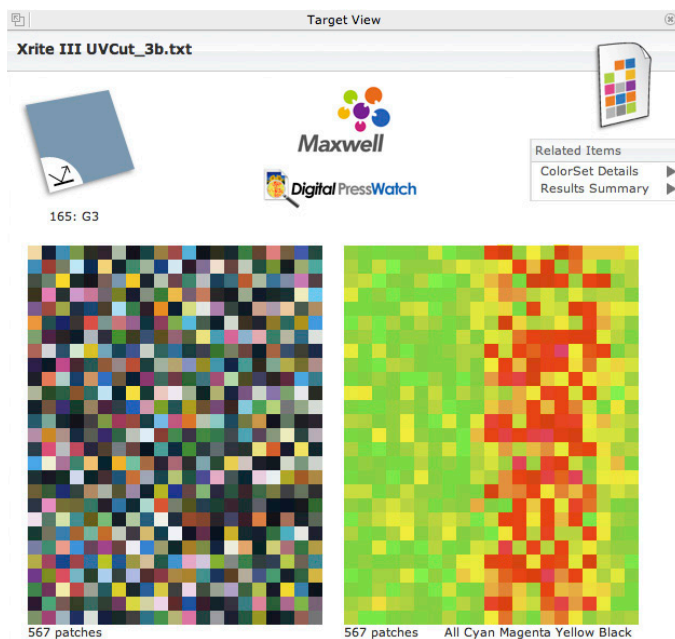
The operator gets an early warning if the digital press shows signs of non-uniformity of the printed surface, or if variation in the print run exceeds the set tolerances.

colour server with a web interface to the database containing information about a company's colour critical devices, be it monitors, proofers or presses. It's also a repository for common reference files and agreed-upon colour standards. In today's terminology it could be called a cloud service, since the database is hosted by Chromix, and all of the functionality is accessed through the web browser, by using Ajax and other Web 2.0 functionalities.

Among other things it means that the application can also be accessed with smartphones and iPads.

The latest addition to Maxwell, Digital PressWatch, acknowledges that digital presses, especially those based on xerographic technology, have a different behaviour than conventional lithographic offset presses. To put it bluntly – they have a reputation of becoming somewhat unstable over time, despite the self-calibration functions that many now sport. The Maxwell Digital PressWatch monitors such a digital press by assigning the proper test form and allowing for semi-automatic measurements during the print run.

By semi-automatic we mean that the operator needs to take the printed test form to a scanning spectrophotometer, typically an X-Rite iSis, but Maxwell supports more devices. The benefit of using a scanning spectro like iSis is that you get full page data, a key advantage over single column measurement strips when analysing digital presses.

Once the test form is loaded into the spectro, a barcode helps identify the job, and the measurement is routed to the correct job bag, and so the software knows how to analyse the test form. The reports are easy to interpret, especially since they have visually rich graphics to help the operator to judge if actions are needed to re-calibrate the press, or service it. This analysis of colour data is the strength of all Chromix products, and comes into it's own in this type of quality management system.

One would have thought that this type of information and data analysis would be supplied by the press manufacturers, but to our knowledge it's still lacking in most press control systems. There are similar solutions from Efi, Fujifilm and Kodak, but for some reason it's prepress vendors that seem to offer this kind of colour quality management, not the press manufacturers.

While a cloud-based service has many advantages, any central computer-based solution has its disadvantages. What if the central server is down, or the Internet connection drops? Well Chromix has thought of this, and the Digital PressWatch caches the core applications needed in the host computer, almost like a cookie in the

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web browser, so that scanning of a test form can continue even if the Internet connection is temporarily down. As soon as the Internet is up and running again, the colour database is updated with the latest measurements.

Users of Maxwell Digital PressWatch can either share the same spectrophotometer, or add several into the workflow. Thanks to the barcode on the test forms, the operator can drop the test form into any available spectro, and then see the analysis report on his or her screen as soon as it's ready. This normally takes seconds rather than minutes, which is needed in a fast production workflow as in digital production.

But Digital Press Watch can also be used in a conventional litho print production workflow, to judge if a print run is within specified tolerances for colour deviation and variation. Again, one would have thought that this type of analysis would be provided in full by the press manufacturers, but the analysis of the variation over the print run is not always in place in the press control systems, or at least it is not very easy to interpret.

The Chromix Maxwell quality management solution is flexible enough in its architecture to allow for user customisation, so the savvy user may find new and somewhat unexpected benefits from having all colour critical data in one single database. One such analysis could be monitoring ink consumption compared to Delta E (ΔE) deviation – how much ink can you save without penalty in colour deviation?

It will be interesting to follow up this initial launch of Digital PressWatch at one of the beta sites. Our guess is that there are many lessons that can be learned about the behaviour of digital presses through a tight monitoring of this kind, not least to get an early warning if the press is drifting away from the set standard.

Boomerangs

From: David Hedgeland
Date: 21 November 2011 12:24:04 GMT
To: Laurel Brunner <lb@digitaldots.org>
Subject: Spindrift - Steve Jobs

Hello Laurel

It's been quite a while since we last bumped into each other at a trade show - I hope all is well with you.

I enjoyed your reminiscences about Steve Jobs and the Seybold Seminars in last month's Spindrift and I felt prompted to write to you to share my perspective.

I only ever actually met Steve once, when Paul Brainerd introduced me to him at a Seybold "Summit" in San Francisco. I don't remember exactly when this was but it must have been after the Mac/PageMaker/LaserWriter combination had been introduced but before Linotype had jumped onboard and the "professional" possibilities had been recognised. I knew Paul quite well because he had been managing an Atex project to produce a newspaper page make up system which was to incorporate a laser imager which we were developing specially for them. Atex were developing their own bitmap display hardware (as Hastech had done previously) but from conversations with Paul it was clear that he saw the way forward would be with off the shelf commodity hardware - so when the Mac came along it was exactly what he had been waiting for. When Paul introduced me to Steve he told him about the work we had been doing producing half tones which were good enough to print. Steve didn't really seem that interested and I got the strong impression that Paul was the one who had the vision and was trying to convince Steve to push the Desk Top Publishing idea forward.

I hesitate to say anything negative about Steve because I really admire all that he achieved at Apple. I have always been a Mac fan. I bought (or rather Monotype bought) a Lisa to develop software in advance of the Mac itself becoming available, and we offered drivers for the Lasercomp (pre-PostScript) and also a logo scanner with on screen editing capability. I'm also pleased to say that my three children all chose MacBooks rather than PC laptops (although my son had to have a high powered PC as well for some of his games).

The Seybold Report was invaluable and the Seybold Seminars were a wonderful way of spreading information and meeting people. I particularly enjoyed the earlier ones in Santa Monica and later in Boston. The later ones in San Francisco became too big and impersonal for my liking. The industry has a lot to thank John and Jonathan for. Are you still in touch with Jonathan ?

With all best wishes

David

In case anyone is interested, we haven't been in touch with Jonathan Seybold for many years. He was last heard of investing in some sort of health company.

Don't stop now

Kodak has finally managed to demonstrate its colour Prosper press but is it enough to save the company? We've been to see both a colour and a mono Prosper in action.

It's no exaggeration to say that we have been trying to write this story for most of this year. Many months ago, in a galaxy far, far away (Leeds, UK), we visited the Lettershop Group to see Kodak's standalone Prosper S10 heads in action. Regular readers will remember that we were impressed and couldn't wait to see the full colour Prosper press in action. But we have waited. And waited. And then waited some more.

In the meantime we amused ourselves by taunting various Kodak executives (sorry about that) and watching as Kodak's dire financial situation worsened. Then, a couple of weeks ago, we were invited to Howard Hunt, one of two European beta sites for the Prosper 5000XL (the other being Servinform in Spain).

Howard Hunt started in 1990 as a printer for the financial institutions based in the city of London and expanded by constantly reinvesting profits back into the business. In 1998 it moved to its current location in Dartford UK, just at the point where the river Thames leaves the outskirts of London on its way to the North Sea. Deputy managing director Lucy Edwards says: "We felt that we had a good model but our clients demanded that we add other services so in 2002 we established Celerity, which is a data analytics company which has software sales and integrators as well as database management."

Today Howard Hunt is one of the most successful direct mail companies in the UK, with three separate factories around its Dartford base totaling some 130,000 square foot. Commercial director Keith Whitehead explains: "We believe that you have to reinvest new equipment into the company all the time or you fall back. It's become very expensive to enter this market so you have to keep up." Howard Hunt seems to be keeping up very nicely with an extensive plant list that includes three Mitsubishi and one Komori web offset presses, two Xeikon 8000s

and a Kodak Nexpress 2500, not to mention two ageing Versamark systems and numerous folders and enclosing machines, and now of course one Prosper 5000XL. Edwards comments: "We see the Prosper as a big step change in what direct mail can achieve. We have the speed of digital with the quality of litho. Before we were limited by speed and cost."

Edwards adds: "We are reorganising our own group software which will unify all the systems. It's the first time you can put data in one end here, have it analysed and sent to the MIS and then output as email, SMS and as direct mail through the GMC software and Prosper

Keith Whitehead, commercial director of Howard Hunt on the right, with Graham McLachlan, Inkjet printing systems manager for Kodak UK.

press. So the direct mail will be in real time so the files can be output almost at the same time as an SMS. It's not so much the timing as that we can now integrate the print to the whole campaign. We have different channel preferences so people can receive email and print at the same time regardless of their preferences."

She continues: "The most successful campaigns are when you have direct mail to drive people to the Web and then to purchase. And sometimes it's the other way around but you have to understand the data as it comes back to do that. So this unified system is a marketing platform as it automates a lot of the data management in a campaign and frees up marketing time." This unified system is also key to the way that Howard Hunt will use the Prosper.

For now the Prosper 5000 sits to one side of the finishing hall at Howard Hunt's Celerity digital business unit. Howard Hunt is still testing papers for use with it, and hopes to start live production before the end of November. The colour quality appears to be quite good, though nobody is keen to give us samples that we can take away. And it still feels very much like a beta installation, with Kodak staff fussing around the machine. Ultimately the plan is to build an enclosure around the Prosper to control the environment. Also, Howard Hunt is only just ready to order a finishing line, not having actually signed for the printer yet. But, since Whitehead prefers to have some redundancy built in he does hint that he will almost certainly order a second Prosper 5000.

Paper

Anyone who has seriously considered high speed inkjet for commercial printing knows that the key issue is paper. Inkjet inks have high water content that soaks into uncoated papers and must be dried quickly, but without sucking too much moisture out of the paper, thereby damaging it. Image quality varies considerably from one paper stock to another so the press can't be considered as a finished product until it's been thoroughly tested with a wide range of papers. Yet this does seem to have caught Kodak by surprise, and the installation at Howard Hunt has been delayed as Kodak struggled to find a media that Whitehead is happy to use.

To some extent we are in a chicken and egg situation in that the paper mills won't develop inkjet papers without a considerable demand, which means a lot of pain for the first customers. HP got around this problem right from the start by setting one print head aside to print bonding agent where needed on the paper. Last year Kodak finally saw the wisdom of this and hastily developed a precoat unit, though Howard Hunt has chosen not to install this.

Plan B is to develop profiles for each and every paper so that the ink coverage and drying can be matched to the substrate in use. Océ has been doing this for some years now with its JetStream and earlier in the year we saw the Lettershop Group in Leeds doing the same thing with its Prosper S10 printheads. These allow personalisation to be added to preprinted shells coming off an offset press, with a variety of standard offset papers.

But of course the best solution is for the paper mills to develop inkjet specific stocks, in large enough quantities to make them a cost effective option. And this is starting to happen now, though these papers will still need to be profiled.

Just to complicate matters there are enough regional differences between those papers used in North America
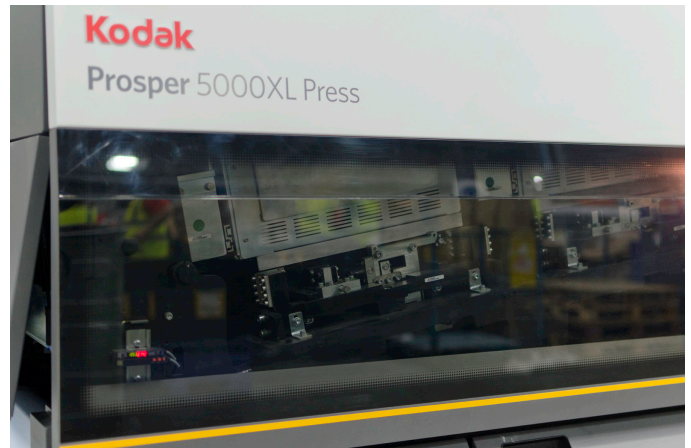
The Prosper presses are considerably smaller than the competing HP models.

and those in Europe that Kodak has had to start from scratch at Howard Hunt, despite having several Proper 5000s working in the States.

Whitehead says that most of the major paper manufacturers have visited Howard Hunt and are testing new inkjet treated papers. Ultimately he wants to be able to run a silk inkjet paper. For now he's pinning his hopes on Appleton.

For what it's worth, the prints that I saw at Howard Hunt appeared to be very good, with faithful colour and decent resolution. However, they also appeared to be quite lightly inked though this could be to keep ink costs down when pitching for jobs.

Prosper 1000

In the meantime, Kodak has been steadily installing its black and white machine, the Prosper 1000 at various sites around the world. Earlier this summer we visited one of the first European installations at Sagim, a French book printer based in Courtry, just outside Paris. In truth we should have written this part of the story some months

ago, but clashes with deadlines, a dead MacBook Pro and more pressing stories mean that we can now consider both the mono and colour parts of the Prosper story together.

Sagim started as a book shop in the 1930s and later began to print business cards and then resistance papers during the war, before moving into book printing. It had been a family business but by 2002 it was bankrupt, and was

Guillaume de Courcy, general manager of Sagim.

taken over by the Italian firm Canale. Since 2009 it has been run by Guillaume de Courcy, who owns 15 percent of the company, the remainder held by Christian Devambez, who also owns several other print companies. De Courcy himself worked in sales at Sagim from 1995-99, left to work for CPI in digital production, and then came back in 2003. He clearly sees the Prosper beta as a cost-effective way to get into high speed inkjet printing, allowing Sagim to hold its own against the much larger CPI group, which has invested in several HP Inkjet Web Presses.

The Prosper press was installed at the end of last year and has been running production jobs since January of this year. In contrast to the enormous HP inkjet web press, the Prosper seems tiny, almost dwarfed by the rolls of paper surrounding it in the factory.

Sagim opted not to use a precoater and De Courcy says this sometimes causes problems with poorer quality

offset papers, noting: "The offset paper is much bulkier so the ink doesn't go into it." He explains that the final image quality is very dependent on the quality of the paper that is used: "We are working with an ink which is very liquid to be able to run at very high speed and so a lot of the ink is going inside the paper so sometimes the printing is too grey. Also it's down to the quality of the paper. It's not such a problem with a low quality paper. But the high quality paper is very expensive and publishers don't like to spend a lot."

De Courcy adds: "It's easier to make pictures than text. Some pictures such as with a lot of light grey I can do without trying where I would struggle with offset at 200 metres per minute."

For finishing, Sagim has opted for a Hunkeler plow folder to be inline with the press, producing book blocks. De Courcy says: "Then the book block goes to the binding machine. We don't want to have the complete book inline because we want to be able to decide what binding to be used. If we have it all inline then there will be only one solution." He adds: "The inline binding solution is very expensive and we already have a binding line which is in order so I save €1m in just pushing pallet over. It adds 10-15 minutes more to the production but it's not important for runs of up to 2500."

The mono press is clearly a lot less fussy than the colour version when it comes to paper choice, presumably because there is less ink coverage. This means that unlike Howard Hunt, de Courcy has had time to experiment with and to make profiles for the different papers and is quite confident of the results. Clearly more expensive papers lead to better results but customers understand this and appear happy with the quality that they get at a given price point. More importantly, the Prosper allows several thousand copies of a book to be printed and distributed within days and this is its main selling point as it exactly matches the fast turnaround that the French publishers expect.

Continuous inkjet

The Prosper press comes in two versions, both of which use the same jetting modules as the S10 printheads. The colour Prosper 5000XL has four colours arranged in an

The Prosper 1000 as installed at Sagim.

arc within each unit, with two units required for duplex printing while the black-only Prosper 1000 is a single unit which includes duplexing. Print speed for both is 200 metres per minute which equates to some 3600 A4 pages per minute or around 90 million per month.

The press takes a 64cm roll and has a print width of 62cm. It takes papers from 45 to 300gsm. Kodak claims image quality close to 175 lpi.

The Prosper is unique amongst high speed inkjet presses in that it uses continuous inkjet (a continuous stream of ink is jetted through the nozzles, before being broken into droplets and ejected towards the media, with most then being deflected away and recirculated back into the ink supply), as opposed to most other inkjet systems where each droplet is created as it's needed. Kodak says that this is the only system which has the potential for truly high speed inkjet, but where the older Versamark systems used an electrostatic charge to deflect the ink flow, the new Stream technology uses high pressure air.

Each and every one of the nozzles has a small heater element around it that breaks the continuous ink stream into individual droplets and determines the amount of ink used to form each ink droplet. The droplets then pass through a continuous air blower, which literally blows the majority of drops off course so that they are hoovered up and recirculated back to the ink system without touching the paper. In order to print a drop, the heater elements alter the wave form, causing a droplet three times the normal size which is heavy enough to pass through the air duct system to reach the paper. Richard Haines, the Kodak engineer based at Howard Hunt, says that droplet placement is very accurate because the air blasted out around the ink droplet also protects it from any other turbulence.

Part of the paper profiling involves tuning the drop to get the best print quality, though all the drops end up roughly the same 9 picolitre size. Kodak is playing with variable drop sizes, which could considerably enhance the resolution while reducing ink coverage.

For each colour there are six jetting modules, and Haines says that they are averaging about 1,000 hours between failures. However, there's no redundancy and when a head fails, which is typically through dirt getting into the nozzle, then it goes instantly so that the press has to be stopped and the head replaced. There is some overlap where the heads are stitched together and the operator does have some control over where the stitch occurs which should give some leeway if a nozzle failure occurs there.

There is an infrared drying unit after the magenta, yellow and black units, but not the cyan, because too much drying would damage the paper. There are also two cameras at the back end of the press which check the colour to colour registration as well as front to back registration and any issues with the stitching between the jetting modules.

Haines says that there is a lot of internal conversation between the drier and the type of substrate and the amount of ink laid down, which of course feeds back to the paper profile.

Kodak financials

Unfortunately, there is another element to the Prosper story in the shape of Kodak's not so rosy financial situation. Kodak has brought in a legal firm, Jones Day to advise on restructuring, prompting rumours, since denied, that the firm was preparing for bankruptcy or break-up. However, its credit rating was downgraded on news that it had drawn $160 million from a credit line, leading to a drop in share prices, though they have since recovered to some extent.

In October Kodak had to go to court to force Collins Ink to continue to supply it with the ink that it resells to customers for the Versamark inkjet printers. Kodak normally runs a $2.5m tab and Collins worried that if Kodak went bust it wouldn't be paid, but a US district court ruled that these fears were not enough for Collins to break the terms of its contract.

In the meantime Kodak has just sold its imaging sensor business to venture capitalists Platinum Equity, following an earlier sale of its digital imaging patents. Kodak was one of the early pioneers in digital photography but this sale underlines that Kodak's focus is now on printing.

Most of Kodak's problems seem to be caused by a drop in sales from conventional technology, which Kodak is moving away from, and which has not been matched by increased revenue from digital technology where Kodak is now concentrating. Essentially Kodak needs to sell more inkjet presses in order to guarantee a continuing return from selling consumables, mainly parts and inks. All of which of course explains the sense of panic at the slow rollout of the Prosper 5000 presses.

Conclusion

The trick with high speed inkjet is to be able to jet the ink at very high speeds, which requires a very liquid ink, while at the same time being able to dry the image, which risks damaging the paper. Clearly Kodak has managed to do this with the monochrome Prosper 1000, which is mainly being used to print black text, with relatively light ink coverage. Equally, we've seen that the Lettershop Group have been able to print with four colour S10 heads, but again, the ink coverage is fairly light as this is only for adding personalisation to preprinted litho shells.

But the full colour Prosper 5000 XL press is a different story. All high speed inkjet printing is heavily dependant on the choice of paper and this is a much bigger issue for the Prosper 5000 because the ink coverage is much greater than the other Prosper types. It's also striking that neither of the Prospers that we've seen working have opted for the precoat unit, which would in theory allow them to work with a much wider choice of papers. Then again, the original promise behind the Prosper technology was that it could print to available papers, including standard offset stocks, with full variability at high speed, and at a low cost per copy even down to a run of one.

In the meantime, HP has now installed more than 40 of its Inkjet Web Presses around the world, the vast majority of which are full colour devices. This includes seven customers who have bought two or more of these presses. The technology has moved ahead to its third generation with the T400 and there's an offshoot in the T200. For the most part these are real, documented, paid

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for installations. Kodak in the meantime has contented itself with dubious unsubstantiated claims that it is not far behind.

Since Kodak refuses to give out numbers our best guess is that there are four, maybe five colour machines and perhaps around 15 mono printers worldwide. Kodak has clearly had a lot of success with book printers, not surprising given that the print quality we saw at Sagim was extremely good, far better than many other inkjet-printed books.

But the full colour press still feels like a work in progress. Kodak has demonstrated that it is able to print onto some papers and the image quality can be very good. But the real issue is can it print to a wide enough range of suitable papers to be considered commercially viable? Given that neither Kodak or Howard Hunt have been able to provide us with print samples we're not yet convinced.

On the other hand, the paper companies do finally seem to have woken up to the possibilities of high speed inkjet presses and are rushing to develop papers for these machines. With the right papers in place the Prosper could offer a compelling solution. Moreover, we believe from our understanding of the technology that it could be further developed to much higher speeds, and therefore much lower cost print. It might even be good enough to keep Kodak going.

– Nessan Cleary

Because I am Just a Cloud, a Cloud

We've been talking about the cloud for quite some time now because it will play a key role in the future of the graphic arts. It is a means of reducing costs for printing companies and print buyers and is also a means of facilitating print for consumers, a potential tool for driving greater print volumes.

This should all aid profitability so for cloud owners, profits will come with scale and service volumes. But the route to success is not assured, despite the massive success of cloud services and the often outrageous valuations of the companies behind them. The boldest faces of cloud service provision are FaceBook and Google, and although their long term profitabilities are not guaranteed, they are setting market expectations for future service models.

Whether FaceBook with its need to support over 60,000 servers and Google with over one million, survive the long haul is irrelevant here. But these companies are relevant in so far as their services demonstrate the cloud model's reach and what can be done with it. With a big enough infrastructure you can support infinite applications and services, all of which can have their own highly localised business models.

For the graphic arts business there are plenty of opportunities, despite the need to manage large files, colour and variable data. The cloud ensures that software and utilities are always updated and current, and there is a small army of software engineers totally focused on keeping their services competitive. The cloud owner handles the cost of all of this, which is why we are sceptical about the long term future of some of these services.

The cloud promises to deliver the dream of universal services and access, with localised, personal delivery. For the printing and publishing industries, the cloud will twist media narratives into all sorts of interesting shapes, determined by consumers' media wants. But exploiting it will take vision and courage. We expect to see widespread use of the cloud coming with the rapid expansion of tablets and smartphones, which are being used to order services, including print, for delivery close to their point of use.

There are many companies in the graphic arts sector already exploiting the cloud. Quark, for instance, is working with IBM to offer Dynamic Research Reporting for the financial sector. IBM provides various tools to streamline investment analysis processes together with publication to print, web or mobile devices. The IBM FileNet Content Manager manages all research materials

John Grillos, vice president of strategic partner sales for Quark.

and also integrates social media tools to be accessible through a Word interface. According to John Grillos, vice president of strategic partner sales for Quark, customers are seeing "publishing productivity gains as much as 75 percent and a reduction in content personalisation costs of 80 percent or more".

Content providers such as Virgin Media are launching cloud-based services for business customers, a stepping

▶ stone to more ambitious content offerings for consumers. Such companies can leverage their subscriptions models to create new opportunities for media linked to different delivery options. The cloud also supports businesses offering outsourced services such as editing, layout, colour management and prepress, plus the associated publishing functions. Think Lulu.

The manufacturers' role

Megacorps such as Virgin Media are independently leading the cohort of content giants skyward, but smaller businesses moving into the cloud will more likely prefer to work with their suppliers. This requires commitment

Gareth Parker, Product Manager, Ricoh UK.

from companies serving the global graphic arts business, not just to their customers but also to some sort of cohesive vision for cloud computing's role in the graphic arts. Customers are interested to develop knowledge and competence around the cloud, but relatively few small to medium sized enterprises can do it alone.

Some manufacturers are more visionary than others. For instance, as described in our last issue, HP has by far the boldest vision of what the cloud can do for print. One

of the world's most important press manufacturers is also now considering a cloud strategy for its customers. Heidelberg has a plan according to Dirk Henrich head of trade press: "Yes, our Prinect Software family will offer Software as a Service functionality for certain Software products". And we expect more ambitious plans from Heidelberg to be announced at drupa.

HP is building the infrastructure and hardware platforms to provide the resources for developers to build applications that run within the HP IPG cloud. This cloud has open APIs, connecting to other clouds to give customers maximum flexibility following the Apple model, only specifically tailored for business. HP's breadth of business puts it in a strong position to leverage the cloud, however the vision of IPG's executive vice president Vyomesh Joshi is a cogent expression of how HP's divisions can exploit the corporation's larger presence.

Beyond the graphic arts

Like HP, Ricoh is also much bigger than its graphic arts interests. Ricoh is moving towards managed services with its Managed Document Services (MDS) in its broader business. MDS utilises the cloud model for customers to offer scaleable functions for businesses. For the graphic arts industry Ricoh has NowPrint, a hosted web-to-print system sold under license from NowDocs, a developer of web-to-print and associated management technologies for the document sector. Web-to-print technology is fundamental to any print media supply chain.

Apart from the attractions of a Do-It-Yourself production model, the commercial argument is irrefutable: money upfront, so no need to chase clients, argue with them or provide uncertain funding for raw materials. Everything in the web-to-print model is streamlined, which is what the cloud is all about. Non-essential touch points are removed, customer experiences are improved and technologies such as JDF ensure process automation. Precision Printing in the UK processes over 35,000 web-to-print orders per day, the average value of which is almost unbelievably less than €3.

To be profitable with such a model is only possible through automation and the fact that jobs come in print

ready. And if they don't it isn't the printer's problem. As John Grillos has observed "some of the simpler jobs will be more economical to manage via online methods". Ricoh's NowPrint is generating increased interest from customers interested in a cloud model, but according to Gareth Parker, Ricoh's value proposition manager for production print, NowPrint is "just the start for Ricoh with web-to-print and the cloud" so there is more to come.

Web-to-print workflows

The high interest is in part due to the immense effort manufacturers and industry pundits have put into blowing the web-to-print and workflow horns. Parker says "education is around helping graphic arts and print [professionals] in particular that it's not a scary proposition". For many customers he finds that "the wider issue is how they can adopt new technology using a new model. It makes life easier not just for web-to-print but for other areas: electronic invoicing and back office". He adds that Ricoh is "maintaining our drive around helping people understand the benefits" through seminars, the Business Driver Programme and through customer contact.

Ricoh is seeing more companies looking at using the cloud for this, which suggests a move to outsourcing as well as an alternative model for companies using cloud-based software and utilities and doing their own work. The choice depends on the type of business, its interest in IT and its customers' needs. EFI's Digital Store Front (DSF) technology for instance is the most widely deployed web-to-print technology in the market. It can be hosted or purchased so that customers can develop their own store and all points in between, so hosted services can be public, private or hybrid versions of the cloud.

EFI is putting its biggest efforts into consolidating the position DSF has given it. The company has been ahead of the game for a number of years, recently reintroducing its PrintMe concept for distributed network print via the Internet. The PrintMe and cloud computing models are ideal for driving remote print production, so that print can be produced close to its point of use. EFI is leveraging the cloud with this service and with PrintMe Mobile, for mobile and cloud-based printing behind an enterprise's

firewall. The technology offers the flexibility of mobile printing, with the security of the cloud.

Tools in the cloud

Cloud-based mobile tools are beginning to creep into the graphic arts. Agfa recently introduced Arkitex Eversify, a cloud-based SaaS tool that automates newspaper delivery to mobile devices. Arkitex Eversify delivers newspapers to tablet and smart mobile devices using HTML5, the must have XML application for mobile delivery. HTML5
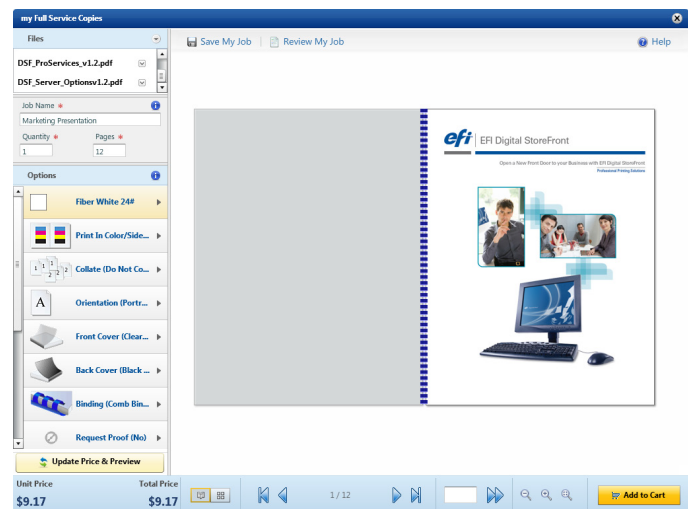
EFI's Digital Storefront has been very widely implemented throughout the graphic arts.

separates style and content so it is device independent. Jeff Cord, of Agfa's newspaper software group, explains that "publishers are in the content business … with Arkitex Eversify we can convert their content to a mobile platform. E-media and print will co-exist."

Agfa has some way to go before it catches up with EFI or HP however. EFI particularly has an advantage in cloud computing because in addition to DSF and PrintMe, it partners with so many organisations. Companies such as Xerox, a longstanding EFI customer, have yet to declare their cloud intentions, but when they do it is likely that EFI will be part of the proposition.

In addition to its partnerships EFI also has its own interests in the cloud, even though cloud computing and printing are not exactly aligned. According to Tom Offutt, director of business development for EFI: "Ultimately if you are going to deliver information on a piece of paper it's going to be a different concept of the cloud". He

Fujifilm has great hopes for its XMF Print Centre which provides website support from the Fujifilm cloud.

adds that DSF is a cloud service driving "print services, so it's about delivering information from resources and applications not local to you". The idea is to use the ease and universality of "a web interface combined with a sense of customer intimacy as an opportunity to reach new customers and to serve existing ones better".

XMF Print Centre

Fujifilm has also been on the cloudscape for quite sometime, and has built up some considerable experience with it over the last five years. The company has its own server farms at three sites: Germany, US and Japan, which have been used to provide print services for photobooks. Fujifilm recently announced a cloud-based version of its XMF workflow that will run exclusively in the cloud.

XMF Print Centre is fully hosted, so its printing company clients will not have to worry at all about the IT required to support their workflow or web-to-print services. According to John Davies, business strategy manager at Fujifilm, "everybody that uses XMF Print Centre will be able to maintain their own website access software from the XMF cloud". Rob Gutteridge, technical director at Gildenburgh in the UK, the XMF Print Centre beta site, is very upbeat, saying that it has huge potential and inherent flexibility.

Web-to-print is the logical extension of any workflow and it allows printers to extend their markets to anywhere with access to the Internet. There have been a number of hosted web-to-print systems brought to market over

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the last couple of years, designed as John Davies, says to "take away all the IT headaches you would have to sort out yourself. Hosted means there is no need for IT skills, therefore we can support better services from printers to customers" via a hosted cloud service.

Production workflow is only the beginning. EFI for instance has huge opportunities to leverage its MIS products, Monarch, Pace and PrintSmith. Positioned for large, medium and small companies respectively, for the most part these technologies are used out of the cloud.

Understanding the opportunities in the cloud is easily the hardest part of getting into and fully exploiting it.

DSF is a logical framework for bringing MIS into the cloud but this is not happening yet because of the complexities of the markets in which the technologies operate and because of the newness of the cloud.

Tom Offutt says: "There is a great opportunity to deliver greater performance of processing through the cloud because such powerful [computing] machines are expensive". John Davies says that Fujifilm is "investigating several ideas for how to support workflows in the cloud … [and the] high volumes of data in the graphic arts compared with other sectors … by the time we get to drupa, if some of the trials and investigations we are doing have a positive outcome, we will be in a position to talk about more cloud solutions".

Understanding the Match

The cost of infrastructure is particularly important for graphic arts applications where rendered files can be very large and deadlines improbable. The need to match IT and network bandwidth to application demands is fundamental to any decision relating to the cloud. It is a question of what works best for the application.

For instance Fujifilm's XMF Print Centre is not offered as a local version. It is only available in the cloud because it

"adds too much confusion and choice for the customer because they have to evaluate the pros and cons of a cloud versus non-cloud based solution," according to John Davies. This is about efficiency and removing unnecessary costs from the business and making sure that work and the associated support and production tasks are done as intelligently as possible.

For Gareth Parker, cloud computing brings "an amalgamation of knowledge and intelligence" but the question is how you harness that amalgam: at what point do you stop relying on your own resources and start trusting an external IT service provider?

Barriers

Understanding the opportunities in the cloud is easily the hardest part of getting into and fully exploiting it. For wide format and commercial print sectors where Agfa, Fujifilm, HP and EFI all have strong interests the cloud is a business environment. As Tom Offutt says the "cloud is really a place to distribute, modify, specify jobs' delivery and archive them, all using off-site resources".

Gareth Parker, reckons "there's still a lot of knowledge to be built in the graphic arts not only about web-to-print but around the cloud as well …". Unfortunately the printing and publishing sector tend to be reluctant to grasp IT concepts such as Software As A Service (SaaS) and the cloud, web-to-print and workflow extensions into other parts of the business. This is why we have seen such polarity in the market over the last few years, with some stellar success stories and a lot of carnage.

Cloud Costs

It is impossible to know what printers and publishers should expect to pay if they outsource their IT applications, which is essentially what the cloud is all about. Outsourcing is a natural progression for digital services, but it is only an option not an absolute. Fujifilm's service provides hosting and infrastructure management. The subscription is €350 per month, rising in €200 to €300 increments depending on usage. The base package is for up to 50 transactions per month, with unlimited data and storage included.

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Ricoh's NowPrint costs €350 per month for up to 300 transactions per month, or €150 for the entry level service, NowPrint ASAP, for up to 100 transactions per month and transactions can include more than one document. Pricing is pretty flexible, allowing customers to move between categories, which are based on transaction volumes that may vary from the anticipated number. There are two NowPrint sites and ten more on trial in the UK, and an additional 16 in Europe.

There is so much more going on than we have space for here, but the message is clear. Cloud computing facilitates new business models that can streamline processes. Cloud-based service offerings should give customers greater service flexibility, without the overhead of having to develop the IT themselves. Once this market matures, they will also have market choice, so they will be able to base investment decisions on the infrastructure that allows them the greatest efficiency, profitability and tools to best serve their customers.

– Laurel Brunner

The Seven Pillars of Digital Prepress

For the last few years the prepress business has been caught up in a very peculiar drama.

It is no longer a discrete industry sector for which people had to develop very specific skills. The digitisation of prepress processes has created all sorts of new opportunities for printers and service providers, as well as taking a wrecking ball to whole swathes of the industry. As the sector stumbles, too often blindly, towards its future it is time to consider how to transition printing and publishing businesses to fully exploit those opportunities.

We are in the age of the Web, where standalone digital prepress is an anachronism. The advent of digital typesetting in the seventies followed by desktop publishing in the eighties, marked the beginning of a gradual but irreversible series of process digitisations. Digital typesetting followed by PostScript rendered hot metal typesetting obsolete. Integrated text and graphics in a single digital output stream, followed by electronic page make-up and layout tools, undermined stripping and manual film cut and paste.

Direct to plate output removed the entire film bit of the workflow, and direct to press output, variable data and the on-demand short run model took the whole business of prepress to a new level of sophistication. Preflight, colour management, and networked communications and file delivery continue to up our market's quality expectations, capabilities and scope. And the Internet brings distributed digital production to its logical conclusion, making data management an even more major consideration for process efficiency.

Where Are We Now?

So where does all this leave prepress today? What comes next? How can efficient prepress leverage other technology assets in the printer's business model? Let's

be clear: any business is about investing into technologies and expertise that can be exploited to simultaneously earn and save money. This is what happened as prepress shifted from craft to automated process and previously isolated prepress tasks moved up and down the supply

TE Lawrence ponders, was it only Seven Pillars or should there be more?

chain. Colour management, for instance, now begins when a designer creates a new document in XPress or Indesign, and doesn't stop until the page comes off the press, such is the degree of process control we have over data and printing engines. It's prepress, but not as we used to know it.

For a print buyer this is great news because the time, error rates and cost of prepress, have all fallen dramatically over the last few years. This collapse has come as a dreadful shock for printers entrenched in traditional workflows, but it has created huge opportunities for printers willing to embrace digital production models to get out of the commodity business. Patrick Martell, top boss at St Ives summed up matters perfectly when commenting recently on the group's 2011 interim results: "We have continued to reposition the group by strengthening our position in marketing services, whilst successfully moving away from commoditised print markets." Digital prepress drives this reality. We believe it is based on seven pillars of technology, which we've summarised here.

1. The Internet

The Internet, of course, drives most change in the printing industry, and in pretty much all of its markets, which is everywhere and everyone. The accessibility of tools for content distribution via the Internet seeds new markets for media, including print. Social media, like it or not, is a content and market resource that printers can exploit on behalf of their customers. From catalogues produced on demand according to peoples' preferences and buying patterns, through to digital newsprint printed on a cruise ship, the Internet delivers print. Clever exploitation of integrated media interests and content delivery mechanisms are a massive opportunity, but they depend on powerful information technology (IT).

2. The Cloud

Cloud computing is the next stage in IT's evolution and it can deliver the power print media creators, producers and users require. For years IT has played a major role in prepress and print, for instance, in the rise in RIP power over the last few years. Scaleable server architectures for DFEs are the norm for high volume production. We no longer buy a single RIP system, but rather an IT environment for data processing and RIP'ing such as HP SmartStream or Xerox FreeFlow.

The Internet uses a cloud-based model to deliver content and processes. It is ubiquitous and generalist, unlike the cloud. The cloud provides secure, dedicated services, often to private customers, and a foundation for bespoke media services. Think Apple's iCloud or similar offerings from Google and Amazon to manage subscribers' music, photos and documents. Cloud computing is an inexpensive, efficient, and powerful option for prepress services. It will help bring prepress capabilities to an ever wider market, a market in ever greater need of output.

3. Software As A Service

As IT services move away from the desktop and into the cloud, the printing industry is slowly moving with it, for instance, on-demand corporate print delivered via branded websites. Software is also moving to an on-demand web-based model. Traditional delivery routes for media creation and development software, and for integrated web-to-print workflow software are gradually disappearing. Technologies such as the Adobe Creative Suite or Microsoft Office will soon be delivered exclusively via the cloud: consider the Acrobat or BBC iPlayer upgrade notices that regularly appear when you are online. Agfa has long delivered upgrades and support for its Apogee technology using the SaaS model to keep costs and upgrade procedures under control.

Software and services sold via the cloud create a new competitive marketplace for the prepress and printing community, because of the economies of scale and cost reductions they offer. And it means we are dealing with all sorts of new service providers. Our investment conversations can no longer begin and end with the traditional prepress developers. Cisco, Oracle, IBM, Accenture are not names most printers consider when planning new kit investment, but this is where the industry's future lies.

4. Standards

Process automation and quality control depend absolutely on standards. Products such as Enfocus Switch, for example, rely on computing standards to manage software applications to turn them into automation modules. Process standards such as the ISO 12647 series, currently under review, instead establish the quality control parameters for different printing methods, such as sheet-fed offset or gravure.

Standards compliance gives printers an added competitive advantage and provides them with a process control mechanism that helps keep the business tight. The PDF-X series, effectively implemented in the workflow, provides printers with a further mechanism for quality control by requiring supplied files to meet defined criteria for flawless output. And the excellent work of the ICC since its inception in 1993, has provided colour controls that have helped the industry transition to the digital, mass-market age.

5. Software and Hardware Rental Models

Printers can invest in standards without too much cost or strife. But cost drives and constrains everything, so the 'C' word is not one that printers, their suppliers or customers

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like very much. This is why we are starting to see new approaches to software and hardware sales, especially in the digital press market. The model extends up- and downstream, to further assist printers with cost control. Distributors such as Four Pees are working with their reseller customers to provide a software rental model. Instead of buying software outright the buyer pays a monthly fee to use it, including all upgrades and support. Encompass IT is another example, providing IT rental services to prepress and design companies.

6. Cross Media Drivers

The printer's business model must incorporate complements and alternatives to hard copy media. Print buyers want to work with media service providers who understand where print fits in the marketing mix and how it can be used to improve investment returns for other media. Media campaigns that use multiple channels are more effective than single channel efforts, and provide a broader foundation for value added services revenue. Understanding how to exploit multiple delivery channels and to cross leverage them, is a huge opportunity for print.

7. Service mentality

But taking advantage of the digital media market, its noisiness, bluntness and general chaos, depends on a proactive rather than protectionist stance. The nature of print, traditionally shaped by high capital equipment costs and specialisation, has kept it relatively isolated from its markets. This must change. Printers are in the business of making media production convenient and easy, and media buyers are willing to pay for work that is well done and effective so printers must engage.

So there you have it, the Seven Pillars of Prepress. They exist in a commercial milieu driven by process automation and integration, financial terrors and the universal need to manage carbon, about which we've much to say but no room in which to say it. As print customers and users grow in media sophistication, print's role becomes more important, not least as a catalyst for buying decisions. Capturing the business requires a foundation that fully

exploits digital prepress' Seven Pillars. This demands acceptance of the digital reality, commitment to training and education, and proactive engagement with development.

– Laurel Brunner

X-word Puzzle

Number 33

This month's puzzle has no theme, apart from the graphic arts bias. There are the usual easy-peasy clues, plus a few that should take you a little more time and effort to get. Answers are on the Digital Dots website, if you get really stuck.
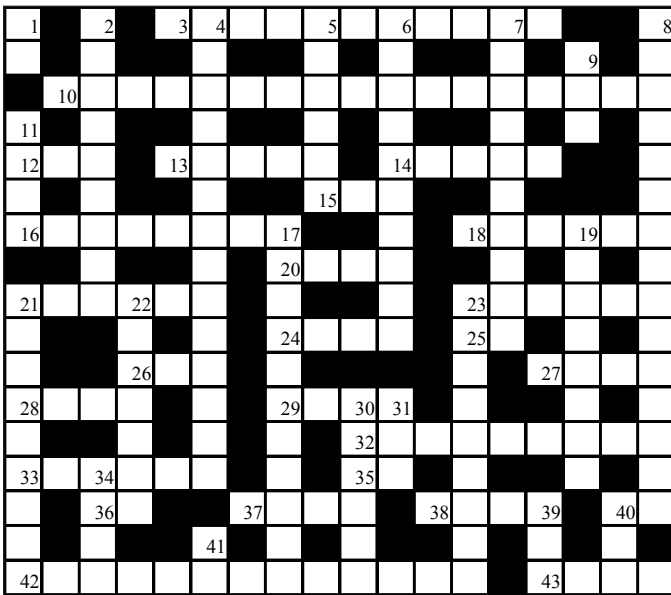
Across

3. The first step towards setting up a new business. (4, 7)

10. The meat and drink application for high speed, high volume inkjet and xerographic printers. (13, 4)

12. What you need for cleaning or teasing bulls perhaps? (3)

13. Slang for a worker or member of the rank and file. (5)

14. Smelly vegetable used, sort of and in part, to describe lightweight stocks. (5)

15. Random Access Memory (3)

16. There can be no agreement, at opposite ends and apart. (8)

18. One is the same, gold or lead. (1, 5)

20. Earnings Before Income Tax (4)

21. When it isn't uplifting, this could be the process of life. (6)

23. To abandon a thin thread on a beach. (6)

24. Idle (4)

25. Opposite of isn't. (2)

26. Application Programming Interface. (3)

27. On bended. (4)

28. A paper storage mechanism. True? (4)

29. The public good. (4)

32. A measure used in colour management to describe perceived brightness. (9)

33. What a layout artist does a lot of the time, locally or elsewhere. (6)

35. Information Technology or that girl? (2)

36. As opposed to, shortly. (2)

37. What you want for your buck. (4)

38. The bane of scanner operators, less in new times. (4)

40. That girl or information technology? (2)

42. How much of an ink a screened tint can be printed. (6, 7)

43. The starting point. (4)

Down

1. Intellectual Property (2)

2. Of screens nontangential. (9)

4. Vital for efficient additions of direct mail materials, say for newspapers. (9,5)

5. The knife, a slicer. (6)

6. The measure of light's brightness and intensity. (10)

7. The ideal RIP can handle them. (3, 7)

8. What we all know we need from time to time, mentor or not. (15)

9. Point of Purchase. (3)

11. Use it to avoid visible colour gaps and to capture. (4)

17. Which one do you put on press to print first or last? (6, 5)

19. The cornerstone of any success. (8)

21. Treatments. (9)

22. The type for emphasis. (7)

23. The drunk's definition of endlessness. It's original! (9)

30. Meets up evenly. (6)

31. Look-up Table. (3)

34. A Value Added Reseller. (4)

39. Marker for delimiting fields in a database, or the bill? (3)

40. System for managing what goes in and out. (3)

41. Bigger than a hyphen. (2)