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Spindrift

...Stalking The Graphic Arts Industry Since April 2003

News Focus • Opinion
Reviews • Techno-Babble
Attitude

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festive • *a.* **1.** a. Of or pertaining to a feast; such as befits a feast. From the Latin festivus, meaning feast. b. Cheerful, mirthful, celebratory, glad. Having happy and enjoyable feelings. **2.** Of persons: Employed in, or fond of, feasting; convivial, jovial.

– Oxford Eglish Dictionary

Dear Reader,

As we slide gently into the festive season, it's tempting to look back on a year fraught with drama. However this is not the time for glancing over shoulders: next year is far more important. So given the worsening economic situation, what should we expect?

The tough economic times will obviously encourage more creativity in marketing spending and it would be a mistake to spend less in the current climate. We expect to see greater creativity in media usage, with increased leveraging of different media and of databases.

Technology won't stand still. Following the glut of new kit at drupa, we'll see that stuff made to work sooner rather than later. Developers and printers will be looking for extra pizzazz to help keep their commercial engines turning.

Following the launch of our Verdigris project, we're working on some new ideas ourselves for Verdigris and for Spindrift. We've just launched a new website, verdigrisproject.com. As far as we know, it is the only international website for matters green for the printing industry. The site includes all articles we have written as part of the Verdigris project, plus links to environmental sites of interest to printers.

In the meantime, from all of us to all of you, have a marvellous holiday break and a spectacular new year!

Laurel, Nessan, Paul and Todd

In This Issue

Regular Columns

News Focus

HP has announced its fourth quarter financials. Net revenue was up by $5.3 billion or 19%, from a year earlier to $33.6 billion for the quarter, and for the year an increase of 13%, or $14.1 billion, to $118.4 billion. Operating income was up by 4% to $2.7 billion and operating profit by 21% to $3.4 billion. Fourth quarter cash flow from operations was $3.3 billion and for the year it was $14.6 billion, up 52% over the previous year.

The picture for the printing bits of HP was less glittering. The Imaging and Printing Group (IPG) revenue declined 1% to $7.5 billion. Supplies revenue grew 9%, while commercial hardware revenue declined 10%, however operating profit was $1.2 billion, or 15.5% of revenue, versus $1.1 billion, or 14.5% of revenue, in the year prior.

Xerox has outlined details of how it plans to save $200 million next year. Anne Mulcahy, chairwoman and CEO has commented: "Our value proposition is supported by the strength of our financial position and the resiliency of our recurring revenue stream". 2009 expectations are for operating profit of between $1.4 billion and $1.7 billion, with cash from operations of $1.7 billion to $1.9 billion. The range reflects the extraordinary volatility in currency values; however, Xerox has a strong cash flow and a credit facility of $2 billion. In a financial climate where cash is definitely king, Xerox has no requirement to access the capital markets for the foreseeable future.

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Océ has launched a new program to recycle its printers. Premia class is a range of remanufactured products from office multifunctional printers and production printers to wide format printers using parts and modules from systems that have returned from the market. The scheme should offer significant savings to the customer as well as a more environmentally aware sustainable manufacturing process.

Fujifilm Dimatix has approved a new solvent-based Aqua Tint V ink from Rex-Tone industries for use with its Spectra S-class, Nova, Galaxy and Skywalker printheads. These are found in a number of wide format printers from companies such as Inca, Durst and Vutek.

Rex-Tone, based in Mumbai, is India's first digital ink manufacturer. Saurabh Goswamy, Director of Marketing for Aqua Tint inks stated, "Participating with FUJIFILM Dimatix in their Ink Partnership program has proven a valuable and productive experience for us. Achieving Approved Ink status for the new solvent-based Aqua Tint "V" ink gives us an important advantage in addressing the growing demand seen in India and other economies for productive and reliable printers, which increasingly feature Spectra-brand printheads and require inks of high-quality."

Sun Chemical has a new UV-curing offset ink, Suncure Lazer, for the commercial print market. This is a four-colour process and PMS blended ink designed for printing business forms, continuous stationery and direct mail on web or sheetfed presses, with both coated and uncoated papers, tickets and cards. As such it's a direct replacement for the Unicure CL, CL Jet and CL Rapid ranges. The new inks are alcohol free and are said to offer a more intense print colour, extremely low misting capabilities at high speeds and offers a greater colour print consistency over a range of running speeds.

Belgian web-to-print developer **Digital Media Partners** has appointed Four Pees as its sales and marketing agency to extend its activities throughout Europe and beyond. DMP's main product is Flo Suite, a modular web-based publishing system that can be fully adapted

to the customer's needs and can easily be integrated in the customer's business environment, allowing extended digital asset management, database publishing, web-to-print and content management.

Google has announced a new option allowing AdWords advertisers to show their desktop text and image ads on the iPhone, the T-Mobile G1, and other mobile devices with full (HTML) Internet browsers. The ads appear on the mobile phone and can point to desktop landing pages. This means there is no need for advertisers to create landing pages or ads in mobile formats.

Markzware's latest release of its tool for converting QuarkXPress documents to InDesign is a major upgrade that adds full plug-in support. It works to convert files on either the Microsoft or Apple Macintosh OS, into files that can be opened on either platform. It costs €199 or €99 for the upgrade for users of Q2ID v2 or v3.

Enfocus recently surveyed its customer base and got almost 5,000 responses, 30% from commercial printers and nearly 50% either prepress managers or designers. Seventy percent of respondents use the Mac OS X platform. The survey showed that 53% of jobs received were submitted in PDF format, and 78% of the jobs the survey group sent out, were PDF. Of the PDF files, received 26% are PDF/X compliant, and 11% comply with Ghent PDF Workgroup (GWG) specifications. The most common preflight errors are still missing fonts, low resolution images and RGB instead of CMYK colours.

Barbieri has launched an updated version of its Spectro LFP automated spectrophotometer, which as the name suggests is primarily targeted at the wide format area. The series 2 is said to be up to 30 per cent faster and easier to use as well as running under the Mac OS. Further details from www.barbierielectronic.com.

Xerox has broadened the appeal of its Automated Colour Quality Suite, which was originally just for use with the iGen3, but can now be used with the DocuColor 7000AP and 8000AP printers. As part of the suite, Xerox has also added an inline Spectrophotometer to these printers, as well as variable gloss management to reduce the glossy appearance of dark colours.

Over 20 print companies from 11 countries attended **Kodak's** Marketmover (or as the press release says, Marmetmover) event at the end of November. It took place at Kodak's European headquarters in Belgium and focused on examining ways in which customers could grow their businesses. Essentially this was an event to promote Kodak's Marketmover service, offering consulting and other resources. However it provided solid advice on how to do online marketing, business planning and creative communication projects for customers.

Callas pdfAutoOptimizer now supports Acrobat 9 and Switch 08 update 4. It has various features including top quality live transparency flattening, the ability to set the blend colour space used for transparency flattening, and colour controls such as allowing removal of ICC profiles introduced during flattening. Users can also make files PDF/X compliant and automate Acrobat functions such as image optimization, file size reduction and removal of selected elements.

A report providing an overview of Chinese offset plate manufacturers has been published. It's called: **"The Chinese Are Coming! Will suppliers from the Far East take over the market for offset plates?"** and it includes data about the suppliers and their products, answering basic questions such as how many Asian vendors are active in international markets, their product lines, manufacturing capacity, prices and product quality. Written by Michael Mittelhaus, the 54 page report costs €295 and is available at www.mittelhaus.com.

The Swedish Printers Federation has certified its first printing company, Edita Bobergs in Falun, Sweden, to be ISO 12647 compliant. This is the process control standard ISO has published to help printers towards optimum print quality. The certification is based on ISO 9001, ISO's generic quality control standard, and requires printers to demonstrate that they can print to predefined quality standards, as well as maintain quality assurance throughout production and in general business management. A similar process for certification is underway for the UK market.

Expandocs

(Casting some extra light on a recent news story)

Suitcase Fusion 2

This month we've been evaluating Suitcase Fusion 2 from Extensis, a professional-level font management tool. This is a market that Extensis dominates, having taken over most of the competition, although Extensis has sometimes struggled to merge its different solutions in to a comprehensive product line-up.

Extensis has divided its font offerings into two groups: workgroups, based around its Universal Type Server in a choice of Server and Lite versions, and single-user solutions, which are Suitcase Fusion 2, optimised for Mac OS X 10.5, and Suitcase for Windows.

Many people will ask, do you need a font manager, given that the operating systems provide a reasonably effective way of seeing what fonts are available on a computer? Well, we think that font management is a good idea. In the past people have tended to adopt a rather cavalier attitude to their fonts, loading everything into the system, including those which turn up with client's adverts and other work.

There are very good reasons for not doing this. In the first place, fonts are copyrighted and using fonts that you don't own can land you, or worse still, your clients, with a very big bill. But also it's easy to pick up lots of fonts which appear to be the same, but if you save the wrong version of a font with a document then even slight differences can lead to text reflowing and upsetting the design. Font managers allow you to track versions of fonts, which can be handy in sorting out, say, Adobe Garamond from a Monotype version, or a TrueType Helvetica from a Type One. Suitcase Fusion also lets you get rid of duplicate files and find corrupted fonts, as well as orphan screen/printer fonts. It also includes Font Doctor which can help to repair corrupted fonts.

Another good reason for using a font manager is that fonts consume system resources, and there's no point in having thousands of fonts loaded into your system if you're only going to use half a dozen. Suitcase Fusion lets you turn off the fonts that you don't need, but also includes automatic activation to turn on those fonts that you do need as you open each document. This works with InDesign and Illustrator, including the CS4 versions, as well as QuarkXPress 8. It can also watch other applications for font requests, including Mail, Word and Powerpoint, and thus control which fonts those applications can cause to be activated. However, whenever a font is activated, it is available across the whole system to all programs.

The font activation can also distinguish between just the font that you want, such as Arial Bold, and not the entire typeface, with its regular, light and italic variants. It can also activate fonts within embedded objects such as EPS or PDF files. The font activation plug-ins also let you create font sets directly in the design applications, allowing Suitcase Fusion to stay in the background and not get in the way of the design work. This is done through another plug-in, Font Sense, which records the details of the fonts used in each document so that they can be activated when the document is opened again.

The Font Sense plug-in also allows you to collect fonts for output, make document sets and check a document's fonts directly from within the plug-in menu. You can use the preferences to decide how Font Sense treats missing fonts in documents and whether or not to activate fonts in linked objects.

Suitcase Fusion can read the fonts available to the system, but ideally you need to add the fonts to the application so that it can screen out corrupted fonts and build up a database of fonts, with their versions, foundry, kerning information and so on. The font database makes it easy to find and group fonts together. You can sort or search for fonts by a variety of features including their name, keyword, style, foundry, type, classification and version. You can save search criteria for smart sets. Keywords can include job numbers or client names.

A good font manager should allow you to group fonts for particular jobs together. Suitcase Fusion does this with its

FontVault, which allows you to gather fonts together for different jobs. You can have multiple font vaults, and can store them on external drives, and they are easily backed-up.

There are a number of other nice touches. There's a Glyph viewer, which lets you examine individual characters within a font right down to the Unicode level. The preview has been improved so that you can type your own preview text and pick a font based on the type you actually want to produce. The preview can also cope with non-Roman characters such as Arabic lettering. There's also a Floating Preview feature where you can detach the preview from the main interface which then stays on top of other application windows. The interface itself has been tidied up and is now arranged in three windows: libraries, fonts and previews.

Suitcase Fusion seemed to handle all of these tasks without any problems. It's fairly fast to use, with most commands needing only a single click, so no need to hunt through menus. The downside is that if you have been using version 1 and upgrade to CS4, then you will also need to upgrade to Suitcase Fusion 2, at least if you want to use the auto activation feature.

However, Extensis really ought to rethink its pricing policy. In the US it costs $100, but it's $30 more expensive in the UK, and a further $10, or at $140, in France and Germany.

Say What?

(Iffy Writing Award Presented in the Ether for Obfuscation, Confusion, Misinformation or All Out Pretentiousness)

Xerox has compiled a number of tips to help people deal better with information overload from its Future of Work study. Suggestions include: taking the time to breathe, clustering meetings together and de-cluttering your desktop.

The study has come courtesy of Xerox's Ethnograpy team, and it turns out that Xerox pioneered the science of ethnography, where researchers track the habits of workers as they go about their day. In truth most of these tips are plain common sense and probably didn't need an army of scientists to deduce.

However, we're not too sure about the advice to use an email-enabled mobile to take your work with you; sometimes it's easier to breathe if you can get away from it for a while. Then again, if we were constantly hassled by emails turning up on our mobile phones all day long we would probably feel the need to sit down and come up with a list of ways to simplify our lives.

Driftwood

(Useful stuff washin' up on our shores)

Comprehensive glossary of graphic arts and IT

The fourth edition of the "Glossary of Graphics Communications" is now published – by far the most complete glossary that we have come across within our industry (well over 4000 terms briefly described). It's been revised by Joe Deemer, editor at PIA/GATF Press, and includes not only graphics arts terms and acronyms, but also a wide range of IT-terms as well as some well-known brand names.

The choice of which brand names have been included is a little random, for example TrueType (an Apple font technology) is mentioned but not equally well known brands like Cromalin (Dupont contract proofs) or Matchprint (3M contract proofs). But that's the problem in general with glossaries – you could always ask for more.

One of our own favourite areas, colour management, is well covered, although we were a little puzzled over the explanation of Delta E (colour deviation formulas). It's said to be "expressed in Mac Adams, NBS, or other units". While strictly correct, modern colour management barely uses Mac Adams or NBS any more, CIE Lab is far more common. A brief explanation of new formulas like Delta E CMS, 1994 and 2000 might be appreciated in the next version.

But overall it's an impressive work by Joe Deemer and colleagues, and we gladly recommend it to those publishers and printers who want to know more about graphics arts production. Glossary of Graphic

Communications, Fourth Edition (Item No. 13054, ISBN 978-0-88362-590-3) is available to PIA/GATF members for $55 and to non-members for $75. Or it can be ordered from Amazon and other bookshops for around the same price.

Spindocs

(Where the spinner gets spun!)

We were tickled pink at the suggestion by Microsoft's new ad agency Crispin Porter & Bogusky for a range of T-shirts, presumably designed to make Microsoft look cool. One of the T-shirts on offer has a mug shot of the then 19-year old Bill Gates taken after he had been arrested by the Albuquerque Police department for driving without a licence and speeding. We're not sure how cool that will really make Microsoft appear. More a boon to Apple we would have thought.

Boomerangs

(Your feedback fed back)

From: Michael Walker
Date: 2008/11/13
Subject: Throwing the first stone
To: Todd Brunner

Dear Pixies,

Spindrift 11 Nov 2008, p6, Spindocs:

"One of the countries most important industry associations is..."

For shame! Maybe you should attend that writing course you so comprehensively rubbish on page 5.

Yours,

One of the country's pickiest readers.

Michael,

Nothing wrong with being a picky reader, and as you quite rightly point out, this was a poor piece of subbing on my behalf.

Nessan

Acrobites

(Something to get your teeth into)

DHTML

Dynamic HyperText Mark-up Language
DHTML is a collection of any technologies (generally HTML, Javascript and CSS) that make it possible for web pages to respond dynamically when the user interacts with the site. The content changes immediately so web pages are produced in concert with the user's input. The term was coined in the 90s to describe (then) new methods that are now so commonplace, that it is largely redundant and seldom used today.

FDDI

A Fiber Distributed Data Interface is one based on the US National Institute for Standards and Technology's standard for high speed data transmission. FDDI supports data rates of one million per second over local area networks based on fiber optics.

EFI Has Everything to Play For

EFI has been one of the graphic arts industry's great success stories with around 2000 employees worldwide and revenues of some $620 million in 2007, pioneering print controllers and high end proofing systems for many years. But over the last couple of years EFI shares have taken a real beating. Following countless quarters of steaming growth, the company's stride isn't quite so bold, despite a war chest of $327 million in cash. So what's going on with EFI?

EFI's original business model: OEM, OEM, OEM proved highly successful. Its main product, the Fiery line of RIPs and controllers is sold by some of the printing industry's top names, most notably Xerox, Canon, Konica Minolta, HP and Ricoh. With Fiery, EFI brought a level of sophistication and colour management and control that would not otherwise have been possible to machines such as the Canon CLC and Ricoh Aficio photocopiers. In so doing, the company sowed the seed for the digital printing industry as it is today.

But just selling controllers made EFI a one trick pony, with pretty much everything dependent on a single revenue source. For the last couple of years EFI has been trying to move away from its Fiery dependency to become a more central player in the commercial printing market. But this has not been without its trials. Fiery is still contributing 50% of EFI's revenues even as the company strives for a better balance of revenues across the business. It wants 30% to come from Fiery and the rest from software, consumables and output devices. But is EFI taking too long to rejig its business model?

But just selling controllers made EFI a one trick pony, with pretty much everything dependent on a single revenue source. For the last couple of years EFI has been trying to move away from its Fiery dependency to become a more central player in the commercial printing market.

The simple answer to that question is yes, however, there is more to it. EFI's ambition was to be a long term survivor in the graphic arts and corporate markets. In addition to Fiery development, the company has set out to become the predominant supplier in specific niches in the graphic arts. This included proofing with the acquisition of Best in 2003 and, rather more boldly, a number of MIS. Very sensibly, rather than try to reinvent a wheel that's already been reinvented too many times, EFI bought PrintCafé in 2003. This somewhat haphazard collection of MIS companies gave EFI the Hagen, Print Smith, Logic and PSI MIS technologies.

Its recent $21 million PACE acquisition should help even further. This company is a print management software developer working on print MIS and e-commerce technologies. EFI has been brilliant at buying companies, but less than stellar at integrating them, so hopefully PACE will help them draw together their various MIS interests. According to CEO Guy Gecht: "Their technology will be a terrific complement to our own

efforts, allowing us to meet our goal of a more efficient development process much sooner than anticipated".

So far, so good - but ambition is never satisfied. Far more interesting than working on MIS integrations was the revenue potential that EFI recognised in inkjet consumables sales, which provide a constantly renewable revenue stream. EFI's desire for more lead it first to buy Vutek in 2005 and then Jetrion in 2006. These steps brought EFI into a completely new business realm but there were synergies of sorts. Like EFI with the Fiery, Vutek had broken the ground of an entirely new market, when it introduced the Vutek 801 in 1989. With this introduction, the world got its first 2.4 metre wide airbrush printer, for affordable superwide, flexible, digital output. Vutek is still at the top of the wide format tree but it is under competitive threat from the likes of HP Scitex and Océ.

Jetrion develops industrial inkjet systems for label converters, direct mail and packaging printers. The first models of this technology are currently being installed with the first in Europe at Commercial Labels in Congleton, Cheshire, UK. Vutek and Jetrion inks are manufactured at plants in Michigan and New Hampshire, USA and are also sold on an OEM basis to other manufacturers.

In addition to its MIS expertise and inkjet interests EFI has also become a dominant player in web-to-print, largely through its highly successful Digital Store Front technology. With over 10,000 installations worldwide, this is probably the most widely used technology of its kind on the market, and it is one of the OEM community's mandatory planks for web-to-print application platforms. DSF 4.0, due for imminent release, includes support for wide and superwide format output, plus better integration with technologies such as Colorproof XF and Fiery XF, and other EFI software including its MIS.

So we have EFI, RIP developers extraordinaire, leaders in the proofing market, with a bevy of disparate MIS technologies, slick internet-based workflow and a position of precarious dominance in superwide format output, and a growing inks business. Sounds good, yet all is not rosy: EFI's share price is grovelling at around $9, about a third its top value in the last year. Even without the credit crunch, this is terrible compared to a few years ago when the shares traded at as much as $60. So what went wrong and what can EFI do to fix it?

Integration is the key word here, both for the technology and for the business. The task of the latter is up to EFI's management, but that of the former is under the purview of EFI's Graphic Arts Solutions Group based in Ratingen, Germany and one of the company's most important assets. Based on what had been Best Proofing solutions, which EFI acquired in 2003, the Graphic Arts Solutions Group is part of EFI's Advanced Professional Print Software (APPS) division, which is also responsible for advanced software development including technologies relating to MIS,

Guy Gecht, EFI's CEO.

web-to-print, proofing systems, RIPs, and workflow software technologies such as variable data printing.

The Graphic Arts Solutions Group has around 114 people in Ratingen and is crucially responsible for internal and external software development and supply. Wilfried Kampe, director of worldwide graphic arts sales in Ratingen is developing the as yet unannounced Colour Supply Chain concept (a working title) on behalf of the whole of EFI. EFI has 26 offices worldwide, mostly operating as independent entities, however according to Kampe: "We share ideas and cooperate". This is what technology integration and the Colour Supply Chain are all about.

The premise of this concept is simple: to take EFI's proven expertise in colour control, workflow management and proofing system performance and apply it elsewhere. The Colour Supply Chain concept combines process automation and standards to capitalise on new ideas for inkjet technology applications. The company estimates this market will be worth $118 billion by 2015, with a 75/25 split between analogue and digital output, of which 61% will be mono with colour accounting for the balance and worth $750 million annually. EFI's expectation is of 20% growth from year to year.

Holger Schuppan, Director of R&D at EFI's Rantingen facilities.

This should all be of considerable interest to commercial printers looking to spread their reaches into new markets. The Colour Supply Chain is designed to provide consistent colour control across production lines, rather as Kodak's Color Flow is supposed to do. For EFI it is clear that inkjet proofing markets are pretty much saturated with almost flat growth and that standards-based production is proliferating, especially in mature markets where competitiveness is based on process automation and efficiency. There are also all sorts of nascent opportunities for inkjet technology applications such as printing on ceramic tiles.

Data management is central to all aspects of graphic arts businesses across media, so EFI's intention is to leverage its workflow expertise in proofing data and workflow management to develop a position in the sign and display markets, as well as commercial printing. Besides superwide format and commercial printers, the Colour Supply Chain initiative is expected to extend to brand owners and packaging manufacturers, and the printers serving them. The Colour Supply Chain technologies are intended to provide quality assurance and control across highly complex workflows, with workflow management tools to optimise output on all devices. This technology provides a bridge between disparate corporate and commercial printing applications, towards ensuring tight colour control.

The Ratingen team has also developed Clean Colour Technology for online soft and hardcopy proofing applications. Holger Schuppan, director of research and development for proofing technologies, sees Clean Colour Technology as an "enabler in EFI [Fiery] XF products for numerically accurate and visually pleasing inkjet prints". The software

uses ICC colour management technologies, plus EFI expertise, to ensure good grey balance and colour accuracy. Clean Colour takes into account the user's intent and basically rejigs output files, based on an automatic analysis of job and device profiles. It uses the job content to establish strong high gamut colours that may need some help, leaving spot colours, greys and skin tones untouched. This software was introduced with Fiery XF 3.1 and version 4.0, due 1st March 2009, will also use this technology to support better spot colour output for the proofing market, plus other as yet undisclosed features.

Another tool under development for proofing applications in Ratingen is Dynamic Wedges. This is meant for brand owners and packaging proofers to provide them with their own colour strips. The software identifies job specific key colour values and generates a colour strip based on those target colours. The colours can be defined as a set of spot colours or found automatically using special job content analysis software. You can have up to 256 patches on a single dynamic strip. This technology can ensure that all-important colours are within tolerance, instead of verifying a fixed set of colour patches that may or may not be representative for the job content. This is a huge step towards real process control.

Wilfred Kampe, Director of Worldwide Graphic Arts Sales for EFI.

The concept of the Colour Supply Chain and its related technologies is basically sound. However it assumes tight control over workflows and process management and that means standards such as ISO 12647. In order to encourage further standards compliance, especially for its products and its sales channels, EFI has set up a resellers certification programme in conjunction with Fogra, the German research organisation for the graphic arts industries. Certification includes theory and practical exams for certification of the business, against a set of EFI best practice criteria, which is very much focused on ISO 12647-n and standards in general.

The idea is to establish a level of performance for the EFI sales channel and there are now over 60 EFI certified resellers throughout Europe, including several in the UK such as Colour Consultancy Ltd in Nottinghamshire, Colour Confidence in Birmingham and SOS Services Offset Supplies in Essex. The company is rolling out the programme to Asia and according to Wilfried Kampe, 70% of end user proofing installations listed on the Fogra website are based on EFI technology. The next step is to expand and develop the certification programme in order to further develop print and proofing knowledge in the market. EFI has plans for this but has not yet disclosed them.

One certification development EFI has disclosed is its intention to use the Digital Store Front platform within its Colour Supply Chain. DSF is the basis for a web-based proof monitoring service that will work along the lines of Enfocus's Certified PDF. Originally subscriber supported, Certified PDF started life as a web server with a database of printer supplied job specifications and preflighting tools. The server provides an automated

system so that production PDFs can be checked for compliance, prior to being submitted to the production workflow.

EFI's proof monitoring service is additionally a job distribution mechanism, with job log and tracking functionality. EFI is using XML rather than pure JDF for job management, so that it can properly support the proprietary XML-based bits of EFI and client job tickets. Because it's using XML to do this, other JDF compatible systems will be able to access and use the job ticket data without difficulty. EFI's data centre in Pittsburgh is providing the processing and data management grunt for this initiative.

EFI's proofing monitoring process within the Colour Supply Chain uses measurement data from proofing engines and the workflow software, and displays strip readings, job related information, and the pass/fail status for a proof. Interested parties receive an email notification when proofs are ready to view, and the monitoring process includes basic rights and file access administration. If proofs fail there is currently no explanation as to why or how to fix the problem. But this is the first iteration, so we would expect that to change.

Ghilad Dziesietnik, EFI's VP of Advanced Workflow and Core Software technologies.

The first installations of this system will soon be up and running at a packaging company providing oversight of proofs produced on nearly one hundred drop-on-demand inkjet proofers throughout a brand owner's supply chain. This includes production factories, external repro suppliers, sales and marketing subsidiaries and end customer sites. The project is yielding phenomenal savings in courier costs alone.

EFI's proof monitoring service is due for release in Q2 2009. It will include the standards related certification (ISO 12647-7). EFI is also working on a spectrophotometer alignment tool, a profile database and profile health check, to provide what is essentially a proof print brokerage platform. EFI is developing an API to facilitate a link into standard tools for data collection and visualisation. The API also provides a means of linking the monitoring system into other process control solutions. Candidates for such a link are ColorScience's Cross Match systems, which have a highly sophisticated statistical process control engine, and Fujifilm's Taskero to embrace platemaking and the press room.

This company's problems are really the problems of success, of ambitions fulfilled and of constant forward motion. It's a bit like crashing through a busy supermarket grabbing what you need, but forgetting to look over your shoulder at the mayhem in your wake. Yet EFI's top brass under the mercurial command of Guy Gecht have managed to build a large and well-resourced company that still has the feel of a young start up.

This is messy, which is something the company is striving to address. It has committed to develop a common core foundation for its MIS technologies, although progress on this hasn't been desperately obvious. It may be that PACE and APPS will be able to provide the right foundation

and a standard interface for all EFI MIS technologies, assuming that customers want that.

EFI is also in the process of acquiring the bits of Raster Printers it doesn't already own for approximately $3 million in net cash, plus additional cash earn out if the company meets performance targets. Raster Printers is a young company of twenty people founded in 2004 to develop UV wide format printers. The Daytona brand is a line of environmentally friendly wide format inkjet engines for display graphics. Now that the deal has closed, these engines will be rebranded the EFI Rastek line.

Fred Rosenzweig, EFI's COO.

EFI's business is now soundly structured around three core businesses: Fiery and the controller business which includes Splash, Micropress, Fiery, SendMe and DocSend; the inkjet division which comprises Vutek, Jetrion, Raster Graphics and consumables; and APPS, which is binding it all together. It looks like a bit of a hodge podge, but there is a common thread running through all these muddled business interests: digital data.

EFI's future lies in its ability to facilitate fast highly automated output to a range of systems including output devices and information systems. According to Fred Rosenzweig, EFI's president, "as … graphics businesses continue their migration from analogue to digital production technologies, it becomes increasingly important to surround the production operation with the right digital infrastructure". EFI's APPS division is central to this.

Ghilad Dziesietnik, EFI's chief technology officer, told us in Ratingen that his job is to nurture ideas and identify targets for acquisition or investment, with Raster Printers and Jettable, a developer of ceramic inkjet technologies, the latest examples. According to Dziesietnik, digital inkjet printing and the data management that goes with it are EFI's future, but partnerships are also key. This is especially important as EFI moves away from its traditional OEM model and into a competitive position with some of its customers. The company must strengthen its strategic partnerships especially with Canon and Xerox, but the strategy needs careful implementation.

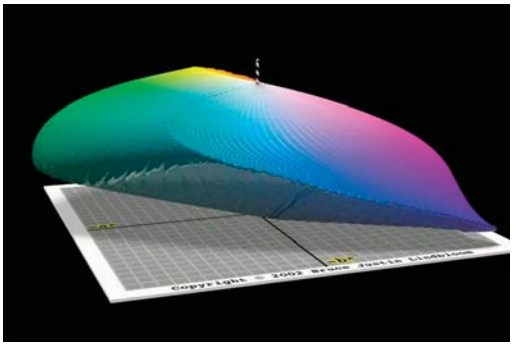
EFI has built its business on OEM sales, and cannot afford to compete with its customers, such as Océ, HP and Screen. It all comes down to managing relationships with customers and partners, and having an infrastructure that presents a unified corporate front. For too long there has been more mess than message coming from EFI, which might account for some of its recent declines. EFI is beginning to bring its tangle of technologies together, and with any luck doing so will yield greater structural unity as well.

– **Laurel Brunner**

Wide gamut approaching full gamut

The interest and fascination with large format printing, and high colour gamut printing in particular, is evident at all print related exhibitions. The printed posters are popular trophies amongst the attendees, and disappear quickly from the stands.

Colour image quality is clearly of interest to many people, and the latest 11- and 12-colour printers are at the centre of this interest. Looking at samples from these printers in good viewing conditions reveals an astounding colour gamut, really vivid colours and a high contrast that makes the photos almost appear to be in 3D. A question comes to mind: are we now able to reproduce a photo with its entire gamut? We decided to test a selection of wide gamut printers to find out.



The number of single visible colours for humans is about 2.4 millions, according to colour scientist Bruce Lindbloom.

The maximum gamut of human vision

There are different ways to calculate the gamut that it is possible to see with the human eye, and over the years we have come across very different statements as to how many colours we humans actually can detect. Numbers varying from some thousands to many millions of colours have been suggested. At the moment we are quite convinced that the way the colour scientist Bruce Lindbloom calculates colour spaces makes sense (see www. brucelindbloom.com).

Somewhat simplified, because we are not fully capable of following all the advanced mathematics behind this, of all the possible tone values, Lindbloom only counts the colours that differ by 1 ΔE. When using this methodology, the human vision is capable of detecting approximately 2.4 million colours. This is far from the theoretical 16.7 million colours possible to encode with 24-bit image depth (eight bits per colour channel, as in, for example, RGB and CIE Lab). Using 10, 12, 14 or 16 bits per channel doesn't increase the number of detectable colours – those extra bits are just used to make finer divisions between the tone values in the image processing.

The Canon iPF 5100 inkjet printer has in all 12 ink channels which offers a very large colour gamut. The conventional CMYK colours are complemented with special Red, Green and Blue inks, as well as different sets of black and grey.

The next question is, whether or not it's possible to capture all the 'real life colours' with a digital camera? We use ICC profiles to check this, but when analyzing an ICC-profile from a high end digital camera, we find its gamut to be quite a bit smaller, but very similar in shape, to that of the ProPhoto RGB, developed by Kodak. But the ProPhoto RGB has a gamut volume of 2.9 million colours, so quite a few of the theoretical values can't be detected in real life by human vision, and are not likely to be reproduced with any known technology.

Even the new monitors with LED back-lit technology can't reach a larger gamut than around 1.5 million colours. This number will probably be slightly higher within a few years, but we can conclude that using the

Adobe RGB colourspace with its 1.3 million colours is still OK as a production RGB working colour space. But already now it will clip colours that can be reproduced by the best LCD monitors on the market.

This is one of the reasons why Bruce Lindbloom has suggested a new, and slightly larger production RGB, or 'working space' as Adobe calls it in the colour settings of Creative Suite. The suggested colour space is called Beta RGB, and uses a white point of 5000 K and a reference gamma of 2.2. The gamut volume is 1.7 million colours, and shaped so that printable colours are within the colour space (some printable colours fall outside the Adobe RGB).

For image processing it's a good choice to work in Camera RAW and/or ProPhoto RGB, and 16-bit image depth, but processed production image files need to be saved and delivered in 8-bit format and in a colour gamut that is close in size to the gamut of the reproduction technology. For colour printers and printing presses this is again a substantially smaller gamut than for cameras and monitors.

The Epson Stylus Pro 7900 inkjet printer has 11 colours which delivers a very large colour gamut. The conventional CMYK colours are complemented with special Green and Orange ink, a colour set-up similar to that of Pantone Hexachrome. There are also several sets of black (and grey).

Maximum gamut in print production

In previous tests we have found that many inkjet printers not only can reproduce all the colours of high quality offset printing (and for that matter gravure printing), but also many of the spot colours. This is definitely the case with 11- and 12-ink printers on high quality papers. We have tested wide gamut printers from Canon, Epson and HP to find out what gamut volume can be achieved in those amazing machines.

The Canon iPF 5100 and HP Designjet Z3100 have quite similar ink- and printhead setup: an extended CMYK setup with light magenta and light cyan, plus light grey. In addition these printers also have red, green and blue ink, to extend the gamut closer to that of camera and monitor RGB.

The Epson Stylus Pro 7900 has a slightly different approach. You could say it has the capacity of Pantone Hexachrome printing, with the addition of extended CMK (light cyan, light magenta and light black). The Hexachrome part consists of cyan, magenta, yellow, black, orange and green, where the cyan contains more vivid pigments than that of normal offset process cyan. Epson has for some years now used a more vivid magenta, so all in all the Epson 11-ink set reaches a very wide gamut. The light inks don't add much to the gamut volume, but improve image details in the highlights as well as offering smooth tone gradation without banding.

The HP Designjet inkjet printer has 12 inks which gives a very large colour gamut. The conventional CMYK colours are complemented with special Red, Green and Blue ink, as well as different sets of black and grey.

All of the three printers that we tested reached about twice the colour gamut of offset printing, or around 800,000 colours, versus the approximately 400,000 colours possible when printing according to ISO 12647 or SWOP on high quality coated paper. Even if you use high-pigmented ink, like the Toyo Kaleido ink, for CMYK printing in offset, you would only reach about 480,000 colours. We use the word 'only' here, but that's when comparing to wide gamut inkjet printers – the visual result of

quality offset is of course still very good, especially when not comparing the original image or a photo printout side by side with the offset print.

As we can see photographic colour prints reach about half of the colour gamut of high quality monitors, but then we must remember that we are comparing two different colour systems. RGB encoding assumes a self-illuminating image source (light emitting and coloured directly to the eye – the additive colour system), while the printing process creates colour as a result of light reflected from a substrate, coloured by the ink on that substrate's surface (the subtractive colour system).

The original image, projected onto a calibrated wide gamut monitor, shows a surprisingly good match with the photo quality wide gamut printout from the inkjet printer. That is, viewed in a proper viewing booth, with, let's say, 5000 K reference white and high brightness (luminance) of around 1500-2000 Lux. What might differ is that a well-calibrated monitor often reproduces shadow details better than a printout, but that has less to do with colour gamut than with correct linearisation of the printer, and correct setting of ink density. The latter is a task for the RIP system driving the printer – more on this later.

It's not always possible to evaluate a printer with only one test image, but this image from Digitalcenter in Sweden manages to cover many areas. Skin tones, grey balance shadow details, highlights and so on can be compared on screen versus reproduced in print.

Printer calibration – the great challenge

When testing these printers we were facing the same question as any new user of an advanced colour inkjet printer – how far would I get with the standard (and free) printer driver, or should I use an additional software RIP for an optimised and more controlled result? We printed some test images straight through the driver, using the default paper settings, and then decided to make some custom ICC-profiles for the same substrates, including new linearisation and ink settings.

The standard driver and default paper settings in general produced a decent result, and actually quite impressive images, since we used high quality papers (suggested by the vendors), and all the printers as such are capable of both high gamut and high-resolution output.

But when analysing the test prints carefully, we thought we might perhaps be able to achieve an even better result, a better match between the original photo, and the printout. Especially in regard to better shadow details, better grey balance, less tendency of banding and so on. Now the question was – which software RIP to choose?

Asking the printer manufacturers gave some hints, but in general the printer vendors like to stay neutral in regard to what software RIPs to use as the front end, and are normally unwilling to clearly favour one single software RIP vendor. In our test we came to use three different software RIPs to compare the results against those of the standard driver. Those three RIPs were CSE Colorburst, Efi Colorproof XF and Perfectproof Proofmaster. But we have to admit that the choice was quite random (there is a large number of excellent software RIP systems on the market), and it will take a new and very elaborate test to cover all of them.

Still it provided us with some insight into how differently each vendor can approach calibration and linearisation of a printer. One would think that the procedure of calibrating an inkjet printer should be quite straightforward and well-established, but we found more variations on the topic than expected. The most challenging part seems to be to determine the ideal amount of ink to use on a certain substrate. The problem most RIP vendors have is whether or not to use the default printer driver supplied by the printer manufacturer. While things get easier in many respects if you decide to use the original driver, it's not always possible to control the printer to the degree you would like. But creating a new and specialised printer driver is of course both demanding and costly, so not all of the software RIP vendors take that route.

When using the default printer driver you are often limited to using the papers listed in the user interface. You can change the ink and paper and make a new calibration, but you often need to start with some default paper set-up, choosing a paper similar to the actual substrate. In our limited testing we didn't always reach a fully optimised result with this method. We found that the best linearisation result was when using a specialised printer driver, supplied by the software RIP vendor. The key is to be able to use exactly the right amount of ink, for that particular substrate. Not too little ink, which produces washed out colours, and definitely not too much ink, which brings all sorts of problems – such as having too heavy shadows, ink bleeding through the substrate, bronzing phenomena where the ink layer is too thick, very long drying times and so on.

One good side effect of having more than three primaries, is that you will actually save ink. Instead of typically mixing yellow and magenta to create red you use the special red ink instead. So instead of using up to 200% ink in pure red areas you use only 100%. The same applies to blue and green, if you have special ink for that in the ink set-up.

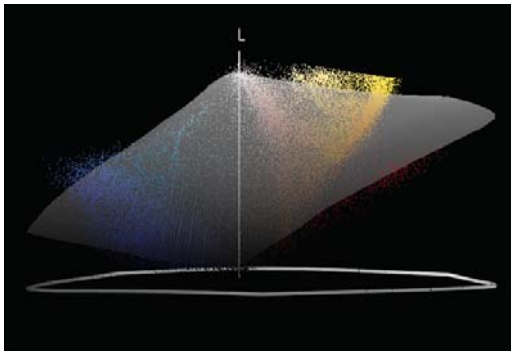
We hope to be able to test more RIP systems systematically, and report our findings, but for now we can only conclude that a given printer can produce quite different results, depending on the front end driving it.

For less demanding workflows and applications the standard driver produces a reasonably good result, but for high volume printing, and for a high level of control, an advanced and high performance software RIP is clearly a necessity. Such a RIP needs to be able to properly calibrate the new 6- and 7-colour ink sets of wide gamut printers, or the printer won't reach it's full potential.

What the future will bring

It's very difficult to envision a dramatic increase in gamut in the near future – with 5 or 6 ink-sets for the primaries, CMY and RGB, or CMYOG (CMY + Orange and Green), the gamut on high quality paper is astounding. All of the printers tested here have several ink heads for black (called

A colourful RGB image like this actually only contains around 100,000 unique colours, not a very large colour gamut in volume. But the most vivid colours are outside the colour gamut of most printers and offset presses.



The colourful image of the little girls contains coloured pixels represented by the 'cloud' of pixels in this illustration. The grey semi-transparent sphere represents the colour gamut of the tested HP z3100 inkjet printer. The gamut for the Canon and Epson printers tested here was very similar.

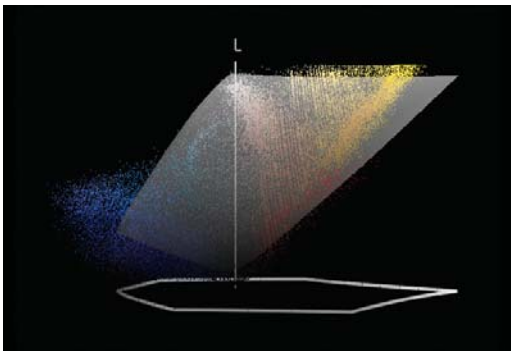
light black, but actually grey), which allows for excellent black and white photo output.

There will be development of higher pigmentation and perhaps an increased portion of fluorescence effect in the ink to give an even higher colour intensity. Development of substrates will also continue, while it's perhaps not so much to reach higher colour gamut as such that is the goal, but to reach high gamut with less costly pigments and stock.

Table 1: Colour gamut for a selection of devices

Device/source	Max gamut*
Pro Photo RGB	2 900 000
Human perception	2 400 000
High-end digital cameras	???
Beta RGB (Bruce Lindbloom)	1 700 000
Wide Gamut Monitor	1 500 000
Adobe RGB	1 300 000
Wide Gamut Inkjet printer	800 000
High pigment offset ink	480 000
Offset printing (SWOP/ISO 12647-2)	400 000

* By colours we mean tone values with at least ΔE 1 difference.



In this image the grey semi-transparent sphere represents the colour gamut of offset print on coated paper. Many more pixels in the original RGB-image fall outside the printable colour gamut, than when using a wide gamut inkjet printer.

Table 2: Tech spec for the tested ink-jet printers

Model	No of ink-heads	Max output width	Max resolution	Price (EUR)*
Canon iPF 5100	12	17"	2400x1200	1700
Epson Stylus Pro 7900**	11	24"	2880x1440	4000
HP Designjet Z3100**	12	24"	2400x1200	4000

*Approximated price, VAT excluded. Price may vary with region, country and distributor.

** With built-in spectrophotometer

A development that is clear already now is to integrate a spectrophotometer into the printer itself. This both speeds up and facilitates the calibration of the printer, as well as helps maintain a high and even print result. Both HP and Epson have a built-in spectrophotometer in their top models, and we expect Canon to follow suit. But for high end ICC profiles you can't rush the calibration process too much – before you measure the final test chart it should have dried some 24 hours. In that respect it's perhaps less crucial to have the spectrophotometer built into the printer – it can just as well be a good stand alone spectrophotometer.

Another thing on the wish list is for Adobe to bring preview capacity of multicolour profiles into the Creative Suite. As of today you can create n-Color profiles in, for example, X-Rite ProfileMaker, but you need to install a special plug-in in Photoshop to preview the image, colour converted from RGB to the print output colour space. An accurate visual preview of how an RGB image will look when printed is something

one would think had been solved by now, but there is actually room for improvement from all the parties involved.

Canon's work on its Kyuanos technology is supposed to achieve a better match between screen preview and final output, even under different viewing conditions (colour temperature and spectral distribution in the light source). For this test we had hoped to include some initial testing of Kyuanos, but haven't received any software from Canon to try it out. But any work on a better visual match between screen and final print is welcome, and we will come back to the topic as soon as we have more to report. The colour gamut from wide gamut inkjet printers, about twice that of regular offset printing, is a good starting point in the chase of the photorealistic reproduction of high quality images.

– **Paul Lindstrom**

Spit & Polish

IMI Europe recently held its 16th annual European inkjet printing conference in Lisbon, attracting over 130 participants. We had never heard of most of these people, nor of a healthy proportion of the presenting companies! Embroiled as we are in commercial printing and publishing, it's all too easy to forget that inkjet printing technologies are used for many other applications than commercial print.

The event in Lisbon was about market trends in inkjet, and it is clear that commercial print is a key sector for the inkjet development community. Technologies and market views sat side by side, presented in an environment in which developers, chemists and engineers could assess and discuss technology innovations and ideas. Apart from giving us a whole slew of new jargon to banter with, such as pinning, sintering, BIFs and NIR, we gained insight into how far the technology has come, and into how far it has yet to go.

A rapt audience at IMI Europe in Lisbon.

This was a techie's conference so we learned a lot, but had to admit defeat in the face of rather a lot more. Fortunately we were lead gently to the deeper trenches with a general overview of the market and consultants' expectations for the future, much of which is based on past performance. For instance in 1999 HP shipped its 100th inkjet printer, Inca didn't exist and Xerox had just acquired Tektronix. It's taken 10 years for Xerox to present any of the work it has been doing with Tektronix, but what we saw at drupa was extremely impressive.

According to IT Resources data, inkjet ink revenues are expected to be well over $40 billion by 2012, with nearly $30 billion of that coming from home and small office markets. Pivotal Resources, the event organisers, reminded participants that HP gets $96 of revenue per year from a low cost ($120) desktop printer, the ink for which costs $870 per litre. For a $2.5 million web press, the ink is much cheaper and costs only $78 per litre. However each of these machines has the capacity to generate $8m per year. Clearly the commercial print business is an important market for ink manufacturers.

Technology Gluts

With an eye to those revenues, developers are working hard to get engines out into the field, so we are seeing a glut of new technologies and rapid

deployment. For instance, over 100 units of Screen's Truepress have been sold since its introduction in late 2006. In contrast it took Xerox about eighteen months to reach the same milestone with the iGen3. Pivotal also gave us some hints of new technologies for 2009. Silverbrook Research is the Australian research and development company behind Memjet, a 1600 dpi page wide printhead that was launched in March 2007. Silverbrook's customers are technology developers serving printer manufacturers, and the company is apparently working on an A4 low actuation energy printhead with 70,400 nozzles for providing printing capabilities to laptops, PDAs, mobile phones and digital cameras.

One of the best presentations at this conference came from Crit Driessen of Océ. Océ Digidot is Océ's version of the Kyocera 600 dpi piezo drop-on-demand head. It is the underlying technology for the JetStream inkjet press announced last year and which Océ expects to play an important role in the transition of applications such as direct mail, to inkjet printing. There are three models in the JetStream family: the 100 metres per minute JetStream 750, the 150 metres per minute 1100 and the 3000 which prints 200 metres per minute. Apart from the 3000, these highly productive systems print 600 x 600 dpi. The 3000 is limited to 480 x 600 dpi until Océ can work out how to maintain top resolution at top speed.

Océ Digidot is Océ's version of the Kyocera 600 dpi piezo drop-on-demand head. It is the underlying technology for the JetStream inkjet press announced last year and which Océ expects to play an important role in the transition of applications such as direct mail, to inkjet printing.

Océ also told us about its Crystalpoint solid-ish ink technology. Océ has developed a new toner-like material called TonerPearls for use in wide format printing machines, specifically the piezo-based Océ ColourWave 600. Ink is melted before entering the ink reservoir and head. The printhead has 256 nozzles set in two rows of 128, at 75dpi per row. They fire at 18kHz to jet seven 29pl drops per second and dots can be positioned at 1200 dpi even at the highest print speeds onto the print surface, which is kept at 32° C with a unique Océ cooling system. The ink sits on the substrate surface so the print has an appearance more akin to toner-based printing than inkjet, with no feathering, bleeding or cockling, and no drying required. The TonerPearl inks are also non-toxic, so will have less negative impact on the environment, compared to inks used in drop on demand heads.

Océ's technology monitors the acoustics of each jet, using the piezos as microphones in order to predict and compensate for nozzle failure before it happens. This technology, called Paint, is also sensitive enough to predict air bubbles or dirt particles before they have a chance to cause missing pixels, when switching to another nozzle. Océ's Bubble Inducing Factor, or BIF, refers to a measurable disturbance in the signal, and BIFs precede all bubbles, so it is important to control them.

Kodak Stream blends the best of the company's thermal and continuous inkjet printing technologies. Capable of 600 dpi and a 12pl drop size currently, Stream is expected to print 1200 dpi at 2pl droplets in the future, under higher pressure so they will be satellite free and have no tails. This is inkjet-speak for no rogue droplets in addition to the ones required, and

no little stream of ink dragging behind the main dot, both of which obviously compromise image accuracy and quality in the final print.

The Stream technology is similar to thermal inkjet, but it involves no bubble or explosion. Heat pulses create imperfections in the column of ink and this causes an ink droplet to form. The drop size is proportional to the time between heat pulses and the ink's velocity. Air whisks away the drops that aren't needed. Variable data ink droplets can be placed at over one gigabyte per second with variable dot sizes resulting from the thermal streaming technology. Stream technology also makes it possible to jet nanopigment dispersions with up to 30% so it is possible to get greater densities with less reflection. In 2009 Kodak is expected to launch a 4ins (10.16cm) head based on Stream technology. This technology is providing Kodak with an extendable technology base, with offset printing just the beginning.

Much of what makes events such as IMI Europe, takes place in the spaces in between the sessions.

Applications Ahoy

According to IT Strategies' Mark Hanley, the labels market is set to explode. The company predicts worldwide label system revenues of almost $2 billion and ink revenues of $2.5 billion. One third of HP Indigo's $450 million revenues already comes from the label market.

Marc Graindourze of Agfa and Stefan Slembrouck of Sun Chemical see great things for inkjet in packaging, as well as applications such as sign and displays, labels, ceramics and textiles. Packaging is especially exciting territory because it gives brand owners a further means of proliferating their brands, for example in niche marketing and even on-demand applications. Variable data packaging is undoubtedly fertile ground, with opportunities for versioning and personalisation.

Market development will come down to economics and developing business models that make inkjet printed packaging as viable as its conventionally printed equivalent, but with the added dimension of variable data. It seems to us that once the workflow and supply chain nut is cracked, packaging will follow the route that commercial print is already taking.

Development company Xennia also sees packaging as a market with strong pull for inkjet. According to Dr Alan Hudd it will revolutionise workflow and allow for real time packaging customisation and on-demand delivery. It could also lower operating costs and the EU legislation that requires packaging to be produced in local languages is an added spur to market development.

Inky Fingers

As the revenue projections show, it's all about money but specifically it's about ink. Sun Chemical has a division entirely devoted to developing, manufacturing and supplying inkjet products. According to Peter Walshe of Sunjet: "The key is in personalisation of inks to given projects", hence his company's interest in developing so many different sorts of ink, including liquid and hot melt edible inks, and inks for manufacturing applications, such as photovoltaics (solar cells) and printed circuit boards. Given the fact that solar energy only creates 0.01% of global energy, photovoltaic applications could be a real winner! There is a growing demand for edible inks used in icing, fruit roll-ups and cakes, but also for crisps (!), icecream and yoghurts.

One of the things that was particularly intriguing in Lisbon was Dr Stefan Engel of Eckart's presentation on metallic inks based on aluminium instead of silver, which is expensive and prone to oxidisation. Eckart employs 4,646 people and has a turnover of €1.38 million. Most of its revenues come from additives and instruments for the paint and coatings industry, however pigments come a close second. Eckart reckons the digital printing market was worth €500 billion in 2007 and that metallics are relevant in small and large format industrial applications and in marking and coding.

One of the things that was particularly intriguing in Lisbon was Dr Stefan Engel of Eckart's presentation on metallic inks based on aluminium instead of silver, which is expensive and prone to oxidisation.

Creating a metallic ink requires wet grinding of the metal pigments into an atomised powder that can be milled into flat roundish pieces, of around 1.3 microns, 5-10 times thinner than conventional pigments and perfectly flat for maximum reflection. Particles with a high surface-to-edge ratio perform best, and should not be subject to shear forces, which can bash them up, causing optical interference, so they aren't as shiny as they should be.

Eckart is working on a version of its metallic ink that will be usable in most industrial inkjet presses, but there are many problems to solve. One of the biggest is the settling of particles, which have a tendency to settle too fast because of their size and weight. It is also important that particles don't clump together and that they remain stable during UV curing: under UV light aluminium can solidify, but Eckart claims to have solved this problem. All of these difficulties seem to suggest that the ink system will need to be designed to accommodate metallics and that the curing processes need to be thought through as using the wrong one will ruin the surface of the metallic ink, turning it a murky grey. There must also be concerns for colour management as there can be up to 50% gamut loss when CYMK is printed over a metallic base.

So far Eckart has had encouraging results from piezo printheads from Dimatix, Xaar, Konica, Trident and Epson, and from continuous inkjet heads for marking and coding applications. According to Dr Engel the technology looks promising: "As soon as the print delivery system is adjusted for our demands I am sure it will work perfectly."

And then of course there is HP's Latex ink and the HP Inkjet web press. Both of these have been extensively covered in our pages, however it is worth noting that according to Bruni Trouvé, the inkjet web press which is 10 times as fast as an Indigo 7000, will start its eighteen month beta test in January 2009 and that shipment has been pushed back to late 2009 instead of in the first half of the year.

And then there are the technologies around the technologies, which was the point in the conference where our brains started to wallow more than a little in a surfeit of physicstry and chemistrical abstractions. Presentations considered LED versus UV curing (good but premature), pinning (fixing individual colours) in UV digital presses, (depends on quality expectations), NIR (Near Infra Red) drying (low maintenance and power use), and flow through inkjet print heads (Xaar 1001, Dimatix Samba).

Blinded by science and an unrelenting cold, we had to admit defeat in the last sessions of this conference. But we came away convinced that the work being done behind the scenes will lead to yet further new inkjet presses over the coming months. This means there will be a massive charge towards innovative implementations, involving both developers and end users.

– **Laurel Brunner**

Go wild on the Web

A couple of issues back we took a beta copy of Adobe's Creative Suite 4 for a spin. Since then Adobe has released the final version of CS4 so we've taken the opportunity to see what was missing from the beta and to get to grips with the web-related elements.

Adobe has long believed that web and printed pages should be part of the same workflow, a lead that has been followed by a great many publishers and marketing professionals. The main theme of CS4 is the continuing integration of its various programs, and this of course also includes tying web and print design ever tighter together.

Adobe's main web design program is Dreamweaver, which dominated the market long before Adobe bought it as part of its acquisition of Macromedia. Dreamweaver is not by any means the only web authoring program around, but it is probably the best. For this release Adobe has revamped the user interface of Dreamweaver, making it seem much fresher. You can customise the workspace to suit your own needs, and since it shares much of the look and feel of some of the other CS4 programs, it now feels as if Dreamweaver is much more integrated into the collection as a whole.

As well as the headline programs, the Creative Suite also comes with a number of other useful tools such as Version Cue, and this Device Central which is useful for designing interfaces and websites for multiple mobile devices.

There's also better integration with some of the other CS4 programs. You can, for example, drag and drop Photoshop PSD files into Dreamweaver pages, which treats the images as Smart Objects. This means that if you then edit the image in Photoshop, you can easily update the image as used in Dreamweaver, even if Photoshop is no longer open.

Perhaps the best of the new features is Live View which shows the underlying code alongside the page that the code generates, as it would appear in a browser. You can edit the code itself and see immediately the effects on the page. This is also an excellent way of improving your coding. The rendered page can cope with CSS scripts so that you can see dynamic elements such as pull down sub-menus, and you can freeze these to examine the code for them.

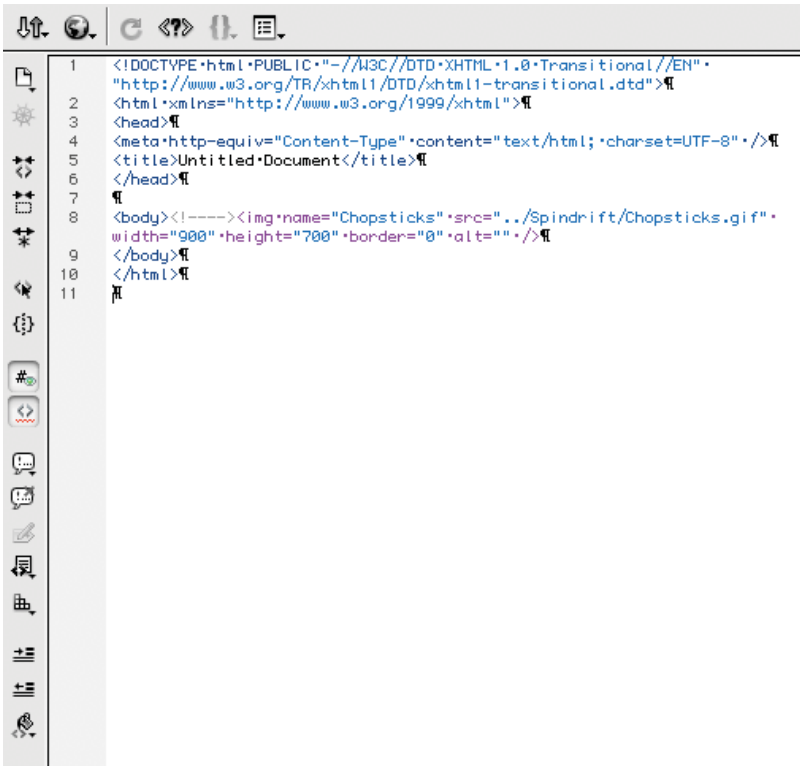
Another nice feature is Related Files, which shows all the documents that are associated with the current page that you are working on. This can include all the CSS and Java Scripts, all displayed in a bar along the top of the current page. For those that prefer to work directly with their code,

there's a new Code Navigator - a pop-up window which shows links to CSS code sources for the current document.

There's also plenty of help for anyone still getting to grips with the intricacies of CSS coding. There's a new CSS tab in the Properties panel which shows both the styles and applicable CSS rules for whatever code is currently selected. There are also tool tips which explain the principles of CSS coding. The Properties panel also lets you edit existing rules or create new rules which can be added to the document or to an external style sheet.

There's better support for JavaScript core objects and primitive data types with advanced code hinting. It also has built-in syntax error detection. You can also download an extension for Adobe's AIR for Dreamweaver which lets you build applications that can be run on multiple operating systems.

We particularly liked the new HTML data sets which let users add dynamic data from a database without having to jump through hoops. Instead you can set up your data in a standard HTML table or even as an unordered list, and then use a Spry Data Set feature to load that data into a dynamic table on the page. It can also work with XML files such as information from RSS feeds.



Dreamweaver has a number of view options for showing code alongside the web page being designed, as well as this Code Window.

Fireworks

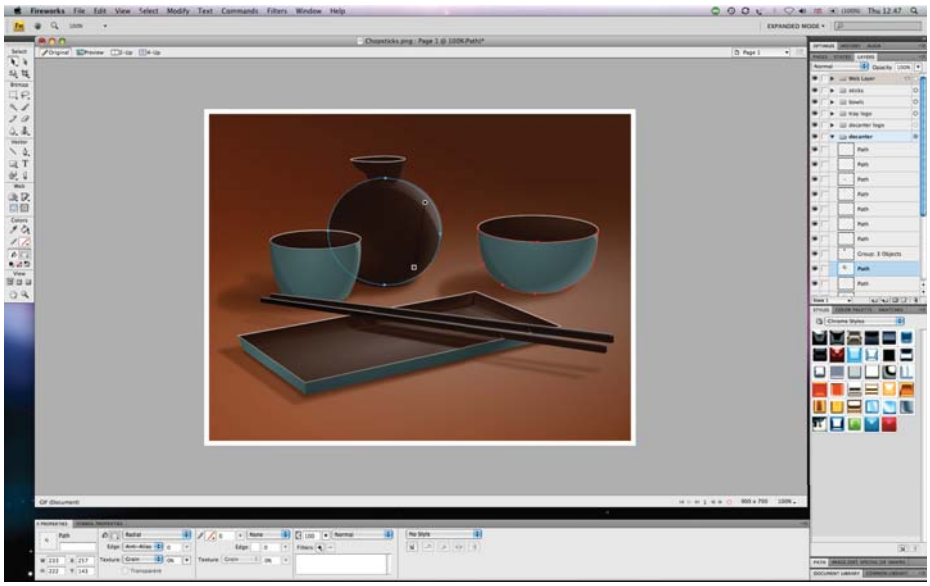
Macromedia originally conceived of Fireworks as a program for editing images for use with the Internet. Of course you can do that with Photoshop and Adobe could have been expected to drop Fireworks, but has instead re-invented it as a tool for prototyping websites, interfaces and interactive designs. As such it can be used to knock up a basic design fairly quickly, and then the results can be exported to Dreamweaver. And the designs can be fairly complex, complete with CSS-based layouts and interactive buttons.

It might sound like a rather convoluted workflow, given that you could just start off with the basic design in Dreamweaver, but strangely it works very well, with Fireworks offering a quicker way of testing out different designs. It can also be used to put together prototype AIR applications, and you can use Fireworks to make templates for different skins for use with Flex Builder.

The main improvements to the CS4 version of Fireworks are all to do with greater productivity so that opening and saving files is now much faster. It also gains the same interface as most of the other CS4 programs,

which also gives it more right-click commands, again adding to the overall productivity.

Elsewhere there are a number of small but useful improvements. You can now edit symbols in place without having to use a separate preview window. Adobe has also opened up 9-slice scaling to all object types, from pixels and vectors to groups and text areas. Fireworks now supports multiple style sets, and when you edit a style the changes are immediately applied to all instances of that style. There's a new Export to PDF command, which preserves the hot-links, so that you can easily show designs to anyone with Acrobat Reader



Fireworks is a more powerful tool than at first appears and can be used to quickly put together complex designs.

Flash

One of the highlights of CS4 is the way in which Adobe continues to integrate Flash into the suite, which is almost worthy of a story in its own right. There's a new Object-based animation model which lets you apply motion tweens directly to objects rather than having to attach them to keyframes that then have to be manually edited. Tweening allows you to create movement in animations without having to draw each frame, and is normally done by drawing keyframes in a timeline with Flash interpolating the steps in between. The new motion-based model effectively does away with the need for the timeline as the motion is inherent to the object, which is a far quicker and more intuitive way of working. Object-based animation automatically generates a motion path, which can be edited via bezier handles.

However, you will still need to work with keyframes as the Motion Editor panel gives a lot of control over an object's parameters from size and position to movement and filters. Flash now includes a library of pre-built motions which can be applied to any object, and of course you can add your own motions.

Adobe has also simplified 3D motion with the addition of two extra tools. The 3D Translation tool gives users an easy to use way of setting X,Y and Z axis, while the 3D Rotation tool lets you rotate an object in 3D, as its name suggests. The two together give a simple, yet effective, way of moving a 2D object through a 3D space.

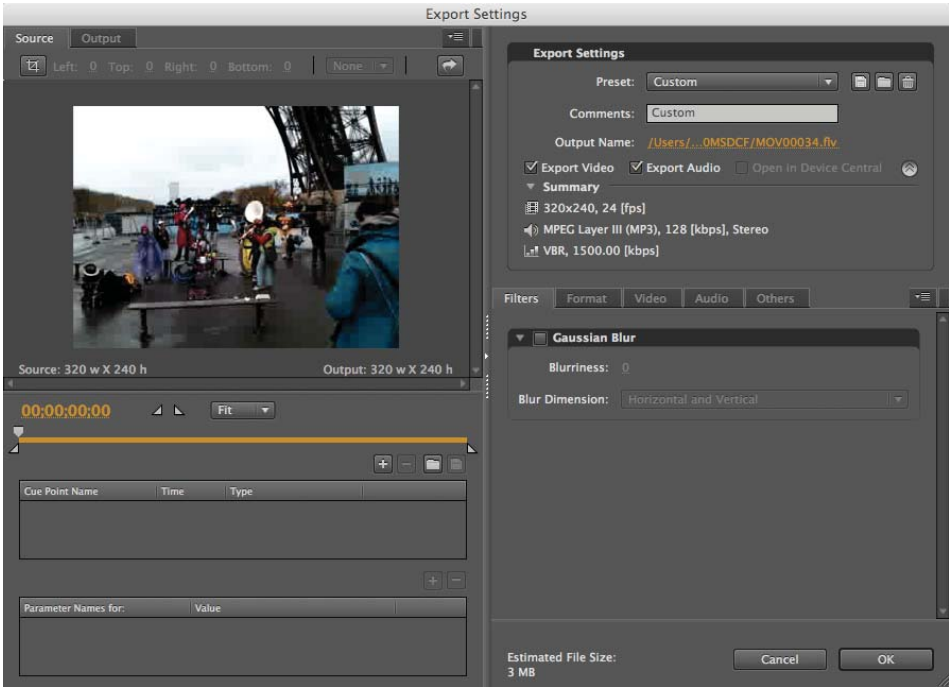
There's a new Bones tool which lets you link objects together so that the objects can be animated in relationship to each other. Also known as inverse kinematics, this is a common method of animating people and animals. Dragging objects together creates an Armature layer from where you can define how the different objects move in relation to each other to

create fairly complex motions. A Runtime option lets users interact with the animated object as the content runs in the Flash player.

Adobe has added a new Deco tool which can turn symbols into a repeating design element. There are several different patterns, such as Vine Fill which can turn a single branch into a hedge, or Grid Fill which can turn a tree into a forest.

Adobe has also added support for its XFL file format right across the Creative Suite, which allows other programs such as InDesign to export something that might originally have been designed for print as Flash content. Flash also gains support for Adobe's XMP metadata standard.

Flash also gains support for the H.264 video encoder which allows for Flash videos to be small enough in file size for mobile devices, while having enough image quality for desktop applications. Flash also boasts the same Adobe Media Encoder that is found in the dedicated video programs Premiere Pro and After Effects.



Flash now gains the H.264 video encoder which is useful for shrinking files for use on mobile devices.

Contribute

The Web Standard and Web Premium editions of CS4 also include Contribute, a useful tool which allows several people to make changes to the design of a web page from within their own browsers. The idea is that the page is created by a designer using Dreamweaver templates and features an editor which will work with most browsers, including Firefox and Internet Explorer, but not Safari. It's a useful way of letting several people collaborate on a web page and is complemented by the fact that some site templates can now be set up to force a specific workflow, such as authoring, approval and then publishing. New features for the CS4 version include: notification of web pages that are about to expire; the ability to share comments across several people working on a page; drag and drop support for images, Flash content and PDF files.

Online Services

It's also worth noting that Adobe has an online alternative to Contribute which will make it easier to allow other users to update web pages written with Dreamweaver without having any other software through a new online InContext Editing service. The idea is that a web designer puts a web page together, but defines parts of that page so that other users can change that content, but without altering the whole page. This for example would allow journalists to update news stories on a newspaper site, without touching the banner ads. You can apply CSS styles so that

the editable content keeps the same style as the rest of the page. For the moment this service is available free while Adobe is trialing it, but Adobe will presumably charge for it at some point.

Conclusion

So, is this edition of the Creative Suite worth investing in? We strongly suspect that a lot of people are going to buy the standard Design edition of CS4 to get Photoshop, Illustrator and Acrobat, and are going to continue working with QuarkXPress, to produce printed and web pages, which would give a nice, simple, easy to learn, yet effective workflow. Those people that need something a little more complex will be better off with InDesign, Flash and Dreamweaver. This requires a much greater investment in time and training, but using the CS4 tools may make good sense for a lot of people, because even if you are doing relatively simple projects, having the tools, the training and the workflow in place means that you can step up a gear to produce quite complex projects without missing a heartbeat. And from this point of view, the Creative Suite, with its Swiss Army Tool approach of everything in one box, makes a great deal of sense. So much so in fact that we also use the Creative Suite in putting together Spindrift and the Digital Dots website.

Ultimately, what makes CS4 important is not just that it adds a few extra tools to those available in CS3, and gives an important boost to Adobe's bottom line. But rather it is that it mirrors the way that the publishing industry is moving.

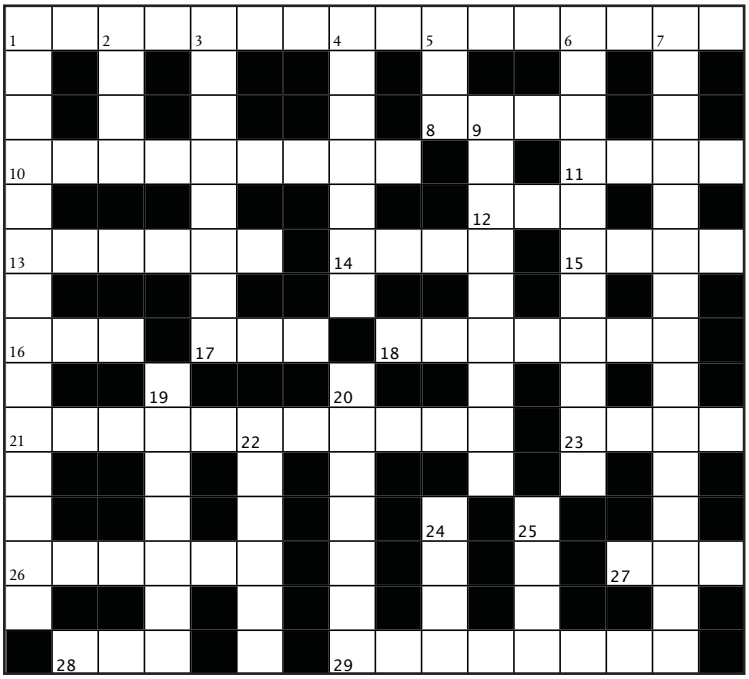
Ultimately, what makes CS4 important is not just that it adds a few extra tools to those available in CS3, and gives an important boost to Adobe's bottom line. But rather it is that it mirrors the way that the publishing industry is moving. Ten years ago very few magazines and newspapers would have had a website, but now it would be unthinkable to launch a new print title without a net presence. And it's becoming increasingly commonplace to see video and audio clips on those websites. And the same is true of advertising campaigns where consumers are now used to having personalised mail shots come through their letterbox, complete with personalised URLs that take them to dedicated microsites, and that keep coming back with further offers. In other words we live in a much more connected multimedia world.

In previous editions of the Creative Suite Adobe simply bundled a lot of programs together into a single box. But with CS4 Adobe has finally achieved a level of integration between the various programs that make it appropriate for dealing with our more connected world.

– **Nessan Cleary**

Graphic Arts Crossword Puzzle Number 14

If you get stuck, go to the **IGAEF** website for some hints. For those of you that really get lost, answers will be in the next issue of Spindrift. **The answers for the previous puzzle are on the next page.**



Across

1. What's that muddy drawing software? (5, 10)

8. The thing you need, if you get lost. (1, 3)

10. Consistent output on multiple devices depends on this characteristic. (9)

11. Straight or bendy it's the thing that joins two points. (4)

12. Repetitive Strain Injury. (3)

13. Worldwide. (6)

14. For stretching, hanging or storage. (4)

15. To cut or trim. (4)

16. Estimated Time of Arrival. (3)

17. Is it grease, water or toner? (3)

18. Where plate processing chemicals do their stuff. (2, 5)

21. The first PostScript printer. (11)

23. A warning. (4)

26. Blank discs may have been subjected to this fate. (7)

27. Microsoft's first product. (3)

28. Without at least one, nothing will image. (3)

29. Nasty aberrations in print quality, mostly on digital printers. (8)

Down

1. Precursors to CtP plates. (8, 6)

2. The hottest part of a heatset press. (4)

3. Founder of Scitex and the eponymous EFI. (3, 5)

4. Foundation blocks of all text. (7)

5. Slightly bigger than A4. (3)

6. This matters more than technology per se. (11)

7. Azureus, Linux, Ruby on Rails. What are they? (4, 6, 5)

9. The inventors of off-the-shelf preflighting software. (9)

19. A press that bakes its output. (7)

20. It took until version 3.0 to go graphical. (7)

22. What's needed to get paper onto rolls? (6)

24. Used for input long ago and for backup more recently. (4)

26. Opposite of front. (4)

Answers for Graphic Arts Crossword Puzzle Number 13

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

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