Dare to gnaw through even tough bones, dare to ford dangerous rapids, break through the fetters of ideological concepts with even greater resolution.

– Xi Jinping, China's latest great reformer

Dear Reader,

Turning our backs on 2013 and looking forward to a brand new year is exciting, because we are looking towards the unknown. And 2013 has been, on balance, a good year for the printing and publishing industries so it leaves us more hopeful than previous years. It's not been universally brilliant, but it seems to be ending on a high note.

That could not be said for the end of 2011, when Manroland was being broken up and Kodak was retreating into Chapter 11 bankruptcy protection. At the end of 2012 IPEX's woes were just beginning, a lament that echoed throughout 2013. But IPEX ends the year on a much more positive note, with some major players revisiting their cancellation decisions.

IPEX's recovery won't be proven until the end of March however, the tenacity and dedication of the IPEX team has to be admired. The determination to keep focused as they have done takes guts and hopefully will be rewarded when the IPEX doors finally open. In the meantime there is much to be done.

We wish all of our loyal subscribers and readers the best of everything for 2014. Thank you for your marvellous support because we are certain that without it life wouldn't be half so interesting.

Enjoy!

Laurel, Nessan, Paul and Todd

In This Issue

A Brave New World in 2014

Laurel Brunner looks forward to the coming year with a preview of some of the major trends and changes that are likely to affect the graphic arts. Expect to see more inkjet presses, more reliance on cloud computing and a lot more awareness of the environment.

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The new challenger

In the last couple of years the wide format sector has embraced latex printing. The market has been completely dominated by HP but at the beginning of the year Mimaki started shipping its own latex printer, the JV400-160LX. Paul Lindström has put it through its paces.

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Burning bright

The book printing industry has embraced digital printing in the face of falling run lengths. Nessan Cleary visited Timsons, a UK press manufacturer that has teamed up with Kodak to develop an impressive inkjet press and a matching range of finishing solutions.

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'free Plates Going Mainstream

Laurel Brunner has been looking at the market for chem-free and process-free CtP plates, which now promise longer run lengths and support bigger formats, with a number of new plates announced recently.

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Regular Features & Special Treats

News Focus

Matti and **Bielomatik Leuze** have founded a joint venture company to integrate the Matti digital printing technology and knowhow into the Bielomatik portfolio of converting equipment for books and manuals. The new company, Bielomatik-Matti AG (bielomatti), is located in Switzerland.

EFI has further expanded its presence in the German MIS market with the acquisition of Lector Computersysteme GmbH, an MIS developer based in Mönchengladbach, with around 1000 customers. Lector's MIS products will become part of the EFI Productivity Software family, with its technology also integrated into EFI's wide format offerings, as well as the Fiery front end platforms. Lector's employees have joined EFI and EFI will also continue to support Lector's existing customers.

Fujifilm and **Inca Digital** have launched another Onset UV flatbed printer, the S50i, capable of printing 725sqm/hr or roughly 144 full beds per hour. It has a modular design, which Inca has christened as Onset Scale-able Architecture. Essentially this means that individual Onsets can be converted from one model spec to another at a customer site.

Xaar has leased a third facility at its Cambridge base as part of an increasing investment in its R&D. This has seen its R&D headcount grow by 60 percent this year to 130 employees. The R&D team has been re-structured into two divisions: The Bulk Piezo Technology Division will focus on developing new products and variants based on current technology; the Thin Film Piezo Technology Division will develop next-generation technology and products.

Heidelberg has invested in the German software company Neo7even, based in Siegen, in a move to gain a foothold in the multi-channel publishing growth segment. It aims to use Neo7even software to open up new business options for print shops, enabling them to offer their customers media-neutral publishing services, for example in print and online, on a wider scale in the future.

Heidelberg is also rationalising its small format press lines in response to the growth of digital printing in smaller formats, phasing out the GTO 52 next year. The GTO has been a popular model, with over 106,000 units sold since its introduction in 1972. But Heidelberg believes that the Speedmaster 52 line offers better options for future growth.

GMG has added the PantoneLIVE ecosystem and colour libraries to its OpenColor and ColorProof platforms. PantoneLIVE is a cloud-based, colour management service that now maintains 22 generic packaging-relevant color libraries for carton, flexible packaging and label applications.

Canon has released v5 of its Prisma Production workflow. This features a host of enhancements and expanded workflow management capabilities, including the new InkControl and Print File Enhancer tools, as well as modifications to existing features. While offering flexible usability, the software can also help print service providers (PSPs) to boost efficiency, improve productivity and increase connectivity.

Agfa has published its Q3 figures for 2013, which show a drop in revenues of 10.1 percent, with a corresponding drop in profits of 8.1 percent. Agfa has blamed this

on exchange rates and the generally weak economic conditions as well as further rationalisation of its product portfolio.

EFI is planning to repurchase $200m worth of its own shares over the course of the next three years. The company has set a revenue target of $1 Billion and non-GAAP earnings per share of $2.30-$2.60 for FY2016.

Agfa has updated its Apogee Storefront web to print system to v2. Storefront is a cloud-based system and is tightly integrated with both the Apogee and Asanti workflows. The new version features support for variable data processing and documents of different sizes, and a more refined support for business-to-business e-commerce.

Fujifilm has updated its XMF Remote online print management system to v9.5. The main improvement within XMF Remote 9.5 is a new user interface based on the HTML5 web platform, which gives brand owners the opportunity to take advantage of a safe and fully functional tool. The user interface has been updated and there's a fast page-scrolling mode that lets customers review high pagination jobs. It also now shows multiple colour sample points simultaneously so that users can immediately check the make-up of colours used in a job and speed up the review process.

Inca Digital has launched a remote monitoring system (see Spindrift 11-3), Inca Vision, available for all of its flatbed UV inkjet printers. The system lets Inca remotely monitor and diagnose a machine, as well as learn about the failure rates of key components. It's only offered in conjunction with a support contract. The system is currently in use in the UK and being rolled out in the US at the start of next year.

Enfocus has upgraded its PitStop PDF program to support the latest Mac OS, Mavericks, though Mavericks support won't be added to older versions. In addition, PitStop 12.1 is also compatible with Windows 8.1 and Windows Server 2012 R2.

Dalim has updated a couple of its workflow programs. Thus the production automation program Twist is now able to monitor FTP servers and also receive files via email. Dalim has improved the metadata handling abilities so that it can collect any email message content as metadata. There's a new ImageAction tool that can create and convert a multitude of image files, along with layer support.

Dalim has also updated its ES program, which is a customer-facing web based production management solution. This now supports more image formats including video, Flash and animated GIF banner ads along with website content, documents and imposed forms. It can also reference data stored in external databases, as well as its own internal database. Dalim has also updated the Dialogue 4 soft proofing engine to use HTML5 throughout.

HP has set up a new media certification programme for its inkjet web presses. This makes it easier for customers to find substrates suitable for their applications that will run on the presses. The new certification program will evaluate a range of different media, including inkjet coated, offset coated, inkjet treated uncoated, and offset uncoated papers. HP hopes that it will encourage paper manufacturers to develop and qualify a wide range of affordable media for HP Inkjet Web Presses.

EFI has claimed victory in a patents dispute with Durst after the Federal Patent Court of Germany invalidated substantial parts of a patent held by Durst related to white ink. Durst had previously sued EFI for allegedly infringing this German patent, No. 10 2005 006 092. EFI resisted on the grounds that the substance of Durst's claim had actually been disclosed years before.

Hollanders, the Dutch-based vendor specialising in wide format textile printers, has upgraded its 3.2m wide ColorWash XL washing machines. The upgrades include a new suction method that is used to generate faster drying with a dedicated system to vacuum the water out of the media instead of blow-drying the fabric. In addition, the ColorWash XL can now process open structured light materials, such as flag fabrics, at speeds which are around 50 percent higher.

Zetes Industries SA will be using Agfa's UV inkjet inks on two Bookmaster One systems from IAI industrial

systems, which will be used to print the variable data elements of Belgian passports starting from early next year.

I-Sub Digital has launched a new Digi-Foil digital foiling system. This uses a combination of a Mimaki UJF desktop printer, foil and a heated applicator. It means that packaging manufacturers can produce colour-accurate mock-ups, short runs and one-offs for proofing in just five to ten minutes.

FileMaker, the standalone Apple database developer, has released FileMaker 13. This has a new approach to deploying databases in a web browser based on HTML5. Called WebDirect, this mirrors the desktop version and changes made in one are immediately visible in the other. There's a new Concurrent licensing scheme so that a small business could in theory run FileMaker Server 13, plus a concurrent license for each user, who could then access the database via a browser.

Pantone has chosen Pantone 18-3224 Radiant Orchid as the colour of 2014, calling it "an invitation to innovation". Indeed, the press release waxes lyrical on the charms of Radiant Orchid: "An enchanting harmony of fuchsia, purple and pink undertones, Radiant Orchid inspires confidence and emanates great joy, love and health. It is a captivating purple, one that draws you in with its beguiling charm."

News Analysis

Ilford is facing fresh financial troubles, having announced that it is no longer able to honour its full financial obligations. The Managing Directors have already informed the employees and have sent a letter to the court of Fribourg declaring insolvency.

This follows on from problems earlier this summer after the former shareholder Paradigm Global Partners, a UK based financial investor, suddenly withdrew from the business. The management team of Paul Willems and Jean Marc Métrailler dealt with this in the short-term by taking over the company themselves.

They sold land owned by the real estate company Ilford Property and invested these funds in Ilford Imaging in order to provide sufficient liquidity to bridge the time until a new investor could be found.

However, despite making presentations to more than 20 interested parties from all over the world no new investor has been found and the last potential investor pulled out last week.

Furthermore, the company has lost revenues as customers have turned to competitors, while most suppliers would only deliver raw materials against payment in advance. The management has taken some restructuring measures back in August, but these measures have not been fully effective yet and the impact will only be realised in the first quarter 2014. For now Ilford is working with the Swiss authorities, whilst waiting on the court for further action.

Ilford, which was originally known as a black and white film supplier, faced a grim future when the move toward digital photography threatened film suppliers. But the company reinvented itself as a maker of inkjet media and inks and has been transformed into a developer of sophisticated multi-layer coatings. These include waterproof media for low cost aqueous inks and biodegradable media for use with solvent and UV prints. The coating technology can also be used in a broad range of applications including optical films for TV or LED lamps, and sensors for medical equipment.

However, given the failure to find a suitable backer since the summer, the future does look bleak for Ilford now.

Green Shoots

Our weekly Verdigris blogs are becoming a habit for many trade publishers, which is great news. It means we are able to promote the supporters of the project more effectively through the partnerships. In case you missed the latest batch, here they are again.

Environmental PR Fail?

Dear Sir or Madam, or Dear Laurel, so begin the emails from PR companies. Then follows a boast of one kind or another. It could be an installation story, a case study, some new technology or information, news about presence at a trade show, or a positive environmental achievement. Whatever it is, the story always bigs up the accomplishments of some supplier or other player in the graphic arts, IT and related industries. This is what PR is all about, but sadly the environmental boasts are relatively few and far between. This has to change if the graphic arts industry is to maintain its sustainability messaging and keep encouraging market awareness.

Environmental messaging is difficult because environmental impact is not really seen as an easy topic for communication. It can be hard to get to grips with because environmental achievements need to be appreciated in technical, social and economic contexts. This isn't a problem for companies who get it, such as those supporting the Verdigris project, but it can be a difficult conversation for those who don't get it.

Companies often feel compelled to send out press releases, so why not look at environmental topics? A change in thinking could help make a difference to printing and publishing's environmental impacts, especially at local level. It might also encourage companies in different geographies to follow the example of their peers in other parts of the world.

Here are a couple of for instances: we were told last week that each Italian citizen collected for recycling an average

of 48.9 kg of paper and board in 2012. Do you know what the figure is for your country? Nor I. The press release added that in 2012 the Italians recycled an astonishing 84.5% of paper and board packaging, and that in Italy the net amount of community benefits derived from separate paper and board collection between 1999 and 2012 is €4.3 billion which is an awful lot of money. There is more detail here: http://www.comieco.org/about-comieco/publications/news/paper-and-board-collection-recycling-and-recovery-in-italy-in-2012_40861.aspx

The second example is the WWF's recognition of Denmark for its inspiring leadership on climate and energy policies. The country has committed to derive 100% of its energy from renewable sources across the entire economy by 2050. This is a massive undertaking, even though Denmark

Verdigris

The Verdigris project is supported by Agfa Graphics, Digital Dots, drupa, EFI, Fespa, Heidelberg, Kodak, Mondi, Pragati, Ricoh, Shimizu Printing, Splash PR, Unity Publishing, and Xeikon.

is already well-endowed with renewables. The WWF has given its Gift to the Earth prize, its most prestigious award for governments and organizations, to Denmark describing the country as "the lighthouse we need to show that change is possible".

This is the sort of environmental news we should be getting for the graphic arts industry. Facts and figures about positive environmental impacts, from technology through to case studies, local initiatives and ideas for change. With more positive environmental impact stories floating around on the web, print buyers and consumers might just be less inclined to believe the myth that printing is a dying industry.

About Time

For those of us who find the concept of patience anathema, progress on sustainability is taking too long. However, the reality is that sustainability takes time and is probably a reflection of how hard it is for businesses to shift their thinking. Sustainability progress depends on a cultural change and this is a slow process. All industries, business owners and consumers have to move away from treating resources as an endless privilege to which we have absolute rights. Instead organisations operating in the graphic arts sector have to turn their thinking towards something more holistic.

Heidelberg is one of the big beasts of printing and a terrific example of how tough it can be to turn around a business, and indeed an industry. It has taken some 20 years for Heidelberg to move from sustainability vision to reality. The company's sustainability report for 2011-2012 explains

> Heidelberg is one of the big beasts of printing and a terrific example of how tough it can be to turn around a business, and indeed an industry.

in just the right amount of detail how far Heidelberg has come in putting its ideas into practice. The eco-ethos starts at the top and in Heidelberg's case reaches down through an organisational pyramid right to the shop floor. Major departments are represented on an ECO Council chaired by Stephan Plenz, a member of Heidelberg's management board.

The ECO Council and its associated working groups come up with ideas for environmental projects which are ultimately in the hands of employees. People are the basis of change in environmental impact however, many people in our industry are still too confused by the complexities of environmental science. This means that too often they prefer simply to ignore it, which is not good. In order to overcome this problem, Heidelberg has encouraged a change in employee behaviour through raised awareness of CO_2 emissions reduction.

Taking a simpler approach can help people to engage more readily, rather than trying to teach the nuances of Life Cycle Assessment, a decidedly daunting task. In any organisation, encouraging people to understand the principles of an environmental programme and the underlying reasons for its purpose is absolutely necessary. Understanding gives people the confidence to develop their own ideas for controlling emissions or cutting waste or whatever. Often such new ideas can be quite unexpected, such as Heidelberg's lead-free soldering which has eliminated the use of 300 kg of lead per year.

Ideas are the basis of progress and even though we want sustainability progress to happen more quickly, it is nonetheless happening. Together people are doing the work and changing the ethos. Initiatives and commitment from major players like Heidelberg provide the support for grass roots efforts as well as major projects driving positive change in our industry. Progress may be slow but it is steady and yielding real results.

Print Saves Trees Campaign

We recently came across a US industry association representing 350 printers on the mid-Atlantic coast, campaigning with much the same goals as the Verdigris project. The Printing & Graphics Association Mid-Atlantic (PGAMA) 'Print Saves Trees' campaign takes as its starting point the debunking of the idea that people shouldn't print because printing leads to environmental damage.

Take the underlying assumption in those messages at the end of emails saying 'Please consider the environment before printing this email'. In the graphic arts we should all know this is a silly message, but it isn't easy to explain why without getting bogged down in intricacies of sustainability and forestry. Instead the PGAMA explains a forest owners commercial alternatives to growing forests, which is to cut down the trees and sell the land for something else. The 'Print Saves Trees' campaign explains how print is just one of the many reasons forest owners have for growing trees.

And, as we all know, trees are pretty much the best option we have for cleaning up the excess CO_2 in our atmosphere. We need any possible excuse for growing them so printing should really be at the top of the environmental messaging list.

The most important point about the PGAMA's campaign is that it reminds people of the alternatives to commercially grown forests. Without a reason to replant trees, landowners might be tempted to sell their land for other uses, such as agriculture or raising cows and sheep or for development. This is the reason for the loss of so much forest in Europe and America over the last couple of centuries, but the economic realities of the industrial revolution no longer apply. We can do better because hindsight shows us where we have been and informs our future directions.

Where we have been was about feeding and housing people and building economies. This argument still has weight in developing countries but deforestation is not the answer because taking care of the planet's natural resources is part of a global collective future. Even APP, a notorious environmental vandal, accepts the need to cease deforestation of Indonesia's natural forests in the interests of Indonesia, broader conservation and of course APP's commercial future.

For printers and print buyers the PGAMA initiative is encouraging as well as being straightforward and easy to grasp. Simple, basic and honest ideas that are about the pragmatics of what makes print the only truly sustainable medium are the best way to educate. We can easily forget that as we inadvertently blind folk with environmental complexities that are often elitist. We hope other printing industry associations will take a closer look at the PGAMA ideas and consider adapting them for their region. Check out the campaign: http://www.printgrowstrees.org/facts.html

Astonishing Uptake of ISO 16759

As members of an ISO technical committee we are not allowed to share detailed data on standards uptake. However we can share the fact that response to ISO 16759

for quantifying and calculating the carbon footprint of print media has been astonishing and far beyond our expectations. Strong sales for this standard suggest that printers and print buyers are indeed anxious to understand how to account for carbon footprints. ISO 16759 is the only means of benchmarking carbon calculators and providing some mechanism for their quality control. However it can provide a quality control check for any sort of print media carbon footprint calculator.

The interest in ISO 16759 is definitely real. At a recent conference of the Nordic Offset Printers Association in Oslo a presentation on how cutting carbon also cuts costs prompted several printers to ask how they could get a hold of ISO 16759. They are interested to compare how

ISO 16759 is the only means of benchmarking carbon calculators and providing some mechanism for their quality control. However it can provide a quality control check for any sort of print media carbon footprint calculator.

their carbon calculators stack up and are even considering certification. These printers offer their carbon calculators online to publishers and print buyers to help them decide volumes, substrates and printing methods for their print jobs. In Scandinavia environmental awareness has long been in the van of the rest of the printing industry however, the keen interest we saw in Oslo for tools such as ISO 16759 is really amazing. If this enthusiasm is spreading throughout the industry, the environmental impact of print is surely improving.

There are promising opportunities for printers in other markets too. For instance, in the UK the top one hundred publicly traded companies are now required to report their carbon footprint, which will obviously impact their supply

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chains. The legislation came in as part of the UK's efforts to reduce GHG emissions by 80% by 2050, compared to 1990 levels.

The European Union is working on something similar that will extend to supply chains. Printers offering print media carbon footprint calculation services in addition to prepress, print and finishing, substantially strengthen their service offering. And they provide data that can be used to fulfil regulatory requirements, which has considerable value to clients. Regulations of the sort operating in the UK could become increasingly common as countries strive to meet international targets, which may explain ISO 16759's popularity.

Accounting for carbon footprints is still far from a legal requirement in most markets, but that could change particularly in developed markets. In the meantime standards such as ISO 16759 and ISO 14001 provide printers and publishers with a useful operational framework.
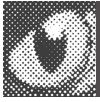
For more green news, check out The Verdigris Project:

Verdigris

http://verdigrisproject.com

A Review

Any colour you like so long as it's green

NEC is one of the few remaining manufacturers of high-end monitors. The new SpectraView Reference 242 monitor has an increased colour gamut, and also better green credentials than ever before.

We tested the predecessor, the Spectra View 241, some 18 months ago, and we can confirm that the new Spectra View 242 actually has a substantially larger gamut than

The NEC SpectraView Reference 242 can be hardware calibrated and uses an IPS panel, which means it is not sensitive to the viewing angle when you look at the images on screen.

the 241, close to 1.5 million colours. This is well over the gamut of Adobe RGB, so this monitor is perfectly suited for both high-end photo retouching, and soft proofing.

There are actually two models of the Spectra View 242, the standard model with undefined uniformity of the panels, and the Reference model with a specified and low

tolerance of the uniformity of the panels. For high end proofing and retouching it's important that a given tone value has the same visual appearance independent of where on the monitor you look. With the Reference series you are guaranteed to have a very low non-uniformity, while with the Standard model you may or may not have a good enough uniformity. In our view the Reference models are well worth the slightly higher price.

On top of enhanced technical specifications NEC also emphasises the improved environmental credentials for the new series of SpectraView monitors. In line with NEC's Green Vision, the LED technology helps reduce power consumption, and along with other features such as Eco Mode, Eco Scheduler, a Carbon Meter as well as an avoidance of hazardous substances in the production plus the use of bio plastics or recycled materials, so it should be a 'green' monitor.

There are five main criteria to look at in a monitor for colour critical work. The first is to ensure that the monitor has a large enough colour gamut to match the printing condition you want to proof. A good rule-of-thumb says that a monitor which can match the gamut of Adobe RGB, preferably with some margins, will also match the gamut of offset-based printing on coated quality paper.

The second criterion is for the monitor to have high enough brightness and contrast, to match the viewing condition in a viewing booth. While most LCD-based monitors can achieve quite a high brightness of 300 cd/m^2 or more, you need to reach up to about 700 cd/m^2 to really match the brightness of a viewing booth. The NEC SpectraView 242 Reference has a maximum brightness of 340 cd/m^2, so like most other proofing monitors you will need to dim the light in the viewing booth a bit, if you make side-by-side comparisons of prints or hardcopy proofs and the softproof on screen.

The third, and perhaps the most critical aspect, is to be able to do a full hardware-based calibration. This means that the monitor can be fully controlled by the calibrating software with no manual intervention needed from the operator, once the settings have been decided on. The calibration should also be made with 10 or 12-bit signal processing, to achieve a smooth gradual tone

The SpectraView Profiler calibration and profiling software makes hardware calibration possible, with several useful pre-sets as well as the possibility of custom settings.

reproduction, and high level of accuracy. The SpectraView Profiler software used with SpectraView 242 provides such hardware calibration, and supports the use of DVI ports, or even better, a Display Port.

A fourth point is the uniformity of the monitor, and the NEC SpectraView 242 Reference we tested had a maximum variation of 6% across the surface. This should be below 10%, so the Reference 242 passed this part of the test with a good margin.

The fifth criterion, often overlooked, is that the appearance of the colours has to be independent of the viewing angle. The SpectraView 242 Reference is an IPS (In-Plane Switching) panel, and this technology offers very good view angle independency. In addition the back-lit LED is of the GB-R type, which is said to give a better spectral composition of the white light.

An additional, and sort of given criterion, is that the monitor should be equipped with a hood to screen ambient light from the monitor. The Standard model of the SpectraView 242 doesn't come with a hood, while the SpectraView Reference 242 does, and we strongly recommend this for serious softproofing. What you also get with the Reference model is a "No Pixel Defect Guarantee", which again is what you want in a high-end proofing monitor.

How the test was done

We tested four of the five main criteria using the UGRA

Table 1: Colour gamut

Model	Total colours at D50	Total colours at D65	% of Adobe RGB at D50	% of Adobe RGB at D65
Adobe RGB 1998		1330000	N/A	100
NEC SV242	1453040	1324000	109	100

Table 2: U-DACT validation and viewing angle

Model	Multi Color	ISO 12647-2*	Uniformity (av)	Uniformity (max)	View angle (1-5)
NEC SV242	No	Yes	2%	6%	5

* ISO 12647-2 Offset printing on coated paper

Table 3: Specifications

Model	Screen size (inch)	Resolution	Price EU (approx)*
NEC SV242	24	1920x1200	1150

*VAT excluded

U-DACT v 2.0 analysis tool, while view angle sensitivity was tested through visual evaluation of a test form developed by Digital Dots. We give marks between 1 and 5, where 3 means acceptable view angle sensitivity, and 5 means the colours and tone values don't change their appearance even if you move sideways or up and down in front of the monitor.

The colour gamut is calculated using the Chromix ColorThink Pro software, where the total number of colours is extracted from the ICC profile. Monitors at or above the gamut of Adobe RGB will also do well when softproofing spot colours and multicolour prints.

The results in numbers

The test results are summarised in Tables 1-3. For colour gamut we used Adobe RGB colour space as the reference, but the Adobe RGB has a white point close to 6500 K, and softproofing is normally done using the D50 reference. So we show the results after having done calibrations for both white point references.

The SpectraView Reference 242 is a 24" monitor, and the combination of size, price and large colour gamut should be attractive for demanding users. The use of IPS panels in combination with GB-R LED for backlighting is a good one, and it's interesting to see that the native white point seems to be very close to 5000K, since this is where this monitor achieves it's largest colour gamut.

The SpectraView Profiler v5 calibration and profiling software can calibrate several connected monitors, not only NEC monitors. It supports a wide range of measuring devices, and includes functions for quality control.

The new SpectraView series matches process colours (CMYK) well, and has a large enough colour gamut for proofing spot colours and other wide gamut applications.

A Brave New World in 2014

Predicting what happens next year in the graphic arts has been uninteresting for years, because it's mostly been a tale of decline.

Printers were closing and publishers struggled ineffectually with atomising media needs. But the havoc the internet has wrought for many years is subsiding, and publishers are embracing new media models with more confidence. Imagination is fuelling ideas for new business, from on-demand vanity publishing through to automatic document delivery configured and managed online.

So it seems like a good time to look ahead to see what publishers and printers can expect in 2014. At the very least the IPEX roller coaster will keep everyone on their

The roller coaster that is IPEX could turn out to be the highlight of 2014. The World Print Summit is just one of its many special programmes available to visitors.

toes, creating a curiously intriguing and compelling buzz, at least until March. What happens after that may indeed depend on what happens at IPEX, which will bring together all media forms under a single roof.

Business Climate Improving?

Economists hold fast to known models and search for signs of growth in economic paradigms. However,

today's commercial environment has no true precedent, because so much commerce takes place online and all those economic paradigms are awash with excess data. We aren't economists, but we reckon the easing of credit will at least drive some investment in the graphic arts. IPEX will be the litmus test for evidence of improvement but how keen printers and publishers are to further their knowledge remains to be seen.

Whether in ignorance or with informed foresight, the publishing industry will continue to look for new models for monetising content, some of which will fail and some will work. For instance, we expect to see more lateral media partnerships with consumer orientated companies such as banks, online beasts such as Google or Amazon, big name brands and high street retailers.

Their business models will be based on multiple media channels targeting end users and consumers rather than the simple sales partnerships they have used to date. They will begin to derive integrated revenues from all forms of content iteration, most profitably in print since this is the only channel that is truly hard to pirate. We shall see creative uses of print to drive traffic to other more lucrative channels. Print will remain an advertising medium in its own right and will be used to catalyse ad views across channels. Cost per page will continue to fall and page values rise, particularly on digital presses.

Stimulation and Response

Printing companies must be able to respond to the evolving data-driven demands of customers. This is no different than in years gone by: printers invest because their customers force them to. However, the difference now is that successful leverage of investments into hardware and software depends on knowledge that many printers lack, either in IT or colour and data management, which are the primary drivers for a successful future. There are still too many such companies trading, and they will suffer from their accumulated ignorance of what is required to support multichannel delivery. Now is the time for printers and publishers to lead digital media conversations.

In the supplier community EFI will continue marching to market dominance, spreading its interests across all forms

of print from labels to ceramics, with the wise exception of newspapers. Consolidation within the supplier community will continue, however we will also see more innovative start-ups, such as Chili Publish, coming into the graphic arts. Heidelberg's process of reinvention will continue to improve its bottom line and we expect to see research efforts focused more on digital printing including printing onto 3D objects, and workflows. Kodak's return to fortune has been nothing short of spectacular and in 2014 its renewed focus on getting its technology to market will intensify. It's a wild guess, but perhaps the Nexpress business will pass to Heidelberg?

Digital Quick Step

Digital presses will continue to become the reality for all sectors of print, supporting short run and on-demand

2014 will be a turning point for Landa as he takes his technology beyond step one.

applications from textiles to labels and packaging. Digital presses will dominate the news in 2014, with new introductions from Canon-Océ, Fujifilm, HP, Kodak, Screen, Ricoh, FFEI and Landa. The leading names in this group will feel more acutely Konica Minolta's rising presence.

However, Heidelberg's deal with Fujifilm for an inkjet printing strategic partnership has the potential to reach digital fingers into many more pies. The teething problems early installs of HP Indigo 10000 are suffering should start to clear and we expect news on HP's web press technology. We would also like to see a clear workflow integration path. HP still has nothing to match the likes of Agfa Apogee, Kodak Prinergy or Fujifilm XMF.

Inkjet technologies will continue to dominate the mix, for instance 70% of Océ's sales come from inkjet. 2014 will mark the beginning of the end for heavy research and development investments into dry toner, which in evolutionary terms is approaching end of life. This commoditised market is now wholly price driven, with printing speeds and quality acceptable for most applications with little room for imaging improvements. Investments will continue to be directed at inkjet technologies such as Memjet and liquid toner digital presses such as the Xeikon Trillium, Océ's Infinistream and of course HP Indigo.

2014 will bring plenty of inkjet news, but we especially hope to hear more about what Xerox is doing with its Impika inkjet technology. Further iterations of the iGen for different applications can be expected, following the introduction of the Xerox 8250 for transactional work, but we aren't sure what more can be done with the CiPress, besides the single engine duplex (work and turn) version introduced this year.

Xerox seems to be shifting its focus more intensely to services rather than printing machinery and software, although this might be part of a strategy to generate opportunities for graphics technologies as well as IT. A similar shift of focus may encourage HP to spin off its graphic arts business. No one in top management appears to understand it or appreciate its capacity to generate cash and annuity revenue and Meg Whitman, CEO, speaks of the New Style of IT, not of print.

Technology

There is no shortage of software available to support the information services model. From Adobe's cloud-based Creative Suite and its concomitant support options, through to arrivistes leveraging web services technology

for printing and publishing applications. HTML5 will be at the heart of it all.

Innovations in software are by their nature hard to predict but we expect to see a split between those companies who opt for cloud-based methods for delivering software and those who prefer a non-hosted approach. Agfa, for instance, will continue to migrate software to the cloud as will Fujifilm. Kodak has so far preferred not to use a cloud model for professional applications however, the company already has an arrangement to use the Google Cloud for mobile consumers, so this will probably be extended to professional applications in 2014.

Environment & Sustainability

2013 was an amazing year for the environmental impact accountability of the graphic arts. The publication of ISO 16759 (quantifying and communicating the carbon footprint of print media) in July, barely two and a half years since work started on the standard was the highlight for us. The speed with which this standard has been selling from iso.org since July (roughly a copy per day) must be very encouraging for ISO. Ricoh is the first company to have its carbon calculator certified to the standard, and we expect sales and implementations to rise in 2014.

Further environmental standards for the printing industry are under development within ISO, however it is unlikely that any of this work will be published in 2014. We hope to make progress on standards to specify what paper profiles should include and on deinking. But this will be slow work.

Awareness of how environmental initiatives can improve business performance is not widespread in the graphic arts, but it is better than it was. Most environmental impact reduction has been incidental to more general cost cutting efforts, and we expect this emphasis to shift to something more proactive and financially driven in 2014.

Workflows

Much of the functionality of workflow software used in the graphic arts tends to be under-utilised and that probably won't change in 2014. In much the same way

as most users of Microsoft Word only use a fraction of its capabilities, printers and publishers only use what they need instead of fully leveraging their tools. This is a serious block to improving workflow efficiency and an impediment to process automation. Developers continue to work on ideas to outdo their competition, so in 2014 we expect integrated workflows using the internet to manage data and process flows with end users responsible for their file and data contents. This could be the end of conventional prepress file preparation however, it could also be the beginning of a new approach to media and device independent graphic arts workflows.

And, of course, PDF 2.0 will be published in 2014. It adds black point compensation and tools to specify output intent on a page by page basis. The CxF colour data exchange format, an implementation of XML, is supported to improve spot colour measurement and simulation accuracy, plus PDF 2.0 has features for universal accessibility. All this is likely to cause considerable turmoil in prepress workflows and with colour management, particularly for multichannel publishing and production. It will keep groups such as the Ghent Workgroup and the PDF Association busy for years, but whether the market will be willing to embrace their offerings is another question. What's for sure is that it won't happen in 2014.

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Colour Management

Despite massive technological advances, effective colour management is still problematic for many media professionals. 2014 sees the publication of the latest versions of crucial parts of the ISO 12647 series, including -2 for sheetfed offset printing. The latest version reflects popular paper types which increasingly use optical brightening agents. References and assumptions about film-based workflows are gone and TVI curves are now defined for printing with linear plates. Overall the documents are much tidier and the language clearer, including the guidelines for conformance assessment.

Colour management is about data management and various standards are in the pipeline to improve colour control. Subject to vote are another two important ISO standards that will provide useful tools for digital printers. ISO 15339 is a data-driven process agnostic print media production standard, that essentially specifies how to print by the numbers. ISO 15311 specifies how to measure print output independent of the means of production.

Colour management's move to the cloud has got off to a bit of a shakey start, but users are starting to embrace technologies such as Pantone LIVE. MatchMyColor Colibri, Schawk's ColorDrive, Chromix Maxwell, GMG Cozone, are all following the Pantone LIVE lead so we expect to see cooperations within this cohort so that customers will have the freedom to work with their preferred tools. CfX will become the format of choice for colour data operating within a broader XML structure.

All About Data

It is clear that the future lies in data handling and having the tools and brainpower available to exploit data-driven media needs. In combination with ISO's graphics technology standards, companies such as Alwan, GMG and CGS should be extending their reach further up supply chains, as Esko is already doing.

Rather unkindly we hope that 2014 will see further losses of printing companies whose only concern is cost and who refuse to embrace new ideas and intelligence. Their collective, almost wilful, ignorance is blocking the printing industry's ability to evolve. Publishers need technically skilled partners who can exploit digital media and online environments to deliver print and so much more. Success in 2014 lies in keeping close to customers, reaching out to developers to better understand how their tools can make money and applying rigour to how the business runs. None of it is rocket science but it's time to stop navel gazing and get the motors running.

– Laurel Brunner

The new challenger

Mimaki has a wide range of large format printers, and among the latest models introduced on the market is the JV400-160LX, which uses water-based latex ink.

Mimaki was founded in Japan in 1975, and has built a good reputation, both in Asia and all over the world. The JV400-160 LX has a couple of technological developments that highlight the creativity of the engineers at Mimaki. It can print white, and while previous technologies using latex ink had problems with sedimentation of the white pigments, Mimaki has introduced a circulation pump in the JV400-series to avoid this problem.

Another example is the gentle and even heating of the substrate and ink layer in a three-step fashion. First the substrate is preheated, then further heating is applied at

The Mimaki JV400-160LX is a roll-to-roll large format printer for latex ink. The latex ink is instantly cured at low temperatures, contains no VOC and has no odour.

the actual printing stage, and there is a final heating stage after printing, together with a fan to dry the printed media. In this way heat can be applied at a low temperature, down to around 60°C, while being evenly applied over time, over the surface.

The number 160 in the name of this model stands for the maximum print width, which is actually 1620 mm. The

JV400-160LX has two array printheads with four rows of 320 nozzles each. The print heads can be configured in three ways. In 4-colour mode, both print heads are used for CMYK only. In 5-colour mode, Cyan and Magenta are

Rod Hill, operations director at Morgan Signs, standing behind the Mimaki printer, and Mike Kitchen, at PopIn Vehicle Graphics, part of the MS Group, are very pleased with how the JV400-160LX has improved the throughput in the vehicle livery department.

doubled up, as well as White, while Yellow and black (K) each have one channel. In 7-colour mode, only White is doubled, and Orange and Green are added to CMYK to enable Hexachrome-like printing to expand the colour gamut. The printheads offer variable dot size down to 4pl droplet size. This doesn't transfer directly to addressable resolution, but in High Quality Print Mode this will be equivalent to 1200 x 900 dpi.

The JV400LX is a roll-to-roll wide format printer, and has a maximum print speed of 18 m²/h in High Speed Mode. The default RIP software is RasterLink 6, with special functions for the JV400, such as the ability to print three ink layers in one pass. RasterLink also has functions for reducing substrate waste and support using multiple ICC profiles on the same job, for example, when trying out which profile suits a certain image best in a test print.

Inks

Mimaki has released a new series of ink called LX101, which includes orange and green as an addition to the standard CMYK. The new ink offers glossier, more vivid colours than the previous ink, LX100, while the LX101 black ink has a higher density than that of the LX100 black.
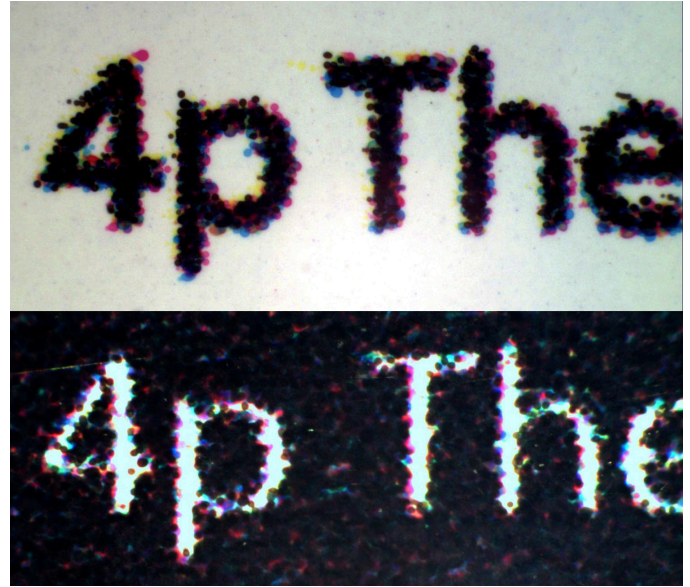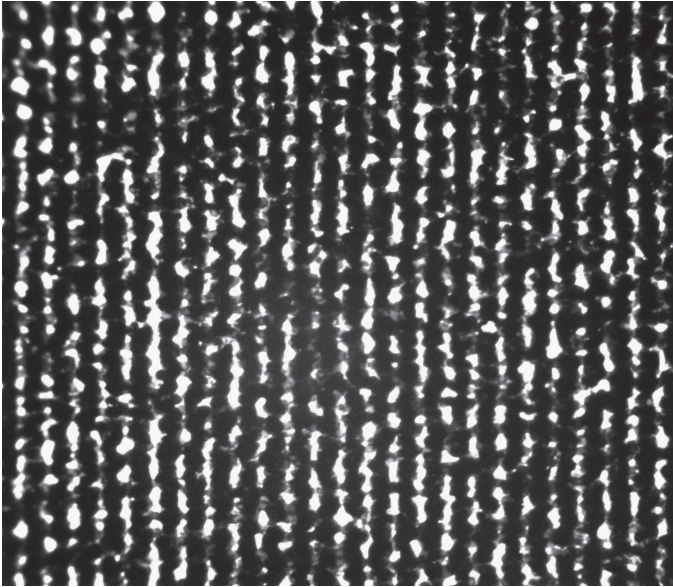
*Left: In the resolution test, the Mimaki JV400-160LX showed identifiable line pairs up to the equivalent of 300 dpi, in the horizontal direction, and up to 200 dpi in the vertical direction. Shown here is an image of the sample as seen using a digital microscope at about 500x enlargement. **Right:** The JV400-160LX could reproduce four point text well, both as black on white background, and inverted white on black. Shown here is an image of the sample as seen using a digital microscope at about 500x enlargement.*

Both the LX100 and LX101 inks are manufactured for use on a wide range of substrates, including fabric, vinyl, self adhesive foil and film, as well as stretchy materials and, of course, paper. The water-based latex inks have no odour and since curing occurs instantly they don't contain or emit any VOCs in the process. The inks are also particularly suitable for flexible applications, like vehicle wrapping.

When using the JV400LX in its 7-colour mode with the LX101 inks, the achieved gamut surpasses by far the colour gamut of both standard flexo printing and litho offset on coated paper. The colour gamut achieved in our test is around 500,000 colours. According to the ISO 12647-6 standard, flexo printing reaches around 380,000 colours on coated paper, and for offset printing according to the ISO 12647-2 standard, the gamut is about 400,000 colours, also on coated paper.

Customer satisfaction

Morgan Signs in Cardiff, UK, a long-term user of Mimaki printers, is one of the first users of the JV400-160LX. Rod Hill, MS Group's operations director, explains why they chose the JV400-160LX: "The Mimaki latex printer has very low running costs and we are able to select from a huge range of materials. The output quality is head and shoulders above the competition".

Craig Lovegrove, managing director for PopIn Vehicle Graphics, part of Morgan Signs' operations, explains why the JV400-160LX is particularly well suited for their kind of work: "We had to offer faster turnaround times, so removing the need to out-gas prints as when using solvent inks, latex ink was top of the list. We looked at latex options, and although alternatives initially seemed better at face value, once we dug a little deeper, the Mimaki printer had a number of compelling factors that made it an easy decision in the end".

The MS Group is certified to the ISO 14001 environmental management standard, and the Mimaki JV400 latex printer fits well with its environmental policy.

How the tests were done

Our test required participants to provide output samples from test files supplied by Digital Dots. For the colour gamut test, we use a standard IT-8 CMYK profiling chart; for the resolution test, we use a specially designed chart with line pairs at a wide range of spacings. The participants print these under optimum conditions onto two types of substrates: glossy vinyl and uncoated paper.

For visual evaluation of general image quality and smooth reproduction of tonal graduations, we also ask for an output of a 70x100 cm poster. This poster was also used

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Technical specifications summary

Vendor	Model	Inkset	Max media size (mm)	Max resolution (dpi)	Print speed
Mimaki	JV400-160XL	CMYK+W (LX100) CMYK+O+G (LX101)	1620	1200	18 m²/h

to evaluate the uniformity of ink density across the whole width of the substrate.

We take five measurements of full tone cyan and then use the SpectroShop software to compare the colour deviation between the first sample and the other four. As a threshold we use 2.5 ΔE, the same value suggested in the ISO 12647-2 standard for when printing solid spot colours.

We measure colour gamut by creating a standard CMYK ICC profile from the IT-8 characterisation chart data, allowing 400% TAC and using UCR for black generation, in order not to limit the gamut in the profile itself. This is done using an X-Rite i1 Pro spectrophotometer and professional profiling software. The profile is then analysed with Chromix ColorThink Pro to yield a figure for the total number of discrete colours contained within the gamut. We define discrete colours as those separated by a Delta-E value of 1, using the CIELab colour space as reference.

To measure resolution we view the prints of the line pairs chart under a digital microscope. We want to determine the point at which the lines could no longer be differentiated as distinct pairs. We call this the resolving power of the printing system, and this is often different than the stated addressable resolution, as per the technical specification. The resolving power is a combination of the native resolution of the print heads, droplet size and mechanical precision when moving the print heads and/or media while printing. As a complement to the line pair chart we also print text, both positive black on white and inverted white on black, in a small font (down to 4p).

Results in numbers

Mimaki submitted test samples produced using the 7-colour ink setup with the JV400-160LX using the
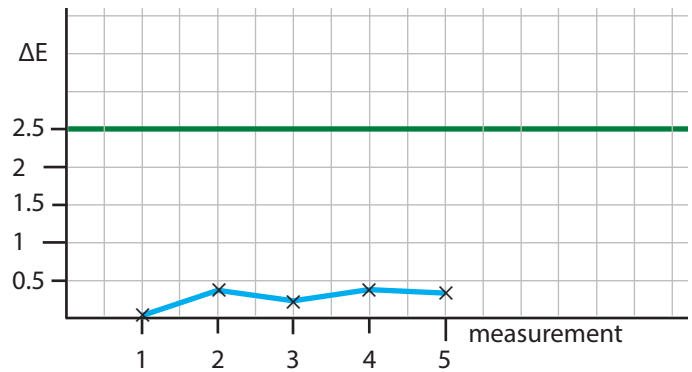
When measuring in all five samples of solid Cyan across the width of a 70x100 cm poster, the uniformity of the ink density was very good. We use a threshold of 2.5 ΔE, as suggested in the ISO 12647-2 standard, when printing solid spot colours. Any colour deviation lower than 1 ΔE is invisible to the human eye. The first sample is compared with itself, so will give a zero colour deviation.

LX101 inks in High Quality mode (1200 x 900 dpi) on Avery vinyl. Our gamut test indicated a total of around 500,000 colours (which exceeds the approximately 400,000 colours when printing offset inks on coated stock). For the uncoated substrate, printed on Core Silk 200 gsm stock, the gamut was measured to be 320,000 colours, significantly less than on glossy substrate. But this is expected, since prints on uncoated stock normally produce a less vivid and colourful result. It's still much higher than for offset on uncoated stock, which is about 170,000 colours. The reason why the latex inks produce a higher gamut on uncoated stock than offset is most likely the thicker and more opaque ink layer.

In the resolution test, which again was printed on the Avery vinyl and with the same resolution settings as the colour gamut chart, distinct line pairs could be seen at up to 300 dpi in the horizontal direction and at up to 200 dpi in the vertical one. The small text was clearly reproduced down to 4 point, both the positive text and inverted text with white on black background.

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Regarding uniformity the Mimaki JV400-160LX showed a maximum deviation across the page of 0.4 ΔE (and an average of only 0.2 ΔE), which is very, very good. A colour deviation below ΔE 1 is impossible for the human vision to detect, so the result for the JV400 has to be said to be excellent in terms of uniformity.

In conclusion, Mimaki seems to have managed to combine both high quality with modest running costs, reasonable speed and good environmental credentials. The new inks seem to work well on a wide range of substrates, and to have improved the performance of the system.

– Paul Lindström

Burning bright

In Ray Bradbury's 1953 novel Fahrenheit 451, society has turned its back on books, preferring instead easy entertainment such as games and television. To preserve the citizen's happiness, books have been outlawed with firemen burning any that they find. A resistance movement fights back with each member choosing a book to memorise before they all disappear. The novel was written in response to the censorship of the McCarthy era and yet today books are struggling to survive, much as Bradbury predicted, with a recent survey finding that 25 percent of all adults in the US did not read a book at all last year, either in print or electronic format.

Sadly, we live in an age of mass surveillance and indifference, where everything we want can be delivered on-demand, but mostly we look for simple headlines and soundbites, for ready-cooked meals and cheap thrills. Given falling books sales it seems that few of us make the time to stop and look at the world around us or to think through the sort of complex issues of who we are and how we live that a good novel can help to unravel. Book printers have responded by embracing digital print technology and this month we've been to see one of these in particular, the Timsons T-Print, which was launched at drupa last year.

Engineering tradition

Timsons was founded in 1896 by Arthur Timson, an engineer who started repairing, and then making, machinery for the shoe industry, which dominated the local area in Kettering, Northamptonshire in the UK where Timsons is based. Today the company is owned by his grandaughter, Jane Timson Brown, though the managing director is Jeff Ward who, like many of the senior management, began his working life as an apprentice for the company.

Timsons moved into printing when a shoe manufacturer asked for a machine to print labels for shoe boxes. It has specialised in book printing machines for the last 40 years, installing some 250 book presses worldwide in that time.

Timson's still runs its own iron foundry and it's an impressive sight watching molten iron, which can reach

The Timsons T-Print is a large press, with the paper passing through one set of printheads, then folding back on itself to print on the reverse via a second set of printheads in the upper deck.

The T-Fold takes the web from the back of the T-Print.

temperatures of 1500º, being poured into the mouldings. Technical sales director Jon Walker says proudly: "Everything here is manufactured in the UK. We are still a traditional engineering company." It takes 25000 man hours to make a conventional press and around 10000 hours for a digital one.

But these days Walker says that the company mainly exports its products, with an even split between Europe and North America. Timsons has a European sales subsidiary in Milan, Italy, and a sales and service company in Illinois, North America.
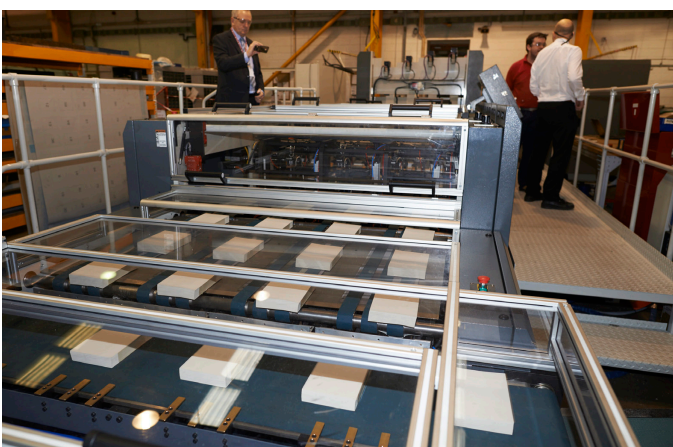
The T-Book splits the web into four ribbons, collates the pages together and glues them into book blocks.

Finishing

Timsons has built its reputation with large litho presses but has changed with the times. Walker says: "As run lengths have declined we have focussed on improving makereadies and uptime." This has led to the zero makeready T48A web press.

By 2008 the company started to look seriously at inkjet, opting initially to concentrate on the finishing side by developing the T-Fold. Walker says: "It's a loose leaf sheeting and folding system." It can cope with variable signature sizes and produce a wide range of different book types. This works well with perfect bound books and Timsons has recently developed the concept to further extend the finishing and to work with any type of web-fed digital printer.

This was followed by the T-Book, which is an automated solution for producing book blocks. This takes the full web width from the printer and splits it into four ribbons. Each ribbon has the pages for the book in sequence so they can be cut and stacked together and then glued, producing four book blocks across the width of the machine. The glue is just to hold the blocks together so they can be handled easily until the cover and binding is added. It runs at 650 fpm, or 198mpm, enough to keep up

Jon Walker, technical sales director of Timsons.

with digital printers and can produce 4000 book blocks per hour.

Kodak's Continuous Inkjet

Last year Timson's went a step further, collaborating with Kodak to produce a high volume monochrome digital book printer, the T-Print. Walker claims that this is "the widest, most productive inkjet press to date". It uses two of the Kodak Stream print lines stitched together to give a width of 1320 mm. It runs at 200mpm at its maximum 600x900 dpi and at 300mpm at 600x600 dpi.

Walker says: "We wanted to design a press that could sit alongside our traditional litho presses and not look out of place. It's capable of running with the same paper stocks as our litho presses because our customers do not want to carry a second inventory for their digital press. And they want to be able to decide late in the day which machine to use based on run lengths and economy."

For now there's only the one up and running, at Clays in Norfolk, United Kingdom. A second one was installed at the MPG plant in King's Lynn in the UK but since its insolvency this is now earmarked to be shipped to Bang

Printing in Minnesota, USA, early next year. And, of course, there's a third at the Timson's factory.

Sitting next to the T-Print in the Timsons' factory was the Prosper 1000 and T-Fold that came out of the now defunct MPG. There's a useful upgrade path from one to the other. Jeff Edwards, managing director of Timsons, says that its down to volume, noting: "The T-Print is for 24 hours non-stop production." The Prosper 1000 is good for up to 5m books per year. The T-Print is the best option for 9m books and over and customers have a choice between 5-9m. Both use exactly the same imaging heads, but the T-print can run faster, up to 300 mpm, thanks to its heavy duty metal frame that damps down vibrations better than the much smaller Prosper. The T-Print also has twice the print

At the heart of the system are these Kodak print heads, identical to those fitted to the Prosper presses.

width so it's a considerably more productive machine. In addition, Timsons fits it with a more expensive automated roll changer. The T-print will cost around €3-3.5 million including finishing but depending on the configuration, while the Prosper 1000 costs €1.1m though Erwin Busselot, Kodak's marketing manager, estimates that with the finishing it will be closer to €1.4m.

Busselot says that the European market would rather have the smaller Prosper because of the smaller volume. He also says that there's no need for a wider version of the Prosper because it's more efficient to increase the speed and add electronic collation than to have a wider machine.

Kodak has been steadily improving its continuous inkjet printers since we first saw them. The heads now last for

Timsons operates its own foundry - here molten iron is being poured into moulds.

an average of 1200 hours, roughly double that of the first generation, and Busselot says the aim is to reach a lifespan of 2000 hours. The improvement has come through improving the heads, the inks as well as changes to the maintenance regime and better training for operators. Kodak refurbishes the heads and returns them to customers, many of whom may not have realised that Kodak has updated their heads so that most customers are now running fifth generation printheads.

Kodak has also improved the profiles that it makes so that it's easier for customers to experiment with the amount of ink used – reducing ink affects the optical density but can lead to considerable savings per job. Busselot says there are subtle differences between markets, noting that UK customers are very cost efficient whereas in France image quality is more important. Kodak has had quite a lot of success with the mono Prosper and Busselot says that mono is acceptable in the European book market whereas colour is preferred in North America. Colour is a harder sell, partly because few other applications outside

of direct mail have the volume necessary to justify the cost.

Busselot says that there can be considerable differences between paper grades, even for the same type of paper: "We have seen that we can reduce the ink levels by 20-30 percent and still get a sharp image. So it's important to get the right grade of paper as you can get a better image and a lower ink consumption by choosing paper grades carefully."

Although the Prosper 1000 is a monochrome press, it has a modular design so that it can be field upgraded to a full Prosper 5000 colour press.

Publishing market

Busselot notes that for most book publishers 80 percent of their revenue comes from 20 percent of the titles, meaning that they have to find a cost effective way of producing the other 80 percent in shorter run lengths. This has

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meant that most publishers have moved away from the speculative inventory model of printing many copies and warehousing them, in favour of shorter runs as needed. He says that 60 percent of all books now have run lengths less than 1000.

In part this is down to the growth of digital editions. Ebooks now account for 30 percent of the US market although the American Publishers Association shows a decline in ebook sales. In contrast, ebooks account for 10 percent of the UK market.

However Busselot argues that the book industry as a whole is shrinking. There has been consolidation amongst publishers while at the same time there are fewer book stores and those that remain have diversified into selling other things.

But there are some bright spots. Belgian researchers at Hasselt and Antwerp University have found that people buy more romantic fiction if the shop smells of chocolate. Many books are sold as gifts so some book shops prefer to stock attractive deluxe editions.

In addition, publishers have sought to exploit the digital nature of book technology. In some cases this has meant personalising the cover or addressing the foreword to a named person. In France, Editions Comédia has a scheme for completely personalising a story to one reader – customers fill in a form with someone's personal details and these are then woven into the storyline, which makes for a unique gift. Other books have used QR codes and augmented reality to take readers to dedicated online sites.

So, join the resistance, fight back and read a book today, but preferably after you've finished reading Spindrift.

– Nessan Cleary

'free Plates Going Mainstream

Whether you call them chemistry-free or processless, new generation printing plate technologies are becoming commercially compelling.

We don't want to take sides in the semantic differentiations, so we'll call them 'free when we talk about this important technology. And we're talking about it because the plates, which do not need a chemical processing step or the associated hazardous waste disposal, are coming of age and moving out of their niche. They increasingly satisfy market demands for imaging speed, quality, cost and performance on press.

Performance on press, imaging speed and cost have kept these plates relatively niche. Commercial sheetfed applications account for around half of all commercial and packaging print and are an attractive market for 'free plates. But printers in this sector need plates that are quick to process, stable, robust, easy to use and that deliver high image quality, so uptake has not been universal. However this could change with the latest generation of technology which is quicker, more robust and works on more demanding substrates, such as recycled stocks.

Until recently 'free plates worked for a minority of commercial applications, but the latest generations can satisfy over 65% of offset printing requirements. Based on the production cost and waste savings environmental and economic arguments for 'free plates are clear, but today's offerings image at the rated speed of most platesetters, are robust enough and can image sufficient tonal range. Add to this operational efficiencies, cost savings and reduced environmental impact, and it is clear that this technology is a suitable replacement option for conventional direct imaging plates.

Cutting Waste & Costs

Lack of a processing step in production reduces the amount of hazardous waste and the waste disposal costs associated with print media production. Errors associated with unpredictable processing variables can also be

Processless technologies have been around for decades with all sorts of companies having a go. Xerox, for instance, introduced a processless film called Verde way back in 1995. Chemists have been striving to minimise production and reduce chemical use and waste but have struggled with plate imaging being slow, fuzzy and expensive.

Most problems have been solved, apart from cost. Processless plates remove the non-image area from a plate's surface either with ablation, phase change or wash-off technology. The secret is to combine hydrophilic and oleophilic layers and an increased water-acceptance in non-printing areas, so that the press can be started up rapidly.

Processless plates generally use thermal energy to expose the plate surface, but some use violet light. The laser energy causes the coating on a plate to change its solubility. Subsequent water washing, gumming or fount solution removes the soluble areas either in a special bath or on-press.

Ablation plates, such as the Presstek Anthem, are exposed with a high-powered laser that burns the plate surface away from the base, creating debris which must either be collected, adding cost to the imagesetter, or removed on or off press.

A more widely used alternative is phase change technology, as used by Kodak's Sonora and Fuji's Brillia Pro-T plates. Laser energy causes polymers in the plate coating to cross link and bond with the plate surface during exposure, thus creating an image on the plate. The areas that do not link are soluble and are removed on press to complete the development. The image on plate is not clearly visible until this wash-off stage is complete, so measuring the plate, and linearising the platesetter, requires some sort of a workaround.

Agfa uses a latex coalescence technology in its Azura plates and in the latest generation of the technology the plate image is visible after imaging. The plate coating is composed of tiny rubber pearls that melt and fuse to the plate surface during laser exposure. The plate is then finished with an inexpensive mixture of gum and water to create the printing surface. The gumming can help enhance the plate image.

reduced because their source is eliminated. And costs associated with water, chemistry, equipment, energy and manpower are gone. Prepress time is saved along with the

Agfa's Azura TU is designed for long runs up to 150,000 on commercial sheetfed offset presses.s

resources need for cleaning out processors or clean-out units.

'Free plates are increasingly able to match the performance and productivity of plates that require chemical processing. They are available from mainstream suppliers such as Agfa, Fujifilm and Kodak in a full range of sizes and gauges, right up to Very Large Format (1524 x 2057mm). Such plates make a valuable contribution to operational efficiency because they obviate processing variables and help to streamline production. They image quickly and can hold stochastic screens with dots as small as 20µ. These plates are also a source of cost savings since they do not need a processing or specialised clean-out unit or the energy and time required to run and maintain them.

New(-ish) 'Free Plates

In the last few weeks we have seen two important 'free plate announcements. They are important because Agfa's technology raises the bar for run lengths for commercial sheetfed offset, and because attention to Sonora is Kodak's first marketing push following its Chapter 11 exit.

Kodak's Sonora was introduced at drupa in 2012 during Kodak's dark Chapter 11 days and perhaps didn't get the marketing attention it deserved. The basic Sonora technology hasn't changed but Kodak is pushing its advantages, such as its suitability for UV inks up to 10,000 impressions. Based on Kodak Thermal Direct technology, the Sonora processless plates are more than twice as fast

as Thermal Direct and are good for 200,000+ impressions. There are two versions: the Sonora XP for commercial and packaging applications, and the Sonora News for newspapers. Tonal range for Sonora is 1-99% at 200lpi.

Agfa has introduced a third generation version of its Azura plate. The Azura TU with a tonal range of 1-99% supports linescreens of up to 240 lpi, holding a 20 micron spot and tough enough for run lengths of up to 150,000 impressions. This is quite a leap up in durability for this plate making it more attractive to volume sheetfed offset
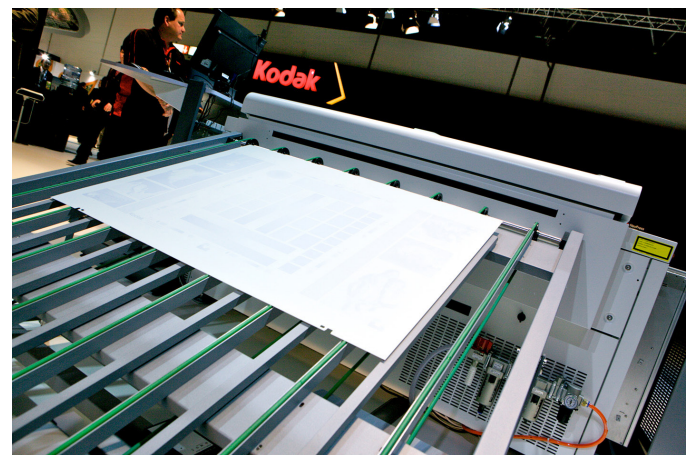
Kodak's Sonora handles runs of over 200,000 and is tough enough to work with UV inks up to 10,000 impressions.

printers. Also attractive will be the fact that Azura TU is daylight stable, so you can see what is on it. Azura TU images at the rated speed of most thermal platesetters and works with most digital 830 nm platesetters on the market, and has been accredited for many of these.

▶

In addition to these two options Fujifilm has its Brillia Pro-T3 which has similar characteristics to Azura TU and Sonora, although its run length is limited to 100,000. Presstek's Aurora and Anthem lines are suitable for shorter runs, up to 50,000 impressions, as is Ipagsa's Klasse NPN3.

Although it has been relatively quiet for the last couple of years, we expect to see an advance in market growth for plates that require no interim processing. Printers are running out of areas where they can cut costs and improve process efficiency, so platemaking is an area ripe for improvement. The technology is ready and proven and the ecological and cost of production arguments are clear. Let's hope that the price of this technology is also getting more compelling and that more printers will embrace it.

– Laurel Brunner
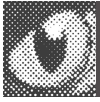
X-word Puzzle

Number 48*

This puzzle is long enough to keep you busy over the holiday period, but it doesn't have a particularly seasonal theme. We were probably in denial when we wrote the puzzle and consequently have completely omitted anything even vaguely festive in either clues or questions. If you are similarly agnostic to the holiday spirit, it probably won't matter. If you are not, we apologise for the non-party spirit.
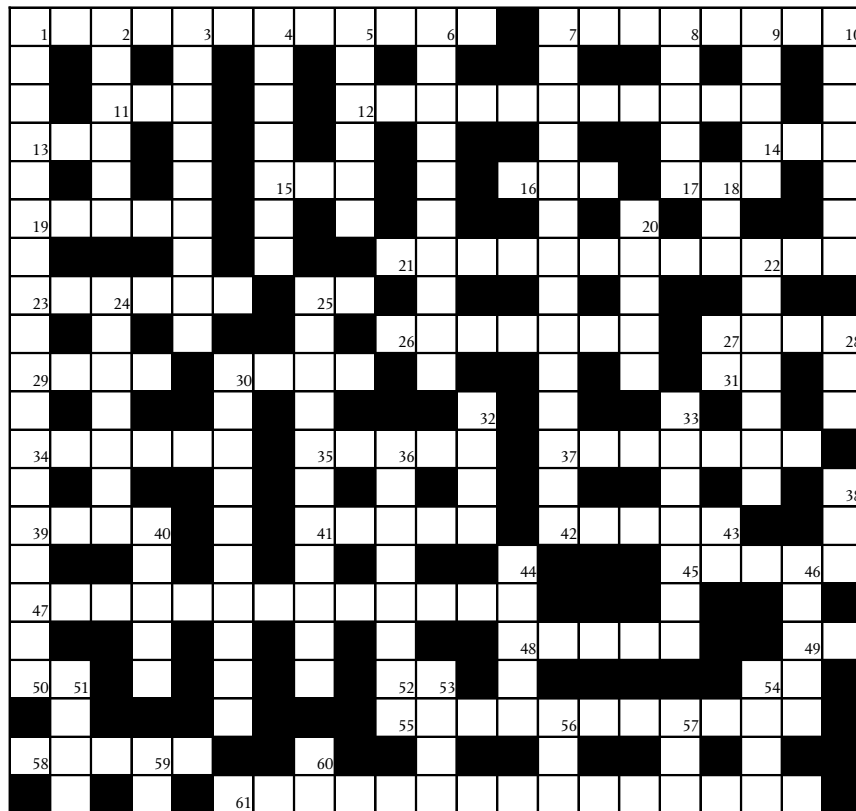
Across

1. The easier the better for prints entering the recycling chain. (12)

7. White chemical compound used in resins and for large format signage. (8)

11. Print Standard Offset (3)

12. Consisting of particles. (11)

13. Bring Your Own. (3)

14. To regret. (3)

15. Health, Safety & Environment. (3)

16. Random Access Memory. (3)

17. An imaged spot. (3)

19. Fatty milk in France. (5)

21. Distributing and accessing digital data, across people, between sites? (7, 5)

23. The stampeding cost or required payment. (6)

25. Intellectual property. (2)

26. A two-dimensional topology. (7)

27. … and repeat? (4)

29. Fortune. (4)

30. Not different. (4)

31. @ (2)

34. No equivalent, only. (6)

35. Necessary action for elasticity in dough, like it's necessary. (5)

37. Blurred image used to reduce an image's dynamic and density ranges. (5)

39. Beers with limited fizz. (4)

41. Sites beyond repair he destroys. (5)

42. Put location position. (6)

45. Substrate used for carrier bags and such. (5)

47. Artists, customers and suppliers gain confidence with more of these. (13)

48. Simple. (5)

49. Exist. (2)

50. Not yes. (2)

52. Not sure? (2)

54. In HTML it means to break lines. Or it's bromine. (2)

55. Able to be supported, like the environment, life, a business. (11)

58. C+Y+M=? At least in theory. (5)

61. They're the numbers in La*b* used for ICC profiles. (6, 3, 6)

Down

1. Necessary to establish numbers on press, if it isn't possible to measure a fully dry print. (3, 4, 11)

2. To lay page images into position on plate. (6)

3. The route of all success, away from ignorance. (9)

▶

4. In a chemistry-free plate system they sweep away debris. (7)

5. Expired. (6)

6. In prepress what determines press utilisation. (10)

7. Raw material for paper not chemically derived. (10, 4)

8. Prize to grant in recognition of merit. (5)

9. Doing not much. (5)

10. Reckons it's likely, anticipates. (7)

18. Open Print Interface. (3)

20. Concur. (5)

22. Collected into a font, graphemes, communications. (7)

24. Store. (7)

25. Where prepress costs can be saved. (2, 4, 5)

27. Mandela's home and heritage. (2)

28. Object for fixing, or fixing a colour? (3)

30. A spot colour requires this. (7, 3)

32. Probabilities. (4)

33. Make wider fine lines that won't print. (7)

36. Different, slightly altered iterations in a series of printed publications. (8)

38. Not thin. (3)

40. Arrangement, to prepare. (3, 2)

43. Emergency Room. (2)

44. Tool for roasting over an open fire. (1, 4)

46. Core element of paper and textiles. (5)

51. Needed for fusing in xerography. (4)

53. Fatty substance used in puddings and pies. (4)

54. Not red or green. (4)

56. Maker of RISC chips for mobile devices. (3)

57. Everything. (3)

59. Common Era. (2)

60. Infra Red. (2)

*Answers in the next issue

Number 47 – Answers

S	P	E	C	I	A	L		C	A	M	P	A	I	G	N		U
T			A			O		R			H		P		A		V
R	E	A	L		A	S	P	O	T	C	O	L	O	U	R		C
A			I		S		S			T				R			U
T	U	R	B	I	N	E		S	C	H	O	O	L		O	A	R
E			R			S	U	M			S		I		O	W		A
G	R	E	A	T				E					S		W	E	B
Y	U	R	T		L	E	A	D	I	N	G		T		E		L
	N		I	P		N		I			R	I	S	I	B	L	E
F	O	T	O			G	R	A	M		A			D			I
	F		N	B		I		M	O	B	I	L	E		E	O	N
	P		I		N		A			N		J		V			K
T	R	A	I	N	E	E		R	I	B	E	Y	E		I		J
	E		N				K			D		C	A	C	H	E	
O	S		D	E	V	I	C	E	S			T		E		T	
	S		I		A		T			A			P		T		
R			C	A	L	L		S	U	B	S	T	R	A	T	E	S
I			E		U		D			A			R		A	O	
P	U	R	S	U	E	W	O	R	K		P	O	S	T	E	R	S