



www.
digital
dots.
org

Spindrift

...Scandalising The Graphic Arts Industry Since April 2003

News Focus • Opinion
Reviews • Techno-Babble
Attitude

Volume 4, Number 10
7th March, 2007

Gong • *noun* **1** a metal disc with a turned rim, giving a resonant note when struck. **2** *British informal* a medal or decoration. • *verb* sound a gong or make a sound like that of a gong.

– From the Compact Oxford English Dictionary

Dear Reader,

There are some items in this month's news that set us on a weirder than usual course of idle pondering. Prizes. Prizes for extraordinary people doing what they consider to be ordinary things, things that are just part of their day to day work. But their influence on the rest of us is far from ordinary, especially in the context of the graphic arts, and what with printing and publishing being the foundation of all media communications.

Martin Bailey has worked with an apparently tireless energy for many years for this industry, and his recent recognition (see news) acknowledges only a small part of his amazing contribution. He is not alone, of course, in his efforts to further technologies and standards that keep both printing and publishing, and the technology foundations that support them, in effervescent and rude health. But we do not do enough to acknowledge the work of people, for example the ICC members, who put in long and dreary hours developing data standards.

We don't give much back at all to those sitting on working groups to make sure that ISO standards are relevant and meaningful for our industry, or to associations such as the Ghent Workgroup, whose hard working volunteers do so much to minimise the dysfunctional aspects of PDF.

There are plenty of companies selling high ticket industry awards events, and mostly the gongs reflect the sponsors' commercial interests one way or another. Wouldn't it be great to see them look beyond the money-grubbing, to recognise individuals such as Martin Bailey and his ilk with awards that acknowledge excellence and the true impact of their endeavours, not just for our industry but far beyond it?

Enjoy!

Laurel, Nessian, Paul and Todd

In This Issue

Riders in the storm

We sent Laurel Brunner out to report on the relative merits of choosing Indesign or QuarkXPress for newspaper groups, but she found that the real issue is the newspaper's business model and the infrastructure that is used around the editorial system to deliver that business model.

see page 11

Down amongst the Fens

Nessian Cleary dropped in on Inca Digital to see what this pioneering company in the depths of darkest Cambridge was up to. Inca has carved out a niche for itself in high speed flatbed inkjet printers and is now starting to look at the packaging market, with a new printer for corrugated media.

see page 17

Closing the colour management loop

Laurel Brunner looks at the problems posed by a lack of paper standards in ICC colour management, including issues such as non-standard use of brighteners and glossing. Fortunately the ICC has formed a paper categorisation group and some of these issues are starting to be addressed.

see page 21

Regular Columns

| | |
|------------|--------|
| News Focus | Page 2 |
| Expandocs | Page 6 |
| Acrobites | Page 7 |
| Spindocs | Page 7 |
| Boomerangs | Page 7 |
| Driftwood | Page 9 |

News Focus

Océ's annual Open House is currently underway. Amongst the items announced are the new 9240 continuous feed colour machine, the Arizona 250 wide format printer and the Varioprint 6160 and 6200 cutsheet printers for the high volume office market and available now.

The flatbed Arizona 250 GT for display graphics prints CMYK UV inks onto a wide variety of substrates, using a greyscale head and Océ's Variadot variable dot technology.

The Variostream 9240 Océ claims is unique in that it prints black and white, black and white plus one spot, black and white plus two spots, and CMYK. The five unit machine prints up to 800 monochrome pages in duplex mode, but only 168 single colour sides per minute. The fifth unit allows for additional spot colour support. The 9240 goes into a six to twelve month pilot testing phase in Q3 and will cost around €800,000 when it is commercially available. This may be as soon as next year.

Océ also previewed a new eco-solvent ink printer for producing indoor and outdoor-durable applications. The Océ CS9060 is designed for applications such as point-of-purchase displays, vehicle graphics, transit advertising, banners, wayfinding and window displays.

CIP4 has awarded Martin Bailey of Global Graphics its CIP4 Fellowship Award, granting him lifelong individual CIP4 membership. Wow. Each year this award recognises someone who has made substantial and significant contributions to the development of the Job Definition Format (JDF) specification, or who may have contributed to industry adoption of JDF through education or active dissemination of JDF information. Let's hope there's a bit more to the prize than the membership!

CIP4 is accepting applications for the 2007 Jürgen Schönhut Memorial CIP4 International Print Production Innovation (CIPPI) awards. These are the only international awards for printer production and efficiency with awards in three categories: most innovative use of process automation technology in an implementation; best cost/benefit realisation as a result of process automation implementation; biggest improvement in efficiency and customer responsiveness, as a result of process automation.

A new release of the **Personalized Print Markup Language** (PPML) is out. PPML is the interoperability standard for variable data print production and version 2.2 increases interoperability across the components of digital printing workflow. This includes those using JDF, the Job Definition Format.

The **Ghent PDF Workgroup** (GWG) has finished four new specifications for the large format digital printing and screen printing markets. The specifications outline best practise for file delivery in these sectors and are available at www.gwg.org.

Global Graphics is launching a next generation document platform to OEMs sometime this year, but hasn't been specific as to when. Only the first bit, version 1.0 of the Harlequin Host Renderer SDK (Software Developers Kit), is now available. The SDK provides the tools for building XPS drivers for raster devices. The new document platform is based on this new version of the Harlequin RIP, expanded to provide more modularity and optimisation of specific devices, plus electronic document library technology for format conversions. The technology will be available for embedded and server based RIPs and will support PostScript and PDF as well as XPS and various proprietary formats.

Spindrift

ISSN 1741-9859

A very special newsletter for Graphic Arts, Prepress, Printing & Publishing Professionals, published monthly (sort of) by:

Digital Dots Ltd

The Clock Tower • Southover • Spring Lane

Burwash • East Sussex • TN19 7JB • UK

Tel: (44) (0)1435 883565

Subscriptions:

Spindrift is a digital only publication, distributed in Adobe .pdf format. A ten issue subscription (our version of a year) costs €190 and can be obtained by going to www.digitaldots.org and subscribing. We strongly suggest doing this as it is the only way to legally obtain this publication and we know you all want to be legal, especially at this sort of price. Discount multiple subs are available. If you're undecided and require some high-powered sales encouragement, ring Laurel at the number above.

Publisher – Laurel Brunner – lb@digitaldots.org

Editor-In-Chief – Nesson Cleary – nc@digitaldots.org

Technical Editor – Paul Lindström – pl@digitaldots.org

Production/Webmaster – Todd Brunner – tb@digitaldots.org

Subscriptions – Ariel Muthos – subs@digitaldots.org

▼ When it's available, the complete new technology will provide software engineers with tools for format creation and conversion, including XPS, PDF, PostScript, PCL et al, plus the associated processing and viewing capabilities.

Axaio Software has announced availability of Madeto-print a plug-in for QuarkXPress 7.0 for batch processing, token-based file naming and flexible layer output, all of which go beyond Quark's output functionality. This XTension also allows hotfolder based processing of XPress 7.0 files. It costs €349 for single users and pricing for server versions starts at €2499.

According to the **World Association of Newspapers** (WAN) global newspaper circulation is up 9.95 percent over the last five years and 2.36 percent over the past twelve months. The number of daily newspaper titles worldwide surpasses 10,000 for first time in history and there are more than 450m newspaper copies sold daily, amounting to over 1.4bn people paying for newspapers every day. Even more interesting, total free daily circulation has more than doubled in five years.

The **ACAP** (Automated Content Access Protocol) pilot project to provide a mechanism for authorising and charging Internet search engines for access to published content, is now officially underway. A prestigious group of publishers is involved including the British Library, Agence France-Presse (France), De Persgroep (the Netherlands), Impresa (Portugal), Independent News & Media Plc (international), John Wiley & Sons (UK), Macmillan/Holtzbrinck (UK & Germany), Media 24 (Africa), Reed Elsevier (International) and Sanoma Corporation (Finland).

The group has stated that it is "very happy with the collaboration we are getting from the three major search engines". So far two of the three have joined the pilot project. The first public conference for ACAP is on the 26th June in London. If your interested in participating contact Mark Bide, the Project Coordinator (info@the-acap.org).

EFI and **X-Rite** are collaborating to sell the EFI Colorproof XF software and X-Rite's new Eye-One Isis spectral chart reader.

EFI has a new service pack to enable users of EFI Colorproof XF. It now drives the HP Designjet 8000 and 1000 series, the Mutoh Falcon II RJ-8000 50/64/87, Rockhopper 3 65/90 and Spitfire 65/90 and 100, plus the Epson Stylus Pro 3800, and the HP Designjet Z2100 and Z3100.

Colorproof XF is now also compatible with more measuring devices, such as the embedded spectrophotometer of the HP Designjet Z series, the X-Rite Eye-One Isis, and the Barbieri Spectro LFP RT.

Xerox has a new continuous feed printer, the entry level Xerox 495. This new duplex device is the eleventh in Xerox's continuous feed product line. It is designed for commercial print shops, inplant operations and service bureaux and prints 500 pages per minute using a new fusing technology that Xerox claims can provide better image quality than competing products.

Callas Software is providing a version of its Pdfapilot as a command line module for automating PDF/A file processing. There are two versions of this technology, one for validation only and one for validation, correction and conversion tasks. The addition of the command line module, means that it will be possible to automate PDF/A processing using Pdfapilot. This allows for the longterm archiving of PDF files within existing document management and workflow systems.

HP Indigo's latest Production Stream Server version 1.1 is now available. This digital front end was developed by the Kodak's Print On-Demand Solutions Group (PODS), more familiarly known as Creo. Beside enhanced colour management, the new server has numerous productivity improvements, including integration with Kodak's new Unified Workflow solution to allow users of Prinergy and Brisque workflows to incorporate HP Indigo press operations in automated, JDF and PDF production, from order entry to automated finishing.

Canon's Essential Business Builder Program is being rolled out across Europe to provide digital printing service organisations with efficiency tools for managing clients as effectively as possible. These also help digital printers to define additional or new value-added services for customers. The programme provides Canon's professional print customers with practical ways to leverage growth in the digital print market. Developed in the UK, the programme was successfully trialled in Norway, so Canon is now extending it to customers in Germany, Italy, France and Sweden, and throughout Europe by the second half of the year. It includes business guidance and analysis tools, customer training workshops and on-site consultancy.

Agfa Graphics has formally launched the Dotrix Transcolor inkjet colour printer for adding high quality

▼ colour to transactional and transpromotional documents, and direct mail pieces. A powerful IPDS (Intelligent Printer Data Stream) controller, single pass printing engines, high resolution inkjet technology and UV curable inks, work in concert for low cost-per-copy output and a fast return on investment.

Kodak has introduced an economic version of its four-up Magnus 400 thermal platesetter. The Magnus 400E images up to 16 plates per hour or 12 of Kodak's Thermal Direct processless plates. It has a fixed resolution of 2400 dpi (the Magnus 400 images at 2540 dpi as well), and supports screen ruling of 175 lpi. Intended for small printers, it is sold as a package complete with workflow system and Thermal Direct plates and will be available in Q2.

The **Lüscher** XPose UV conventional platesetter is now available. This platesetter uses digital imaging based on violet diodes emitting 140mW of energy to expose conventional negative and positive printing plates. Lüscher has installed two engines at sites in Germany and have another 19 due for delivery.

Presstek's consolidated fourth quarter 2006 revenues were \$66.1m, compared to \$65.8m in the same quarter last year and \$61.4m in Q3. For the year, consolidated revenue was \$265.7m, compared to \$259.1m in 2005. The fourth quarter results reflect three unusual items. Presstek treated the closure of its analogue newspaper plate business as a discontinued operation with a \$2.4m loss, which affected fourth quarter net income. Special goodwill charges associated with this closure amounted to \$2.6m, including expenses of \$2.2m of previously capitalised costs. Because Presstek is doing so well, the company has also reversed its deferred tax asset reserves, giving an income tax benefit in the quarter of \$10.7m. For 2006, net income was \$9.7m, compared to \$6.1m in 2005.

Domino Printing Sciences plc, developers of high speed inkjet and laser printers has launched the M-Series comprising a modular system of printers, applicators and accessories. Together these components provide label application flexibility without compromising production line speeds.

Xerox and **Fujifilm** are working together to offer two new printers for retailers offering consumer services, and for professional and commercial photo labs. The retail system is based on Fujifilm's digital photo system and Xerox's Phaser 7760 tabloid color laser printer. The

professional one is based on the Docucolour 240 and 250 printers.

More interestingly, we have heard that Fuji Xerox is working on a high speed inkjet printer that apparently outperforms the Kodak Versamark. We understand that no-one's allowed to talk about it though.

Inca Digital is establishing direct technical support for its North American users, instead of relying on third party service engineers. The new group provides first line support to Fujifilm Sericol, Inca's global distributor to provide equipment installation, servicing, and on site training. The company has opened a service office near Chicago for staff and spare parts.

In the past, Inca provided back-up support to third party service engineers. Now, in addition to direct service calls, the group delivers high level technical support, servicing, upgrades and an immediate response to remote diagnostic calls.

FotoNation has announced the world's first red-eye correction technology for camera phones. The technology is directly embedded in the camera phone so that consumers can automatically take perfect red-eye free photos every time, without needing subsequent software retouching. FotoNation will license this technology to digital camera manufacturers including Kodak, Nikon, Pentax, Sanyo, Samsung and other brands. FotoNation was awarded the prestigious 2006 European IST award in recognition of the technology and has been issued with two United States patents with over 20 additional patents pending in the U.S., Europe, and the Far East.

Following years of cooperation and cross-selling, UK distributors **NCS** and **Turning Point Technologies** have merged to create a single entity under the Turning Point name.

Renault Europe has signed print management contracts worth over a staggering €12m with UK-based print management company, Charterhouse. The contracts will cover production of direct mail, point of sale, marketing print and magazines for the car manufacturer's Netherlands and Belgium regions.

Screen Europe has announced that Fujifilm Sweden is its new distributor for Sweden. Fujifilm Sweden is selling and supporting the full range of Screen's PlateRite CTP platesetters and Trueflow workflow solutions. This

arrangement follows many years of commercial partnership between Fujifilm and Screen.

According to the organisers **drupa 2008** (29th May to 11th June 2008) will break all previous records, with some 170,000 square metres of net exhibition space sold and over 1800 exhibiting companies. It will use all of the Düsseldorf Trade Fair Center's full capacity, including all new additions. Messe Düsseldorf has also received record advance visitor registrations for the show.

Magicomm, providers of marketing campaign management services, has won PODI's 2007 best practices award in the Relevant Marketing category. Given that it's only March this must have been one seriously clever project. Magicomm's direct mail campaign was developed for Agfa Graphics to increase market awareness and generate qualified leads for the Thermofuse offset plate line, generating a response rate of 5.67%, which exceeded the projected goals by 360%.

HP is claiming an industry record in digital printing for 2006. The number of annual impressions printed on HP Indigo digital presses exceeded ten billion, with a monthly record of over one billion impressions printed in November. The annual impression rate grew by 40 percent. This might really set a new industry record, but it's probably just HP's own record breaker.

Perfectproof has announced Proofmaster v3.1 is now available as a Universal application, so it's fully native for both Power PC and Intel-based Macs.

Guy Van Puyvelde is **Esko's** new senior vice president of sales and marketing, reporting to directly Carsten Knudsen, CEO. Mr. Van Puyvelde has spent the majority of his career with Agfa.

WhatTheyThink.com is acquiring Electronic Publishing, a 30-year old publication owned by PennWell Corporation that provides design, printing and publishing professionals with authoritative information on technology, products and trends. Last year PennWell stopped publishing the printed edition of Electronic Publishing to focus on the digital distribution of content via its website, webcasts, and email newsletters.

WhatTheyThink.com is also taking on PrintPlanet.com, the organisation behind many of the industry's discussion forums for computer-to-plate production and JDF.



Expandocs

(In this section, we aim to cast some extra light on a particular recent news story.)

Ricoh, Ricoh Wherefore Art Thou?

Clearly IBM's decision to get out of the printing business will have far reaching effects on the digital printing industry, changing the market landscape and placing Ricoh in an interesting position, to say the very least. IBM is selling its printing division to Ricoh for \$725m in cash, but things aren't quite that straightforward.

The two companies are setting up a jointly owned business of which IBM will own 51%, but only for a little while. The new business is called Infoprint Solutions (presumably borrowed from IBM's InfoPrint brand) and it is expected to exist for a mere three years. This temporary joint venture with Ricoh will employ about 1,200 people worldwide and Ricoh will acquire IBM's 49% holding over the next three years.

Under its InfoPrint brand, IBM has been active for many years in several commercial printing environments. This includes book publishing, direct mail and services. The company is also the driving force for the AFP and AFPCC data formats for variable data and transaction production. Besides its commercial print interests IBM is also, and rather more significantly, involved in transaction print and industrial print, which covers everything from labels to documents. It is unclear how much of the company's revenues, which for 2006 amounted to \$91.4bn, have come from print related activities, however according to analysts printing activities apparently contribute about \$1m to the company's net income of \$9.4bn which is far from cheesy.

IBM will receive \$725m in cash when the deal closes in the second quarter to cover its 51%, plus a prepayment for the remaining stake. The final purchase price for the InfoPrint division depends on what happens over the next three years, however analysts estimate that IBM should snaffle \$175m to \$275m on the venture. This deal is not just about money for IBM.

The company focus has shifted over the last few years to software and services, away from hardware supply, for example. Hitachi (owned by Ricoh) builds IBM's engines. IBM's core business is in advanced IT including computing, software, networking and storage. Quite why output doesn't figure into that mix is a little mysterious, so perhaps this partnership will lead to Ricoh and IBM's continued collaboration beyond the closing of this deal?

What this agreement means for Ricoh is interesting even without such idle conjecture. The company has stated that it wants to be the world's leading provider of output and print solutions. Since IBM leads its closest competitor, Océ, in many markets, the new venture sets Ricoh on track to achieve this goal in one fell swoop. According to Ricoh's president Masamitsu Sakurai, IBM had been "a field of high added value that's worth the money" in order to accelerate Ricoh's growth. This deal is estimated to be the largest in Ricoh's history and will give the company a steady revenue stream from consumables at least until the final takeover happens in 2010. In the meantime there is no pressure on either Ricoh or IBM to do much to build the business, since maintenance contracts and the like should keep the income rolling in. Hopefully though Ricoh won't stand dawdling.

What one presumes Ricoh will be doing is to strengthen its fighting stance in order to compete with Océ in its core markets and with both Xerox and Canon in the colour market. Ricoh's Aficio printers hold, according to Ricoh, the "top market share on a manufacturer basis for digital copiers in the U.S., Europe and Japan". Does the IBM deal strengthen Ricoh's ability to leverage this position? Does Ricoh expect to take a share of the professional digital printing market? And if so when?

There are no clear answers to these questions as yet, however, according to Francis Harrison, communications manager at Ricoh: "Ricoh will continue to drive investment into new kit and the development of new products to secure its market share." The answers to the rest of our questions remain unanswered until we can get some more specifics about the company's plans. Hopefully that will be sometime soon.

Acrobites

(Something to get your teeth into)

SPACE XML

(Specifications for Publisher-Agency Communications Exchange XML) was developed to reduce discrepancies between the space booked and the advertisements supplied to a publisher. This is generally the reason for advertisers refusing to pay for ads, and for newspapers and magazines having to rerun ads for nothing. The specification details the XML schema for describing space reservations, insertion orders, content, job tickets and invoices. The idea is that publishers will get paid quicker because there is nothing to argue about if advertisers use SPACE XML. This specification has been around for a while and is not the same as AdsML apart from the goals, scope and, er, the XML part.

MPLS

MultiProtocol Label Switching is an initiative that puts information about network links, such as latency, bandwidth and usage, together with information about a particular system so that data packets pass through the system more smoothly. It's a technology that helps Internet Service Providers to prioritise different sorts of data streams as they choose, depending on which data packets the service provider wants to allow to have priority over others. So the next time you wonder why your Internet connection is as swift as deep frozen honey, it's probably because of MPLS. ISPs use MPLS to decide which traffic is the most important and usually that decision is influenced by which customers matter most to the ISP.

Spindocs

(Where the spinner gets spun!)

Much as we love Apple, we can't let this one go by. Apple's effusive press release about the new iPhone ended with this quote from Steve Jobs:

"iPhone is a revolutionary and magical product that is literally five years ahead of any other mobile phone," said

Steve Jobs, Apple's CEO. "We are all born with the ultimate pointing device - our fingers - and iPhone uses them to create the most revolutionary user interface since the mouse."

Got that? Your fingers are the "most revolutionary user interface since the mouse."

Perhaps he should get out a little more?

Boomerangs

(Your feedback fed back)

From: Michael Jahn [mjahn@elan-gmk.com]

Date: Wed, 07 Feb 2007 12:11:04 +0100

To: Paul Lindstrom [pl@digitaldots.org]

Subject: Resolution and PDF/X

Hi Paul

On page 18 of the latest Spindrift, your thought is curious that resolution was not somehow required. Nearly all the PDF files that I create myself are made up of screen captures from applications, as I build the tutorial and user guides. These are the final images that would be used for print, yet they are 'low resolution' - there would be no improvement over increasing the resolution, there is no requirement to meet some arbitrary ppi or ppm minimum.

Resolution is device dependent - PDF/X is meant to be a description of an exchange standard, so device dependent things like resolution would be as inappropriate as would requiring a specific page dimension or bleed amount - as you said, this falls into the domain of the preflight profile. You may hear of PDF/X "plus" profiles - these are profiles that spell out and check for specific requirements for a specific exchange - a good example are the profiles at the many titles at <http://www.direct2.time.com>.

Hope this helps !

Best Regards,
Michael Jahn



Thanks Michael,

Yes, anything to spread light on the use of PDF/X-files, because we think they are a good thing.

The phrase 'curiously enough' needs to be explained. It comes from the expectation that we might just need to choose PDF/X-1 or perhaps PDF/X-3 in Indesign or QuarkXPress, and everything would be crystal clear about the nature and quality of the production PDFs. You still need to define a series of print related details in order to make exactly the right type of a PDF/X-file. And yes, the PDF/X Plus profiles suggested by GWG is a good example of how to do that.

Choosing PDF/X-1 or 3 in Indesign, when exporting to PDF, is simply not enough, is part of the point.



Letter to the Spindrift team

Peter Camps, CEO, Gradual Software (www.gradual.com)
February 24, 2007

Dear Laurel,

I quite enjoyed your article on Macmillan and JDF in the most recent Spindrift edition (Volume 4, Number 9, "JDF: Does it have a future"), and especially the picture of John Peacock in action. Like many publishers Macmillan has already optimized internal operations to a point where further productivity gains will require cooperation with other participants in the supply chain. Achieving increased automation will rely on appropriate conventions for information exchange between these cooperating parties. Clearly John is aware of this – in fact he is actively pursuing these improvements. Yet he says that JDF seems to offer no gains over current practice for magazines. On the books side of the business he is more positive, but he doesn't seem to be jumping up and down to adopt JDF right away.

What's wrong with this picture?

Your article makes the point that publishers have been lethargic in adopting JDF. You seem to imply that the problem lies with the publishers. I almost hear you say "Let's ram JDF through their throat and all our troubles will be solved" (I apologize profoundly if I got this wrong). Frankly, I disagree. I think JDF is the problem, not the publishers.

As you say JDF is taking root in print production, and it is accomplishing a great many things in that area. Now its backers promote JDF as the end-to-end job-ticket standard that will solve all of our problems. The idea is to provide a detailed description of a job (and of its creative and production processes, up to final delivery) before the job is even started. Thus the creative contents of the job can be matched against its specifications every step along the way, starting with the blank page. This is a powerful concept, and in some highly structured environments it might very well become the breakthrough we're all looking for.

Ironically a major issue plaguing JDF is just this wide-ranging scope and complexity. Fully supporting the specification is close to impossible even for large vendors, which results in segmented and sometimes incompatible implementations. Figuring out which fields or subsets to use is a task for experts, and even then, the creative process can not be so easily harnessed.

At the same time JDF is far from all-encompassing. Asset management systems rely mostly on EXIF (www.exif.org) and XMP (www.adobe.com/products/xmp) for dealing with copyright information and other business data. IPTC metadata for press photographs (www.iptc.org/IPTC4XMP) is stored in the image file as binary tags or as XMP – not as JDF. The standards for capturing business logic related to news articles (www.newsml.org) and advertisements (www.adsm1.org) are based on plain XML – not JDF. And then I've not even touched on standards used in the business world at large such as ebXML for electronic business transactions.

An excellent example that illustrates these points is the recent ad-ticket initiative in Belgium. Medibel+ (www.medibelplus.be) is the national association of companies

▼
in the ad business, including agencies, media centers and publishers. Frustrated with the complexity of existing standards, the association defined a mechanism to include a basic set of advertisement metadata (25 fields) into a PDF file, based on XMP. This pragmatic ad-ticket specification is now being deployed across Belgium, using simple tools for editing the metadata fields (including the File Info panel in Adobe's Creative Suite).

There is absolutely no chance that a single metadata standard such as JDF can rule the world. Even the biggest JDF proponents must realize this (somewhere deep in their heart). Monopolies and empires are evil anyway – they usually stifle competition and innovation. We have to embrace the notion that supply-chain automation will be enabled by a mixture of metadata standards such as JDF and XMP, pragmatic subsets or adaptations of these standards (such as Medibel's XMP-based ad-ticket), and simple conventions established between a few individuals or organizations.

For these various forms of metadata to peacefully coexist, interfaces are needed to translate segments of information from one form to another. This can be accomplished with readily available technology, ranging from open source XML transformation tools to publishing automation tools such as our own PowerSWITCH.

In my opinion, John should look beyond JDF and consider introducing pragmatic metadata capabilities, one step at a time, in cooperation with his most immediate supply chain partners. I believe Macmillan will be able to realize substantial benefits without the need for adopting an all-encompassing metadata standard.

Peter

Dear Peter,

I don't think we disagree at all. The whole point of this article is that JDF looks to be going nowhere fast, when it comes to publisher implementation. I wrote this case study in the hope of illustrating that the biggest problem is lack of real motivation for publishers to implement

JDF. Intellectual recognition of its theoretical value isn't enough.

I happily accept your profound apology regarding the ramming of JDF down the publishing community's collective throat. I absolutely don't believe in such tactics, which I suppose is the point.

I agree also that JDF isn't cut out for world domination, no matter how desperately vested interests would have it so. And of course we agree that process automation depends entirely on using acknowledged standards and data formats judiciously and not at all with brute force.

We chose Macmillan to represent a publisher's perspective largely because the company has such an enormous range of production scenarios, including many situations where JDF would appear to offer rich possibilities. What we found is a representative reality of JDF in publishing workflows. It might be an unwelcome one for people developing and selling JDF, but it is the reality nonetheless.

Pragmatism, knowledge and awareness of the choices, including JDF, is what's really needed for workflow and supply chain automation. On all sides of the publishing and production polygon, encouraging knowledge development is what we're all about, so thanks very much for taking the time to respond to the article. I hope we can get more people talking about this topic in such an informed way.

-Laurel

Driftwood

(Useful stuff washin' up on our shores)

The new Windows Colour System (WCS)

Microsoft has finally rolled out the new version of its operating system, Windows Vista. Among the many new features is a completely new colour management architecture called Windows Color System (WCS). This is a substantial change to Windows and rather more than an

▼ upgrade to ICM (Image Color Management) the previous architecture. Whereas ICM uses conventional ICC profiles and works according the ICC standard, WCS works with a completely new type of profiles, defined in XML. The old ICM is based on older Heidelberg colour technology despite the fact that Heidelberg has upgraded its Colour Management Module (CMM) several times. WCS uses Canon's Kyuanos (from the Greek kuanios for dark blue), colour technology instead.

So why has Microsoft decided to build a new colour management platform? Isn't the ICC standard already well established and proven to be good enough? According to Josh Weisberg, group product manager for digital imaging at Microsoft, the goal for the Microsoft and Canon engineers working together on WCS, was threefold:

- Establish a new way to describe the colour characteristics of a device that will solve many of the limitations inherent in ICC profiles.
- Implement the CIECAM02 colour appearance model in WCS. This model transforms measured values of a colour patch and its viewing environment into values equivalent to their perceptual attributes, lightness, chroma and hue.
- Present more and better gamut mapping models for superior colour space conversion to ICC-rendering intents because they can take account of viewing conditions.

While offering the above Microsoft and Canon realised that it would be impossible not to support the ICC standard in WCS. To get around this difficulty the old ICM has been upgraded to version 3.0, and will work in tandem with WCS in Vista. A recipe for disaster we wonder?

Looking at the default WCS colour settings in Vista it doesn't seem as if the third point has been completed yet. The rendering models look very similar to the ones used in the ICC standard.

We should probably expect to see new gamut mapping models presented by vendors who embrace WCS and discover features the ICC standard lacks.

When it comes to CIECAM02 this appearance model is already used by several vendors of CMM (colour Management Modules), including Adobe in it's ACE (Adobe Colour Engine) and HP which was instrumental in CIECAM02's development. They chose this model because it is flexible and has superior perceptual uniformity than CIE $L^*a^*b^*$. However it has to have the specific application viewing parameters in order to provide accurate gamut mapping. These can be specified for generic purposes, but may not be sufficiently precise for graphic arts applications. In contrast CIE $L^*a^*b^*$ mathematically defines an infinity of possible colours without taking into account variables that affect colour appearance. This is the part that profiles handle. According to an ICC White Paper: "CIECAM02 has been defined for individual stimuli presented in a particular environment. It does not address all aspects of appearance in images. ... using CIECAM02 to deal with viewing condition differences doesn't avoid the need for high quality colour re-rendering when the destination medium is very different from the source medium, and perceptual re-rendering is desired".

The new XML-based device profiles are supposed to have a simpler structure, and mainly hold the measured device characteristics data. In WCS it's up to the gamut mapping system using CIECAM02 to perform the conversion, and decide how to do it. ICC profiles have more 'intelligence' built in, to render the colours according to one of the four basic rendering intents. WCS-profiles don't have those presets for rendering, which is why it is flexible.

It seems as if few vendors have started to use the WCS fully, so it's too early to evaluate when and where the new Microsoft colour management system will be most relevant, but it's obviously not just a Microsoft copy of the ICC standard. And the early rumours stating that Vista wouldn't support the present ICC standard were, fortunately, quite wrong. Version 3.0 of ICM has some of the old bugs fixed, and has also been upgraded to support version 4.0 ICC profiles which will also be supported in WCS. It will be interesting to see if and where WCS will be used as the preferred colour engine in high end colour management and image processing.

Riders in the Storm

Indesign or XPress? Adobe or Quark? Who will win the pagination stakes? Such questions have peppered the trade press for years now, along with much speculation as to the future success or otherwise of these two very different companies. But does it matter anymore? Is a newspaper's pagination engine really make or break technology? Or is technology no longer the primary driver for economic success in the publishing business, especially for newspapers?

For some time now, newspapers have had to rethink their business models in order to meet the demands of the digital marketplace, where traditional circulations have crumbled and advertising revenues stalled. Two newspaper publishers taking very different routes towards the future are the Telegraph Media Group (publishers of The Daily Telegraph, the Sunday Telegraph and Telegraph.co.uk), and Metro International.

Free newspapers have been considered the salvation of many newspaper markets, ever since Metro International came onto the scene in 1995. The company is the fastest growing international newspaper in the world and its business model is based on a combination of local and international news presented in a standard format designed to appeal to the widest possible audience.

Until recently there were 70 daily Metro editions published in 19 languages in 21 countries worldwide. Metro serves local markets in Europe, the Americas and Asia, distributing newspapers at subway stations in major cities to a mostly urban readership of people under 45. The first edition of Metro appeared in Stockholm and over the years the business has grown substantially and worldwide circulation is over 18m daily. Advertising has grown at a compound annual rate of 44% and group revenues have grown steadily over the years in line with the group's expansion. The company returned a net profit of \$2.3m on sales of \$87.1m for the third quarter 2006.

Metro hit the news last year when the company signed an order with Quark to install XPress 7.0 throughout its global operations. The decision was based on XPress 7.0's support for Unicode and Opentype for more efficient multiple language production, and the fact that XPress is a universal binary application. This means that it will run on both PowerPC and Intel Macs equally well.

Metro's business model is based on the assumption that people still want to read newspapers, but they don't necessarily want to pay for them. However it doesn't work for all markets. Metro has recently had to close ▶

For some time now, newspapers have had to rethink their business models in order to meet the demands of the digital marketplace, where traditional circulations have crumbled and advertising revenues stalled.

the title in Copenhagen while in Poland operations have been closed down completely, due in both cases to failure to reach financial targets. We tried to find out more about Metro's operations and how XPress fits into the rest of the company's production technologies, but despite terrier-like persistence and Quark's keen efforts to assist we couldn't get anything out of Metro about its strategy or plans to develop their franchise. We'll just have to wait and see how newspapers produced with XPress and distributed free of charge fare in the long term.

The Telegraph Media Group was altogether more confident about sharing its plans. The Daily Telegraph was founded in 1855 and today the Telegraph Media Group employs 850 people. It was Adobe's first major newspaper site for Indesign back in 2001 but has been through some nail-biting traumas since then. Following Conrad Black's colourful reign, the Channel Island-based Barclay brothers took ownership, paying £665m for the group in June 2004. In recent years change has been constant at the Telegraph, not all of it wildly positive, including things such as losing editors like so many odd socks, 54 editorial redundancies since last October and a complex move to a new purpose-built site in Victoria, central London.

This move to bring operations back to the heart of London and closer to the hearts of government, commerce and culture follows a decade of tenancy in London's Docklands. In 1987 the Telegraph, along with numerous competitors, had abandoned Fleet Street's hallowed grounds in an effort to reduce its cost base. The recent relocation plus heavy investment are accelerating the changes necessary in order to secure the newspaper's long term future.

A Bold New Start

The swish new premises are more than just a new building and the upheavals are more than mere management dramas. For the Telegraph Media Group is undergoing a profound regeneration. It is implementing an ambitious and risky digital strategy designed to help the newspaper slough off its old skin to emerge fit for battle in the digital media arena. It is traumatic, difficult and fraught with peril and, of course, the risk is unavoidable if the newspaper is to survive. The question is, how does the new Telegraph Media Group intend to do business in the digital media world?

Despite its recent challenges The Daily Telegraph remains the UK's top selling quality newspaper. Its November 2006 sales were 901,238, some 27% more than its closest rival, the Times (653,780). The Times changed format to tabloid last year but the Telegraph is sticking to broadsheet because according to Peter Green, Telegraph Media Group's Operations Director: "We have to ask ourselves [about] spending huge amounts of money on a changed format. You're better off spending the money on the brand. Our circulation figures are up year on year, which is something



Peter Green, Telegraph Media Group's Operations Director.

▼ that cannot be said for the newspapers that have changed formats; advertising has been going really well - well up on last year. Making it work is not one big thing, it is a conglomerate of lots of little pieces driven by a committed management team”.

The company employs fewer people than in the past, but those people produce a diverse range of content delivered via numerous channels from print to online, audio and video. Technology ensures creation and production efficiencies, and provides access to various media channels. The newspaper pushes content to the web, mobile devices and print, vehicles which provide the company with new service options for its advertising customers.

This strategy was not in place when the Telegraph Media Group made its original decision to go with Indesign in the late nineties, when the company was owned by Conrad Black. The Indesign decision was made largely because DTI, providers of newspaper front end systems par excellence, were such staunch supporters of Indesign and because DTI undertook to make it work for the newspaper. The partnership between DTI, Adobe and the Telegraph Group is still close and mutually beneficial with a free interchange of ideas, particularly for developing editorial supports such as content management and research tools.



The TMG newsroom

At the new premises in Victoria all journalists are located on a single floor so that everyone can share and communicate as well as possible. Green says of this decision: “Communication is better and it helps with the plan to transform the company into a multimedia business with newspapers, audio, video and online and more services for mobile devices”. This multichannel delivery model is the keystone of the Telegraph Media Group’s commercial strategy in a world where the traditional value added factor for a newspaper - news gathering, production and delivery - has been completely turned on its head.

News, that highly perishable and fragile raw material, is no longer the sole basis of a newspaper’s value proposition. New improved value propositions have to reinforce and support core news activities so the Telegraph Group’s strategy is about maximising delivery options for news, analysis and comment. It can then manage channels and delivery to provide advertisers with a range of placement options, and the publisher with a broader revenue base. Green says: “We are quickly becoming a 24 hour news environment and the newspaper is one part of that environment. What the newspaper carries is in-depth analysis of an event or comment

▼ on the event and it has the opportunity to dig down and really explore what's going on."

The changes to the Telegraph Media Group's market approach and the products they are selling are all about carrying advertising in new ways and for new sectors, such as, for example, a London property supplement. This all requires a totally revised approach to content development, one that requires the company's 450 journalists to work beyond the confines of print. Telegraph journalists are being trained in new media, not in order to turn them into technocrats, but in order to help them better understand and exploit their content development options. The digital infrastructure underlying content creation extends far beyond traditional front end systems, because this is as much about cultural reinvention as it is about commercial management.

For example the new building has a phone system based internally on Voice Over IP (VOIP) technology. It allows digitised voice signals to travel from one caller to another or many others, via the Internet Protocol. VOIP works with a straight analogue to digital converter attached to a phone, via a special IP phone or simply from one computer to another. The Telegraph's system provides a conventional telephone plus access and response to voicemail via a journalist's PC, so messages can include video as well. The group is extending this infrastructure for wireless access working with telecommunications provider Orange to provide direct access from the internal telephone system to specific extensions for internal mobile users and of course to the world beyond.

Field journalists are provided with 3G cards supplied by Orange to connect via their laptops to the Telegraph Media Group's network. The technology supports simple phone calls, streaming video and audio. It also provides journalists with secure mobile access at high data transfer speeds to email or whatever other information they are entitled to retrieve. This makes life simpler for remote journalists and improves overall integration of the editorial staff.

The VOIP telephone system is just one of several major technology initiatives. The Telegraph Group is also upgrading its DTI systems spending £2.4m on hardware and software to run all systems including editorial, advertising and circulation entirely on DTI's Caché database. In addition the company has just signed a contract for DTI's Webspeed totalling another investment of around £2m. Caché is a multidimensional array database which DTI introduced for newspapers in 2004. It provides blisteringly fast response times and can manage complex data relationships with astounding efficiency. The Caché technology will eventually underlie all content related digital processes at the Telegraph Media Group. It is configured as a single holistic database running on an array-based architecture, a series of powerful computers operating in parallel as a single entity. This architecture allows the database to

LIQUID MEDIA

Liquid Media is designed to enable content to flow from wherever it is created and stored to any destination. The shape and format of the content is automatically adapted to the target output channel. However it does not require any interpretation or structural definition as is the case with XML. With Liquid Media content is format independent and does not need to conform to a specific data standard. It has infinite configurability and output flexibility.

This technology combines several pieces, the most important of which is Ensemble. This data engine is integrated into the Caché database technology and handles the data flow management and communications between Caché databases and others, for example Oracle. Ensemble is an interface language based on Zen, a browser-based application development tool that makes it possible to write very complex applications very quickly. Organisations use it to leverage existing technology investments and infrastructure because it provides a standard way to interrogate databases.

▼ recognise and build content relationships at high speed and without bottlenecks in the data processing.

Caché is one of the components of DTI's Liquid Media, something that the Telegraph Media Group is also looking at closely. Green hints: "It is likely that we will use some of the pieces but it is possible that we will use all of them". In addition to these front end system investments, the company is expected soon to announce plans to use DTI's Webspeed for its websites. This technology comes from Escenic, whose Content Engine includes tools for managing content throughout and beyond the enterprise. Content Engine allows publishers to develop, publish, share and consolidate content. It sits well alongside Liquid Media to offer newspapers altogether more exciting possibilities.

Liquid Media takes a newspaper from the traditional page impression ad model where ad rates are based on circulation and readership estimates, plus the position of the ad in the paper, to a click model based on reader clicks and accessibility. There is no small risk involved in making such a drastic change, which is one of the reasons most newspapers are taking a cautious approach with this concept. It requires commitment and faith from advertisers, too many of whom who might not want to leap into a wholly digital model.

Investing in this type of technological foundation now rather than waiting puts the Telegraph Media Group automatically into pole position, enabling it to learn about ways of using the technology in partnership with advertising customers and readers. This is why Green says: "We're going wholesale for Caché now rather than having additional hardware expenditure in two years time". And he says the transition is apparently going well: "Thus far what we're experiencing is that it's stable, much faster and far easier to manage".

As part of the process the company is also upgrading to Adobe's Creative Suite, with DTI managing the process along with maintenance agreements with Adobe. There is no question of switching from Indesign to XPress and Green says: "The problems with the Telegraph and Indesign when they first bought it, when it came in-house, the whole thing was developed for the North American market and not the UK market. There were some fairly major adjustments that had to be made to it before it could be used which mainly related to editioning, split ads and general workflow." He adds: "Adobe, through DTI, got involved and wrote Meta Archives (additional code that works like plug-ins) that helped us to get things on track." Adobe has also spent time with the Telegraph Media

Examples of *Liquid Media* Content that serves multiple audiences simultaneously in a 24 hour news cycle instead of daily deadlines.



▼
Group to better understand the needs of the newspaper industry and of course with a view to what should be added to future versions of Indesign. According to Green: “A big chunk of that was the multimedia aspect and what should be added to support this”.

Multimedia, or rather multichannel support for variable content formats, is the responsibility of DTI and others for the audio and video editing software although no one at the Telegraph Media Group seems to know what this technology is or who provides it. Multichannel support is especially important for developing new advertising options for customers and it is expected that in 18 months time the DTI technologies (NewsSpeed, ClassSpeed and AdSpeed) will be able to much better handle ad booking for audio and video, which will complement other organisations that are setting standards such as AdsML, or building systems for archive and search and retrieval. These ads would have the flexibility to be attached to news items for delivery to PDAs, mobile phones, websites and of course subscribers’ computers. Any channel that can help expand the Telegraph brand will be supported.

The Telegraph Group has drastically revised its assumptions about the nature of news and a newspaper’s traditional commercial premise, adopting a strategy to add value to content using the channel and means of access. This both supports readers’ media preferences and offers the newspaper more options for serving advertisers. This premise also gives the newspaper a powerful tool with which to compete with other media, leveraging its editorial to be media independent. It also leverages the newspaper’s fundamental advantage over other media: radio and television lack the scope to provide print as an integrated effective part of their services to advertisers. Nor do they provide the level of content flexibility newspapers can offer audiences and advertisers. And of course, people like print, a tactile, enduring medium that uniquely enhances an advertisement’s performance. Multichannel publishing built around the newspaper brand improves audience response to ads. This is what advertisers want most of all, so whether Indesign or XPress is used to do it is, for the most part, largely irrelevant.

– **Laurel Brunner**



Down amongst the fens

As a general rule universities tend to attract bright people, so it's no surprise that those industries that are heavily dependent on intellectual property often cluster around some of the better known seats of learning. And this is especially true of Cambridge in the UK, where so many hi-tech firms have offices that the area is known locally as the silicon Fens, after the natural wetlands to the north of the city.

The fens are home to a great many companies specialising in inkjet technology, including Inca Digital, best known for its high speed flatbed printers. Inca officially started in 2000, but its roots go back a couple of years to when its seven founders, including managing director Bill Baxter and technical director Will Eve, were all working at Cambridge Consultants. This company specialises in solving technical problems across a range of different industries. Several customers asked if it was possible to print packaging at the end of a production line, and this sparked off the idea for an industrial inkjet printer.

They put together a sample printer, the Little Eagle, which was shown at Ipex 98. The positive response at the show proved there was a market for such a printer and so, with the help of venture capital funding, Inca Digital was born. At this stage other companies were also developing UV-curable inkjet printers for applications such as sign making and point of sale materials. Most of these machines were based on grand format roll to roll chassis, whereas Inca set out to corner the market in high speed large scale flatbed printers. Baxter explains: "We tried it because no one else could do it. There are other companies that can do roll-to-roll. The advantage of a roll machine is that you know where your media is and you can have it closer to the heads. On flatbeds you have to have more tolerance for the gap between the heads and the substrate."

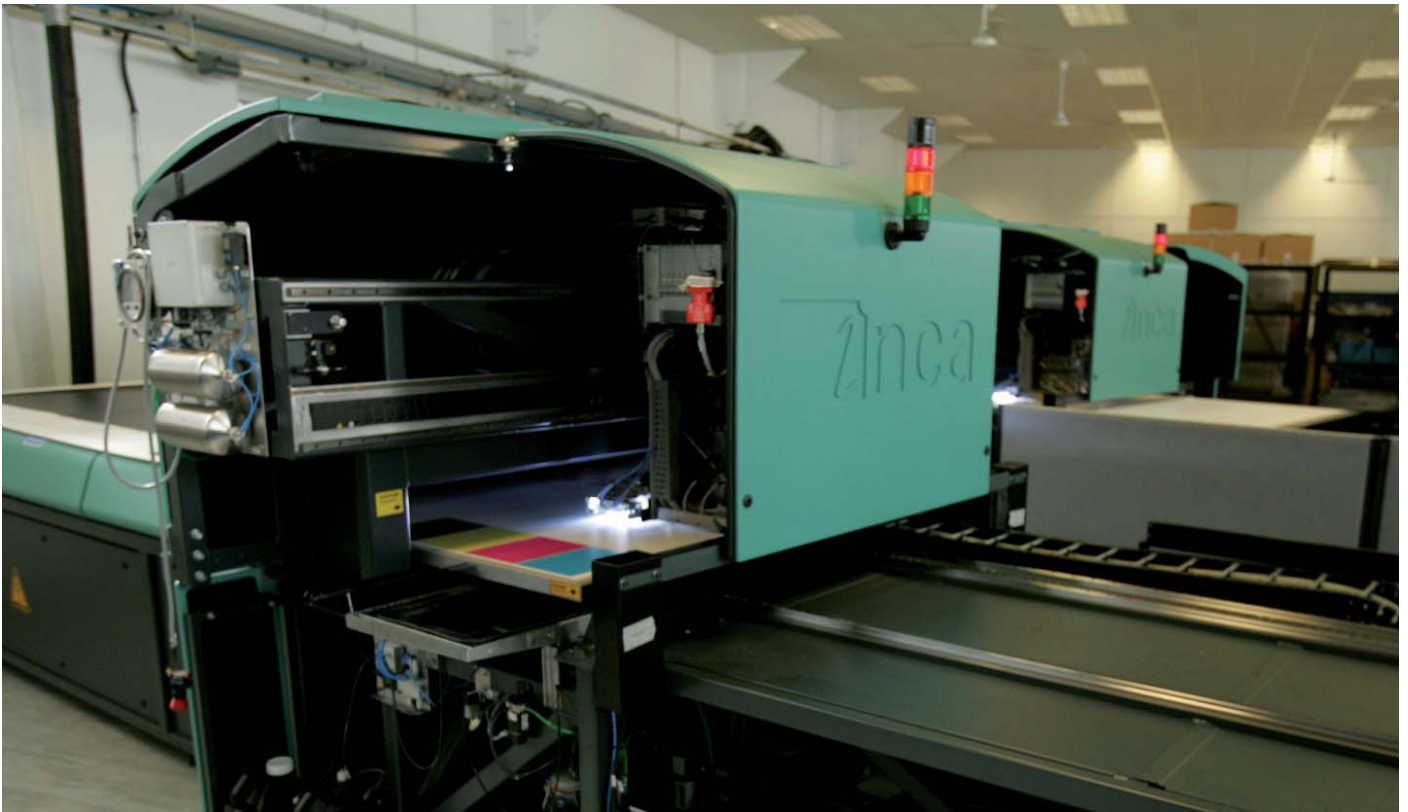
Inca's first commercial product was the Eagle which has now been superseded by the Eagle H. This has a bed size of 2.44 x 1.6m, and a speed of around 65sqm/hr depending on the resolution. The top of the range is the oversized Columbia series. The Columbia Turbo features a bed size of 3.2 x 1.6m, and accepts media up to 40mm thick. It boasts a resolution of up to 800dpi, and productivity varies between 75 and 160sqm/hr depending on quality mode. Inca's largest model is the Columbia Turbo 220, which has a gigantic bed size of 3.2 x 2.2m. Both of the Columbias print in four-colour CMYK mode only. There's also a semi-automated unloading system to increase productivity.

Inca's most popular model is the Spyder 320, which has the same large bed size as the Columbia, but a smaller overall footprint. It's not as fast as the Columbia but it is a simpler machine and quicker to make, and is therefore somewhat cheaper. The basic 320 is a four-colour model, but



Bill Baxter, managing director of Inca Digital

there's also a Spyder 320+ available as a five (CMYK plus white) or six-colour (CMYK plus light cyan and light magenta) model. There's a budget 320-e model, which has the same basic specifications but is slower at 30sqm/hr and cheaper. However, the e model can be upgraded to one of the other Spyder 320 variants. Two years ago Inca launched a baby model, the Spyder 150, aimed at the photographic and digital print markets, which is the only machine in the Inca line-up to offer a gloss finish. This has a bed size of 1.52 x 1.02m.



Factory floor: Columbia printers being assembled

Partners

One of Inca's basic business strategies has been to form partnerships with companies that are market leaders in a particular sector, in order to sell Inca's products into that sector. Consequently Inca has an ongoing partnership with Sericol, which is now owned by Fujifilm, to distribute its flatbed printers. Sericol provides the marketing, as well as the UViJet UV-curable inks.

In 2004 Inca announced that it was working on a new project, the FastJet, a high speed machine for printing directly to corrugated board. This uses a single pass printing engine and Inca says it should be capable of producing 4000 sqm/hr. For this project Inca has partnered with Sun Chemical, and is using Sun's inks. Marketing manager Heather Kendle points out: "We always work with a partner who understands that market and can help us get into that market. So we went for Sun Chemical for FastJet because it's corrugated and Sun has the major share in that market by a huge measure."

▼ For printheads, Inca has used Spectra, although Baxter says: “We have always believed that Inca should not be tied to any single supplier of inks and print heads because these technologies are moving so quickly that to get in bed with a single supplier would be too big a gamble.” He adds: “All the head manufacturers come and talk to our technical people. We never close the door to a print head manufacturer.”

When it comes to RIPs, Inca works with Wasatch’s SoftRIP technology which is based on Global Graphics’ Jaws and is widely used for large format output applications. Kendle says that in the early days other RIP manufacturers were not keen to devote resources in developing drivers for a start-up company, adding: “We have spent a lot of time and effort with Wasatch and there’s a lot of loyalty there.” Certainly the Wasatch RIP is able to make the most of the Inca printers’ features, including the white ink option on the Spyder 320+.

The Screen take over

Two years ago we saw a flurry of acquisitions, as big players in the conventional and digital print sectors bought their way into the inkjet business. To this end, HP bought Scitex Vision, EFI acquired Vutek and Fujifilm picked up Sericol. And Inca Digital was bought by Screen, and is now a wholly owned subsidiary led by Chairman Nigel Puttergill of Screen.



Inspecting printheads in a clean environment

According to Baxter the acquisition brings stability to Inca. “Anyone owned by a venture capital company is for sale all the time and such companies are always short of cash. We have always taken a very short term view in each market, to provide a solution and make money. The main exception is the work that we are doing on single pass printing. For the FastJet project, both we and Sun have been investing quite heavily for the past three to five years and it will be several more years before we see a reward from that. Until we were bought by Screen we had little time for that kind of stuff.”

Screen is well known in the graphic arts as one of the largest suppliers of CtP engines. Baxter says: “Also they have two other very significant businesses and that’s in flat panel – they don’t make the screens, they make the equipment that makes the flat screens – and their other business is semi conductors.” Indeed these areas account for something like 80 per cent of Screen’s business mainly because both these technologies have grown significantly over the last ten years. Baxter comments: “Screen wants to be supplying the equipment to work in these areas with inkjet and that was a part of the reason that Screen bought Inca.” Puttergill adds: “It also brought Screen into a new graphic arts segment with things like point of sale.”

Future goals

For now Inca is concentrating its activities on developing the FastJet. An alpha version has been running at Jardine Corrugated Cases in Ely, close to Inca's base for over a year. The FastJet is designed to print from a single page wide array, as opposed to having the print head move across the width of the substrate. It uses four groups of 24 Spectra heads for each colour to make a fixed array of 1040mm, with a resolution of 300 x 200dpi. There are five colours – CMYK plus a varnish.

Page wide arrays are the holy grail of inkjet technology, leading to a massive increase of speed, which would see inkjet overtake electrophotography for digital printing. However, such arrays are also expensive and the challenge has been to develop a cost effective reliable system.

Inca has targeted the corrugated packaging market in the belief that there is a considerable demand for a high speed digital press in this area, and that it would complement rather than replace existing technology.

But Inca's real benefit to Screen lies in its knowledge of how inkjet works, from the physics of how the liquids behave, and the way that droplets are formed, through to the engineering, software and electronics needed to make a printer. Baxter says: "This industry is only in the Model T [Ford car] stage at the moment. If you look at office inkjet, that's not quite mature but it's starting to approach maturity and this technology has had something like \$20bn of R&D and that's got it part of the way. The kind of inkjet that we use has just had a few hundred million dollars of R&D." He adds: "There's all sorts of sexy technologies coming along which involve depositing all sorts of very small amounts of liquids, such as polymer semi conductor or conductive materials in liquid form on a very small scale. You can deposit these liquids very accurately. So it provides a technology platform to support things that are not just in print terms but that are likely to become important in Screen's other business. There are a few devices made now but it's probably going to become commercially significant in the next five years which means that equipment manufacturers need to be sorting out processes now."

Baxter won't be drawn on Inca's future plans but says: "There are some pretty obvious targets in packaging, ceramics, things like wall coverings, floor coverings, they are big juicy targets out there. Everyone has the same problem in that they are short run lengths, quicker responses, fewer stocks, so there's no shortage of opportunities – half of it is to decide which ones to go for." Inca is still a relatively small company, but wandering around the factory you can't help but be struck by the air of quiet commitment.

– Nesson Cleary

Inca has targeted the corrugated packaging market in the belief that there is a considerable demand for a high speed digital press in this area, and that it would complement rather than replace existing technology.



Closing the Colour Management Loop

Last June in a small hotel in Leeds, deep in the heart of what was once industrial England, an important but largely unnoticed meeting occurred. It was a special session within a routine meeting of the International Color Consortium (ICC) and it was intended to address paper characterisation for the purposes of colour management. Riveting as this sounds, not, this meeting marked an important turning point for colour management professionals. It addressed a major shortcoming in current colour management practice and in ISO 12647 (see box).

So what, you may ask. Well, the fact that an ISO standard needs revision isn't terribly exciting. However incorporating paper characteristics into print quality control improves print's competitiveness and cost effectiveness, and this is exciting, which is why the meeting attracted such an extraordinarily diverse group of participants. Besides paper manufacturers and colour scientists, the meeting included ink manufacturers, printers, prepress professionals and print buyers from around the world.

The goal was to explore the relationship between CMYK data and the colorimetry of the printed image, aka print characterisation, with a special focus on the importance of the fifth colour, paper. Paper plays a crucial role in colour management because its optical and surface properties determine colour appearance. Understanding how paper properties affect colour management can reduce the need for printers to generate characterisation data and ICC profiles, for each paper and print process combination, helping with quality control and cost containment.

The Problem

ISO 12647 includes five paper classes categorised according to gamut and covering a wide range of paper types. These categories were defined in 1994 based on prevailing market needs and at a time when paper grades were more clearly differentiated. Today we have extensive overlapping between and within grades, a lack of clear definitions of what paper types really mean, plus a more limited use of some papers such as the slightly yellowish uncoated stocks used previously. There are cultural preferences for different paper shades and the ISO paper classes don't include many grades used in America and elsewhere, so there is no international correlation.

In addition, the set of characteristics measured during paper production and the way in which paper is described by the manufacturer varies substantially from region to region. For print produced at multiple

ISO 12647

ISO 12647 is the international standard that specifies how colours should be reproduced, including processing and measuring colour, throughout a print media workflow. It includes tolerances for all processes, including different paper types and, as one would expect, it is based on CIE $L^*a^*b^*$. It uses spectrophotometric measurement of target solid colours rather than density to eliminate differences in ink properties but when it comes to paper, as it currently stands, the standard falls short.

▼ locations around the world this means bespoke colour management and quality control at each print site. This is expensive, time consuming and inconvenient, so the ICC, which has made colour management cheaper, quicker and easier, set up this collaborative project with ISO TC130 and other groups such as ECI in Europe and Idealliance in the US to try to find ways of characterising paper.

Digital colour management is based on the use of ICC device profiles and print characterisation data to determine how colour data relates to the printed page. Profiles take into account paper, ink set, screening, ruling and type, plus an array of other factors depending on the workflow and the print application. At the moment it's impossible to come up with accurate characterisations for all possible combinations of print and paper, because the paper characteristics that can be measured are not universal. Paper characteristics all seem to get measured in different ways, and only a few are incorporated into profiles.

Paper properties such as shade, brightness and surface chemistry affect print density and dot gain. Visual properties such as colour, the effect of calendaring (the smoothness of a surface), gloss and surface type also determine colour gamut, opacity and fluorescence. Fluorescence is particularly problematic because of light absorption and re-emission and because it is difficult to ensure consistent UV light content in both measuring instruments and viewing environments. All of these can influence the choice of characterisation data and substrate, and all of them can cause proofing problems. This makes it very difficult for users to know whether a profile that was created for one paper brand can be used successfully with another.

This is why proofing systems need to take into account the mechanical properties of the paper to be used in the final print. Currently there are limited options for this based on the ISO categories, although there are many other factors influencing colour: roughness, stiffness, fibre direction, water content, rub resistance, picking strength, ink-setting, fan-out, ink mileage, coating resistance and colour. A proofing system also needs to reflect a printing system's grey balance, taking all factors into account to produce an accurate proof.

These variables shape a printer's choice of materials and print buyers' budgets. Given the costs involved for large print projects, were this data available, it should ideally be captured in JDF for input into process management systems and cost management. The ICC has therefore been careful to co-ordinate its activities with that of CIP4, the group responsible for JDF.

Matters are further complicated by the fact that characterisations for the five paper types within 12647 don't correlate worldwide for colour repro because the use of optical brighteners is inconsistent. There are also dif- ▶

At the moment it's impossible to come up with accurate characterisations for all possible combinations of print and paper, because the paper characteristics that can be measured are not universal.

▼
ferent ways of measuring paper brightness, and the US doesn't follow ISO standards at all, preferring the home-grown TAPPI T 452 standard instead. Brighteners make the paper colour (its whiteness) unstable because their characteristics influence a surface's chemical absorption and emission of UV light.

Paper manufacturers use their own different concoctions for making paper, so depending on how they have used optical brighteners, paper whites can go from white to yellow. Brighteners also influence the appearance of inks because of variations in UV absorption. The effect of brighteners can be especially visible in the cyan, whereas magenta and black may block their influence altogether. Yellow's appearance on brightened papers depends on the particular ink transparency, and it can cause false spectrophotometric readings.

On top of all this, although the use of glossing can expand saturated tone gamut, it can also confuse spectrophotometric readers because they do not accurately capture a colour's shininess.

The Solution

So what's being done? Various groups around the world have recognised the problem and are working to solve it. The German trade association, bvdM, has developed a classification of gravure papers that ECI (European Colour Initiative) has accepted as well. The group is now working on the same concept for offset papers for commercial applications, working with seven international paper manufacturers and hoping to integrate their work with the next edition of ISO 12647.

Any change to ISO 12647 will need to first work out the set of lowest common denominators across paper types in order to define how things deviate from it, so that the papers can be differentiated and classified. Having a standard reference substrate that meets a set of specific criteria is crucial and the suggestion was well received at the meeting in Leeds. According to the paper manufacturers present, it should be possible to develop such a reference including the required characteristics. As one participant said: "You tell us the characteristics you want a paper to have and we will make it".

Work is already underway to determine what those criteria should be, reflecting the full diversity of market needs worldwide. This will provide the basis for a reference substrate for different paper classes, and will include the ink consumption of a given type of paper based on its surface chemistry.

The bvdM's work is an important step towards closer cooperation between the graphics and paper industries. Apart from making it possible to reliably include a paper's colour properties in colour management, it

Any change to ISO 12647 will need to first work out the set of lowest common denominators across paper types in order to define how things deviate from it, so that the papers can be differentiated and classified.

▼ will help us to develop common nomenclatures in measuring tools and tool characterisation. There is also a need for commonality across media for example between CMYK devices and the added complexity of multi-colour devices such as those from HP and Canon.

Canon is particularly active working with X-Rite to develop a process control system for the Canon Imagepress digital printing devices. X-Rite's Eye-One is becoming a market standard for colour measurement in the graphic arts. The complete Eye-One Process Control system for the Imagepress Q1 server (an EFI Fiery) provides colour management and verification using both LAB and spectral data. It includes profiling tools, device performance evaluation, plus the means of creating a library of spot colours and generating colour recipes for use in applications and in the Canon RIP.

It is the result of a joint initiative between X-Rite and Canon, whereby Canon has exclusivity on specific elements of the technology. Since the initiative was launched late last year, Canon has sold over 500 units throughout Europe. Expected in the spring is automatic correction of a customer's device set-up, should the verification process fail. This is an interesting addition based on iterative profiling techniques to provide device quality control without making it difficult for the user.

This system is a good example of the work being done within the development community to improve colour management. The support for paper types is comprehensive and Canon includes detailed instructions and tools for assessing a device's performance, including media data and reminders of the importance of using the same media type when creating device profiles and measuring performance.

For the print professional struggling to compete in an unstable market this work is a good start. However the work of the ICC and ISO working groups means little at the moment, although it means a great deal for the future. At the very least it underlines the need for better understanding of paper's contribution to colour management and quality control. A paper categorisation working group was formed at the Leeds meeting, with key representation from each region. Led by Dr. Uwe Bertholdt of Fogra, representative paper samples from Europe, Japan, Brazil, Thailand and the USA have been collected and the group has started to measure them. These measurements will be done in Europe, Japan and the USA and an initial report of the group's findings is expected during the next ISO TC 130 meeting in Bangkok at the end of April.

Don't hold your breath just yet, but keep in mind that progress, although it takes time, is being made.

– Laurel Brunner



For the print professional struggling to compete in an unstable market this work is a good start. However the work of the ICC and ISO working groups means little at the moment, although it means a great deal for the future.

A Special Message

We hope you have enjoyed reading this issue of Spindrift.

Are you a subscriber?

If you have paid us money yourself, or authorised an invoice from Digital Dots to be paid then you are. Thank you!

If you have not done either of these things, then you are probably reading a pass on copy. In which case we would appreciate it if you could contact us to ensure that your company has a licence to do this.

Spindrift carries no advertising and we depend entirely on subscription income. We are trying our best to keep rates low and quality high, and we rely on you, the reader, to make this possible.

If you are a reader but not a subscriber, please go to www.digitaldots.org and put the matter to rights.

Why should you do this? Because you're worth it! And so are we.

As ever,

The Spindrift Pixies.



Copyright and Disclaimer

All rights, including copyright, belong to the originating author. In accessing the Spindrift newsletter, you agree that you are only using the content for your own personal edification and non-commercial use. You may not copy, broadcast, share, store (in any medium), send, adapt or in any way modify the content of any Spindrift article or element without the prior written permission of either Digital Dots or the originating author.

If you do believe that you are in some way exempt from the rules of copyright, please remember that karma catches up. The pixies will find you.

Opinions expressed in Spindrift are those of the originating author. Although Digital Dots makes every effort to ensure accuracy in the facts included in Spindrift, the company accepts no liability for the contents of this publication.