Digital Dots

Spindrift

News Focus • Opinion
Reviews • Technology
Interviews • Ranting
Psychotherapy • Fun

Volume 7, Number 3 • 2nd June, 2009

...Bamboozling The Graphic Arts Industry Since April 2003

When we mean to build, we first survey the plot, then draw the model.

– William Shakespeare, *Henry IV Part 2*

Dear Reader,

According to Fespa's latest survey of commercial printers producing wide format work, digital output work now represents an average of 39% of revenues. Expectations are that within two years that figure will reach 50%.

And nearly 10,000 people pitched up to the recent Fespa event in Amsterdam. So is wide format the next big thing? Well, we're still mulling that one over and we'll let you know what we think next month. What's certain is that people are investing in digital technologies across the full range of publication formats, from newspapers to medicine labels. In all cases the effectiveness of the IT and workflows driving the output is the key to successful returns.

What's also certain is that digital technologies are forcing a dramatic change in traditional business models. Newspapers are the most obvious example, and sadly the one finding it hardest to respond to changing socio-technical developments. But all around us digital technologies are undermining traditional revenue models and creating new channels for communications.

It seems the world is ripe for something new, but no one seems to know what!

Yours in confusion,

Laurel, Nessan, Paul and Todd

In This Issue

Tinkerbell taking flight

Laurel Brunner has been to O'Neill Data Systems in Los Angeles to see HP's new Inkjet Web Press in use. O'Neill's is an impressive operation, handling a large amount of data on a daily business. And there's more to the IWP than just high speed variable data, as it showcases HP's approach to data management.

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Crossing the Rubicon

Nessan Cleary reviews the trends in the web-to-print market. The market is expanding rapidly with more suppliers now offering hosted services and offering to help printers set up the system and chase new business. Some are also talking now about web-to-print becoming a cross media solution.

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Efficient magazine production

Paul Lindström looks at a Norwegian page planning system which is aimed at smaller magazine publishers, rather than the larger newspaper groups. The system is based on an SQL database and supports common standards and the Adobe Creative Suite.

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Regular Columns

News Focus

Anne Mulcahy is to retire as CEO of **Xerox** on 1 July. Mulcahy, 56, became CEO of Xerox on in 2001, and chairman in 2002. Prior to that, she was president and chief operating officer of the company from May 2000 through July 2001. She began her Xerox career as a sales representative in Boston in 1976 and has held senior management positions in sales, human resources and marketing, as well as leading the Xerox business division that sells products for reseller and dealer channels. Mulcahy will remain as chairman, and will be succeeded as CEO by Ursula Burns, currently president of the company

Durst has released three new superwide format printers in its Rho family. The flagship model is the Rho 1000, which can produce up to 600 boards (125 x 80cm) per hour and works with a wide range of materials including sheets and roll media. The Rho 500R is a 5m roll-to-roll UV machine which can print 400 sqm/hr in six colours at 600dpi. There's also a faster version of the flatbed Rho 800, said to increase production by up to 80 percent.

Xanté has launched a new Ilumina digital envelope press which can handle short run, full colour envelopes as well as sheets and cards. The high capacity cassette can print 500 envelopes or 4000 sheets. The lower tray will take sheets up to A3+ and print custom mailing pieces using variable data. Xanté claim that it will print 3000 full colour envelopes per hour at a cost of €0.02 per envelope.

Punch Graphix has said that its sales fell by 8.1 percent during the first quarter of this year compared with the same period last year. This includes a fall in equipment sales of 5.8 percent leading to a drop in consumables of 14.4 per cent. The company has introduced a cost savings plan which it says will reduce overall costs by €10m per year but the improvements won't be apparent in the figures until the second quarter of 2010.

Global Graphics has signed a deal with Miyakoshi to provide its Harlequin RIPs to drive a range of high-speed full colour inkjet presses and new high-performance, high-quality electro-photographic liquid toner-based presses. The devices will be used for printing large volumes of invoices and statements, such as those issued by credit card and insurance companies. Miyakoshi is also licensing Global Graphics' colour management software, Harlequin ColorPro, which gives accurate, consistent and predictable colour reproduction.

EskoArtwork and **Strata,** which develops 3D design tools, have formed a partnership to market a new product - Strata Enfold 3D CX. This is based on EskoArtwork technology and allows users to create folded 3D designs directly in Adobe Illustrator. Users can link Photoshop graphics to 2D Illustrator artwork, define die-cut lines and folding scores, and then see it in 3D directly in Illustrator. It adds two new tools to the tool palette, and the ability to deal with graphics crossing folded edges, as well as including two palettes for 3D and fold control, and several commands streamlining the 3D design process.

Seiko Epson has developed inkjet technology that enables the uniform deposition of organic material in the production of large-screen organic light-emitting diode (OLED) televisions. This is a major step toward the realisation of 37-inch and larger full-HD OLED TVs by resolving the uneven layering that had previously been an issue with the inkjet method. The new process has been used in trial production to fabricate a highly uniform prototype panel. Extremely uniform layers with a volume error of less that 1% are achieved by precisely controlling the selection and ejection of multi-size droplets of ink

Spindrift ISSN 1741-9859

A very special newsletter for Graphic Arts, Prepress, Printing & Publishing Professionals, published ten times a year 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 costs €190 and can be obtained by going to **www.digitaldots.org** and subscribing. Discount multiple subs are also available.

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material on a substrate, so that only the required volume of material is deposited.

Fujifilm's Dimatix division has launched a new head array based on its Q-class Sapphire printheads. The new ScanPAQ 2.5 head array is designed to help OEM system builders integrate it easily into their own printers. The array includes all interface electronics, ink reservoirs, heaters, sensors and inlet filters for both ink and air lines. It is made up of four of the Sapphire heads, each having 256 channels in a single row at 100 dots-per-inch spacing. The Q-class heads are designed for single pass printing supporting both binary and greyscale operation. They work with a range of inks including UV-curable and solvent.

Fujifilm has also opened an inkjet Technical Training Centre in Belgium. This will be Fuji's main European centre for technical and commercial training, new product testing and launches and sales support. The facility will also be used to conduct benchmark testing and after-sales service.

Chinese manufacturer **Founder** has launched a narrow web single-pass inkjet printer, the EagleJet C4200. It is capable of duplex mono and two-colour printing simultaneously, and duplex four-colour printing with a tandem configuration. It uses Xaar 1001 printheads to produce 1080dpi apparent resolution across the 420mm paper web width at speeds of 25 metres per minute.

Meanwhile **Xaar** has also approved four new inks from ceramic specialist Chimigraf for use with its 1001 printhead. These inks were developed in partnership with Chimigraf and Fritta, who specialise in designing frits (ceramic composites), glazes and ceramic colours to produce high-quality inks. The four inks are blue, yellow, brown and black and they are also working on rose and beige.

Meiller Direct has become the first European beta site for Kodak's Stream printhead. Meiller Direct is a direct mail house and currently uses Kodak's Versamark heads inline with an offset press. "We demand the highest quality in our print materials, and the benefits offered by Kodak's Stream Printheads are enormous - much sharper type, finer details, and better rendering of grey levels," said Achim Groth, Production Manager, Finishing, Meiller direct. "What's more, the results of our initial trials on glossy coated papers have been equally impressive. Kodak's Stream technology will greatly enhance our capabilities, and this is only the beginning."

LithoTechnics has begun shipping v3.6 of its Metrix imposition program. Metrix can import JDF and will automatically plan and impose flat, folded, and bound work using intelligent ganging and step and repeat. New features include N-Up binding, automatic trim and bleed rule-up lines for proofing and cloning bound products.

EFI has integrated Adobe's PDF Print Engine 2.0 into its Colorproof XF and Fiery XF wide format RIPs for colour proofing and production work. However, these RIPs still include a CPSI interpreter for files other than PDF.

EFI has also extended its Stimulus Package, which we covered in last month's news, to offer customers financial assistance for its Jetrion printers, which spreads the payments to lower the cost of the first year of ownership.

Richard Sutis, president of **Goss,** is retiring after 44 years working in the printing industry. He started his career as an engineer in 1965 with the former Miehle-Goss-Dexter (MGD) company that later became Rockwell Graphic Systems after graduating from college. He then held product development, strategic business planning and various executive positions in the printing industry. He was appointed president of Goss International Corporation in 2002. He will continue as vice chairman of the board of directors of Shanghai Goss Graphic Systems, a joint venture between Goss and Shanghai Electric Group, and a member of the Board of Directors of Goss Graphics Systems Japan Corporation.

The World Association of Newspapers reports that newspaper circulation grew 1.3 percent worldwide in 2008. This is due partly to growth in developing countries, but also to investment in digital technologies in established markets. Gavin O'Reilly, president of WAN and CEO of Independent News and Media also claimed that more adults read a newspaper every day than people eat a Big Mac every year.

News Analysis

EskoArtwork, in partnership with Adobe and the International Packaging Institute, has surveyed brand owners across Europe to gain a better understanding of trends in packaging design.

Prof. Dr. Ingo Büren, the director of science and technology and academic director at the International Packaging Institute, explains: "Today's brand owners have more capability at their fingertips than ever before as they manage an increasingly complex packaging supply chain."

According to a survey of brand owners that EskoArtwork conducted to gain an understanding of trends in packaging design, 56% of the respondents expect a significant increase in the use of digital prototyping either 'definitely' (12%) or 'probably' (44%).

He adds: "This research validated much of our understanding of upcoming trends in the packaging market from the perspective of the brand owners, and provided new insight in several areas that will benefit the market as a whole."

The majority of brand owners who responded said that prepress/repro work, creative surface design and creative structural design are currently outsourced, and that outsourcing of these functions is expected to remain the same or increase in the next few years. Forty percent of respondents reported having no design department in their company.

Dr Büren says that brand owners will need to collaborate more in the future, yet the survey reveals that more than half of the respondents have no experience of online design collaboration.

The survey also reaffirmed the growing popularity of and demand for, private labeling, with 54% of respondents reporting that their private label business accounted for up to 25% of revenues.

"We were pleased with the cross-section of respondents to the survey," says Dieter Janout, Global Director Brand Owners at EskoArtwork. "While most of the respondents represented global companies, half are operating in small marketing workgroups and are senior managers or professionals. We believe their responses provide an accurate portrayal of the current state of mind for most brand owners."

Heroes & Zeros

Heroes

Jonathan Porritt, Chairman of the UK Sustainability Development Commission, founder of the Forum for the Future and all-round top tree-hugger has declared: "There aren't many industries around that can aspire to becoming genuinely sustainable. The Paper Industry, however is one of them, it is inherently sustainable".

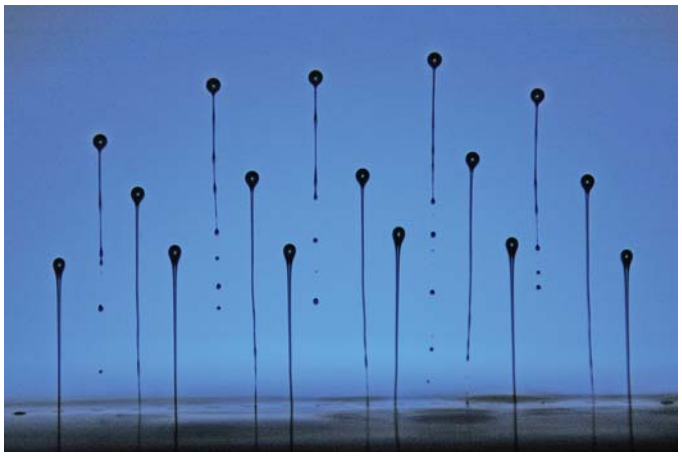
Zeroes

The US Media Workers Guild and the International Brotherhood of Teamsters, who between them are responsible for the likely demise of the San Francisco Chronicle. They have apparently refused concessions to allow buyouts of contracts and layoffs. The 144-year-old newspaper has started laying off editorial employees,

eliminating up to 30 jobs in its newsroom, with more to come there and in other departments. Hearst Corporation, which publishes the newspaper, has been losing over $50m per year. Without its editorial muscle, the newspaper's hardly likely to be attractive for advertisers, so this is the beginning of the end for the Chronicle. So much for brotherhood!

Picture This

When doing research for an article on the history of inkjet we came across this image. We think it's a great image, depicting the creation of a gang of inkjets. We are not alone in admiring this shot – Dr Steve Hoath at the University of Cambridge's Department of Engineering, won first prize in the 2006 Epson Photography Competition for this picture.



Hoath calls the composition *Tails From the Nozzle Bank*. The image was taken during a series of experiments at the Cambridge Engineering Department's Inkjet Research Centre investigating the performance of inkjet printers. It shows ink drops emerging from a bank of inkjet nozzles (just visible at the bottom of the picture). The image is about 2.3 mm across, the drop heads are 50 microns across and the tails are less than 10 microns wide (10 times thinner than a human hair). The drops are in three groups with slightly different drop firing times. In some cases the drops are still attached to the nozzles by long ligaments of stretching liquid. Other drops show separation and the formation of smaller, satellite drops from the collapsing ligaments.

Image reproduced courtesy of Cambridge University Engineering Department, Steve Hoath, Inkjet Research Centre.

An Interview

The man in charge the Inkjet High-Speed Production Solutions Division within HP's Imaging and Printing Group is Aurelio Maruggi. With the Inkjet Web Press (IWP) he has a technology that will help fight the battle for market share on many fronts, including newspapers. But well positioned as it is, how can HP compete in a market that is wrestling with its own identity and in many cases fighting a losing battle?

Tackling Newspapers

When it introduced the Inkjet Web Press (IWP) at drupa, HP said that it had created a new category of device. With a 762mm web width the new engine is suitable for transpromo, book and newspaper printing applications. For all of these applications, HP will face stiff competition, but in newspapers especially so. There is competition from established suppliers such as Océ, and to a lesser extent Kodak, but the newspaper market itself is in turmoil. News sourcing these days is highly fragmented, with print just part of the mode of delivery. And newspapers in their present form face an uncertain future. Rather alarmingly, a Pew Research Centre survey found that in the past decade the percentage of 18- to 24-year olds that did not receive any news the previous day has risen from 25% to 34%.

Yet despite the heavy investments that competitors like Océ and Kodak have made into their relationships with

newspaper publishers and the general meltdown of the sector, Aurelio Maruggi is unphased. He prefers to focus less on output than front end requirements, which is where the battle will really be fought. He explains: "We are working with newspaper publishers to better understand their needs for variable data management software and digital publishing developments. We have the IT ability, but need to understand better the problem."

Aurelio Maruggi, head of the Inkjet high speed production solutions division within HP's Imaging and Printing group.

Maruggi believes HP offers newspapers something unique: "One thing that we have heard very clearly from newspaper publishers is the need for a level of quality and productivity that compares with mainstream newspaper production technology". This may be wishful thinking given the fact that a Goss Newsliner can produce 90,000 newspapers per hour. But perhaps that's irrelevant because digital newsprint is about the capacity of a system to deliver, and not about the productivity of an individual machine. Aurelio's view is to "hope these technologies deliver the level of quality their readers expect. We believe this product is in a different category from the products the competition is offering today." For HP, newspaper printing should no longer be a dedicated printing application: "It needs to be mainstream, as it is with book printing."

HP believes it can unseat Océ in the newspaper market through its ability to partner closely with newspaper publishers in all aspects of their business. Maruggi believes: "The newspaper business is an industry that is trying to understand the best way to adopt digital and to change the model, so this involves investment. This technology will bring flexibility to production."

Flexibility isn't something that newspapers are best known for. Too many have clung to outmoded business models for too long and to their cost, but this could of course represent a terrific opportunity for HP. Newspapers adapting to the digital world are searching for new business models and Maruggi says that HP is keen to partner with them: "I do not believe newspapers will be able to address this alone without leveraging their service provider." Maruggi is working with newspaper publishers to explore ways of "changing [the] business model for newspaper publishers from a model where everything is under their control to one outsourced to print services providers."

This idea of outsourcing is not unknown in newspapers, for services such as human resources, IT or prepress and printing, but these tend to be deals with individual companies who provide a specific service. HP is looking to bring together newspaper publishers with a broad range of service providers "who can more confidently invest in digital technologies to provide services to newspapers and use their assets for other commercial purposes".

HP supports cross and multichannel publishing on the back of its IT strength. The model has interesting ramifications for publishers in other sectors and for the extended digital model. According to Maruggi: "The Exstream (document composition and automation system) is a key element here. We will work through partnerships such as our relationship with Pitney Bowes (for mailstream

technologies) because we expect to support multichannel publishing." The model extends to web hosting services: "Through the Technology Solutions Group, which is in charge of all services HP offers to enterprises. EDS is part of this group and we work very closely with TSG". This is the same division that provides support for data intensive services such as variable data direct mail, as Maruggi explains: "Our server division within the Graphic Solutions group provides data redundancy, disaster backups, asset management etc. The servers we are using on this product (the Inkjet Web Press) are provided by the TSG."

Current focus and installations for the IWP are directed less at newspapers than at transactional printing. HP is tackling both sectors, looking to provide a model that will leverage its strengths in IT and printing technologies. Maruggi sees commonality across the two saying: "It's the same as for newspapers. We will work closely to develop the business. Exstream represents a fantastic asset for transpromo applications. It's the same asset - the ability to gather individual information."

According to the American Newspaper Association online advertising revenues fell in the second quarter of 2008, having doubled between 2004 and 2007 to $1.5 billion. This is probably down to a combination of the recession, migration of advertising to Google, and the decreasing relevance of conventional newspapers. Clearly it's time for a new approach to the printed and electronically delivered word. Maybe through IT newspapers can start to find the answer.

Green Shoots

Environmental trivia loosely related to print, but readers might want to visit http://verdigrisproject.com for a focus on all things green in the print industry.

US President **Barack Obama** has announced tough new standards and a national policy to increase fuel efficiency and reduce greenhouse gas emissions. This is the first time ever that the federal government has stepped in to control vehicle greenhouse gas emissions. But Greenpeace USA Executive Director Phil Radford says that: "…this bill has been seriously undermined by the lobbying of industries more concerned with profits than the plight of our planet." A target for reduction of 17% of 2005 levels doesn't compare well with the European targets of 20% of 1990 levels by 2010, but it's a start.

According to research by the UK's **Royal Mail**, a person's mood will improve by up to 29%, if exposed to a positive tactile feeling! We think it was print they were talking about.

Google's Blackle user interface (www.blackle.com) has saved 1,254,017.671 Watt hours since 2007. Blackle searches are powered by Google Custom Search and save energy because the screen is predominantly black instead of white. So is black the next green?

European efforts to increase natural forest resources are resulting in the addition of forests the equivalent to 4,363 football pitches daily. That's over 47 million square metres every day!

According to **European Environment Agency** statistics, people in the European Union discard about 3.5 tonnes of solid waste for every man, woman and child each year. This adds up to 1.3 billion tonnes of waste per year, with around 40 million tonnes of it being hazardous.

One tonne of recycled paper saves 1.32 tonnes of CO2, according to the **Howard Smith Print Group**.

The **US Energy Information Administration (EIA)** has said that declining energy use, high fuel prices and a slumping economy contributed to the largest annual decline in fossil fuel-based carbon dioxide (CO2) emissions in the US since 1982. Energy-related CO2 emissions in 2008 fell 2.8 percent compared to 2007. This is surely a good sign

from the world's largest per capita producers of waste and consumers of resources.

A Review

c:four - iStudio Publisher

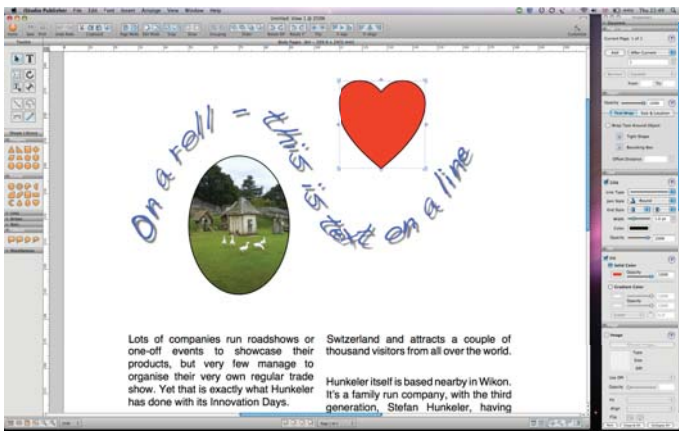
Last year we came across a company developing a new page layout program, iStudio Publisher, and we've been meaning to take it for a spin since its launch at the Macworld show in January of this year. The developers, c:four, claim that they have developed a core engine which gives all the basics of page layout, including colour management, font management, text formatting, hyphenation and justification, as well as rendering and printing. This engine is said to be scalable, and it can be used to create various solutions, such as text editors, copyflow systems and technical documentation applications. The company is working on a Pro-level page layout program that will presumably challenge Quark and Adobe in time.

But for now c:four has released a simpler version which, at just £34.99 (plus VAT), is aimed firmly at the budget end of the market for producing things such as parish newsletters, sales leaflets and corporate brochures.

In truth, it is stretching things a little to say that the program has been launched, because although customers are expected to pay for it, there are a number of oddities that make the program feel a little like using a beta version. For example, as soon as you try to edit the shape of any of the containers you lose the ability to undo any steps. Nor could we get the Import Text command to work, and instead had to copy and paste all the text. There is a roadmap on the c:four website showing which things will be fixed in successive updates but really a lot of this stuff should be fixed before the product is launched and customers start paying for it.

It does feel a little clumsy, but it is surprisingly easy to use and I was able to produce quite complex effects within ten minutes without any need to go near the Help menu. As with most layout programs, the basic principle is that you create shapes and then add text or images to those shapes. It comes with a fairly large library of shapes, and there are tools for you to draw your own lines. The user interface is fairly simple, with all the tools and shapes library on the left side of each document window, and the inspectors down the right of the screen.

Some things are a little annoying - I would have liked to have had all the colour controls in one place, instead of having to go to one inspector to set the colour for a line or a text box, and another one to set the colour for the text.



It is surprisingly easy to produce a range of effects such as text on a line, shadows, graduated colours, and any object can be easily edited from the Inspector's panel on the right hand side.

It does have a number of nice features such as the ability to open a document in multiple views so that you can zoom into different parts of a document from one view to the next, which saves a lot of time when lining elements up as there's no need to keep zooming out of one part of a page and back to another.

We're not completely convinced about the market for this program. It is cheap, but most people at the budget end of the market are more likely to stick with word processors such as Word or Pages which do offer some limited page layout and are adequate for producing flyers and parish newsletters, or opt for a more established program like Microsoft Publisher. It is possible that iStudio Publisher

will evolve and offer much more than these programs, but it does have a way to go.

iStudio only works on a Mac running OS X 10.4 Tiger or later. You can download a trial version from **www.istudiopublisher.com**

Did You Know?

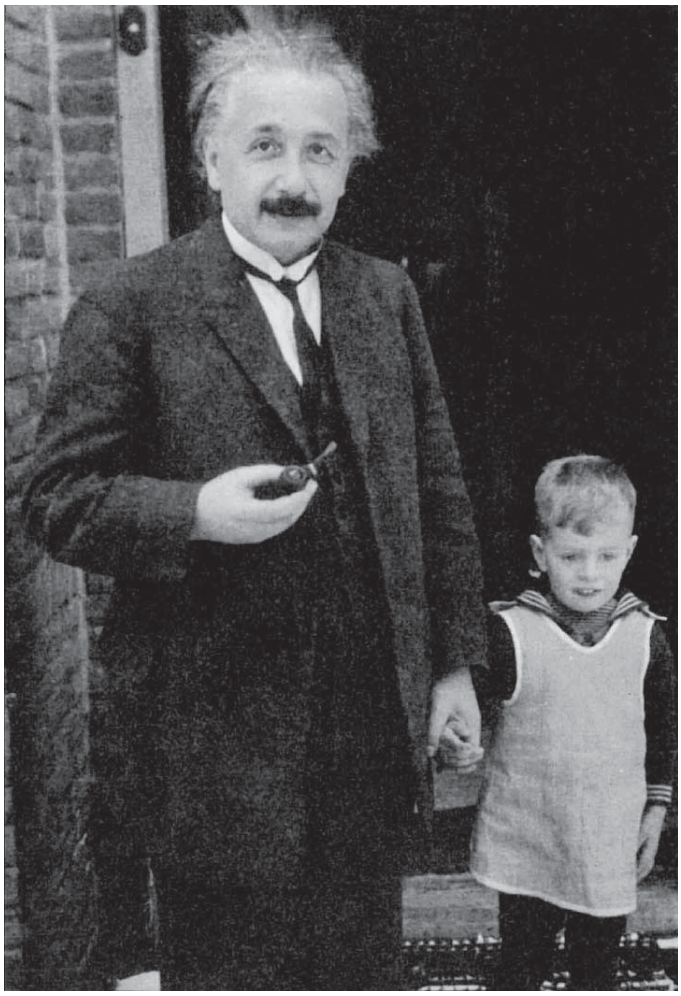
Inkjet pioneer – Hellmuth Hertz

He needed high resolution output of the images created by a newly developed ultrasound sensor – and enhanced the existing inkjet technology to a new level.

Hellmuth Hertz (1920-1990) came from a family of famous scientists – the unit for frequency, Hertz, was chosen as homage to the work done by his great uncle Heinrich Hertz. Hellmuth's father, Gustav Hertz, was the 1925 Nobel Prize winner in Physics, together with James Franck. They may also have been car rental pioneers, we're not sure.

It was when Hellmuth worked at the Lund Institute of Technology, Sweden, in cooperation with cardiologist Inge Edler, that the need for a high-resolution output device arose. Hertz and Edler made experiments based on a sonar system, but decided to use it to examine the human body, in particular to view how the heart of a living person worked, in real time. Echocardiography was the term used for the technology, but the images were mainly rendered to a low-resolution monitor. The technology itself was capable of high-resolution data, but there was no way to output such high resolution in the mid fifties.

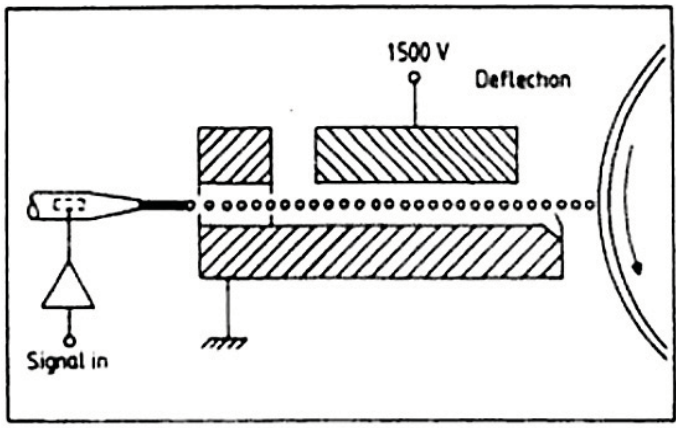
The use of low- to medium resolution inkjet devices goes all the way back to William Thomson (better known as Lord Kelvin), who in 1867 was granted a patent for a 'siphon recorder'. A fine stream of ink passed down a narrow glass needle and, by electrically charging the ink, it could be forced by pressure to produce a finely controllable ink jet from the end of the siphon.



Hellmuth Hertz, the little boy to the right in this image, was born into a family of famous scientists. His father Gustav Hertz won the Nobel prize in physics in 1925 (a year after this picture was taken), and the family was friends with Albert Einstein. Image from the "LTH Jubilee" article, Lund Institute of Technology, 2001.

Hellmuth Hertz knew that there was an inkjet device called the Mingograph, invented by Rune Elmqvist at the Stockholm Karolinska hospital in 1948, and that this could produce low-resolution output in colour. In a bid to increase the resolution, he introduced the so-called unvibrated jet printer, a forerunner to today's continuous inkjet technology. Drops that are not required for printing are charged and deflected on to an earthed plate which is porous and the unwanted ink is sucked away. The image is applied onto a rotating drum.

As with most innovations, it's seldom just one man's work, and Hellmuth Hertz had help from research students to finalise the printer, and to actually make it work. A raster graphics processor was needed, and this was programmed by Mikael Jern. Helping professor Hertz with the mechanics of the device was a technician named Boris Smeds. One little problem for Smeds was that he was colour blind, so there were moments when Mikael Jern and Boris Smeds blamed each other for the strange looking printouts!

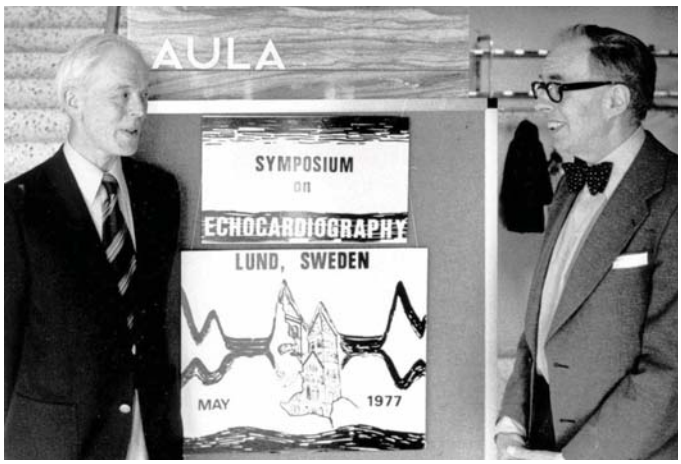


The basic principle of 'unvibrated inkjet', patented by Hertz in 1966. The image is rendered onto a substrate placed on a rotating drum. Superfluous ink is deflected away from the substrate. Image from "Piezoelectricity", by Rosen et al, 1992.

In 1966 Hellmuth Hertz was granted a patent on this high speed high-resolution inkjet printer, and Mikael Jern was credited for making the raster image computing work to control the output.

At first professor Hertz and Jern hoped for a Swedish company to develop a commercial product based on the patented technology. But one of the largest manufacturers of calculators in Sweden at that time, Facit, thought the idea was 'interesting', but not likely to work. SAAB was also contacted, but they didn't see that it was in line with their type of work (computing and design of airplanes!).

Instead the American consulting company Arthur D Little, which had heard about the technology, stepped in and bought the rights to develop the technology. They in turn later sold on the rights to use the patented technology to other manufacturers of printers, including the IRIS proofing and 'giclée' photo art printers. Iris was acquired by Scitex in 1990.



Hellmuth Hertz was nominated several times for the Nobel prize but never won it. But in 1977 he and Dr Inge Edler (to the left in this image) were jointly given the Lasker Award for their work on echocardiography. Image from the article "Faculty Milestones", Lund University, Faculty of Medicine, by Håkan Westling, 2005.

Hellmuth Herz was nominated several times for the Nobel prize, but never received it. In 1977 though, he was awarded the Lasker Award together with Dr Inge Edler for their work on diagnostic ultrasound.

Tinkerbell Taking Flight

The Tinkerbell project, as it was originally code named, was always about more than just the HP Inkjet Web Press (IWP). Tinkerbell is about comprehensively leveraging a series of technologies derived from HP's core expertise in printing and in data management. The IWP is just the start and over the next few months HP has scheduled a series of installations, starting with O'Neil Data Systems. This story is as much about HP's business development as it is about O'Neil's.

O'Neil Data Systems

O'Neil Data Systems and HP recently held an Open House event at O'Neil's facilities in Los Angeles, California. In the printing and publishing industries relatively few data-driven companies can be described as long in the tooth. It is only fairly recently that printers have started to embrace digital data processing, in order to satisfy client requirements. And data publishers tend to specialise in the bits and bytes end of the business, preferring to rely on third party service providers for output.

O'Neil Data Systems is one of the exceptions: this data driven publisher has been around for over thirty years, providing data management and production services for its own publications and those of clients such as Visa, Federal Express, Blue Cross Health Care and Toyota. The company has expertise in print production and data-driven applications making it an ideal candidate for HP's IWP.

One of Wall Street's most successful investors, William J. O'Neil, founded his data and printing company in 1973 to produce time-sensitive investment research publications. Throughout the seventies and ever since, O'Neil Data Systems has been a pioneer in the field of database publishing and automated composition. The company produces reports from O'Neil's extensive database of information on publicly traded US companies.

Of the IWP William O'Neil said: "William O'Neil & Co., Investors Business Daily and O'Neil Data Systems are all based to some degree on the successful management and reporting of data. With the HP IWP, O'Neil Data Systems reinforces that legacy by going to what is truly the leading edge of graphic arts technology."

HP has borrowed Indigo's screening technology as well as ICF, RIP'ing 600 x 1200 dpi with a throughput capacity of 1GB of data per second.

Today the company provides data-driven publishing and marketing communication services to a blue-chip client list as well as publishing the Investors Business Daily newspaper, which it founded some 20 years ago. A personalised copy of the day's newspaper was delivered to our hotel rooms, prior to the start of the Open House. It had been almost entirely printed on the IWP with personalisation on the front page and on one other page in the newspaper. A single sheet had been printed offset and inserted during finishing. No one noticed the offset sheet, which is good, but unfortunately only a very few people noticed the personalisation which is a pity, still it was there and no one doubted the credibility of the print.

O'Neil's relationship with HP dates back to the early days of Tinkerbell and has been very close throughout the new web press's testing and evolution. The machine installed in Los Angeles is currently shared between the two companies, with HP using it two days a week for testing, development and demonstrations. It's printing commercial work (health plan benefit materials, transactional documents and the O'Neil Database financial reference book) two days a week but once development and testing are complete, O'Neil expects to produce 3.4 million impressions over

two shifts per day on the new machine. Twenty percent of these will be colour pages, growing to 35 - 40% of overall volumes over time. Because of this combined usage, the ROI picture is still pretty fuzzy for O'Neil's but the ROI and cost of ownership will need to be demonstrated, as at a little over $2.5 million this is not a trivial investment.

Solving Problems

O'Neil provides data and output management for an array of industries including finance, healthcare, retail, travel, transport, manufacturing and trade publishing. It specialises in high volume data-driven print media and is a heavyweight when it comes to electronic processing. O'Neil has moved gradually, building its expertise in data management and output, then to offset printing. From there it's moved into digital, with its six-colour Komoris still used for long run static colour work and a Goss Community press still printing O'Neil's newspapers.

The move into digital print started with monochrome output before moving to colour and more recently high volume colour variable data output. Offset printing has become a secondary service, and O'Neil's is gradually shifting all conventional digital mono and colour work to the new press, so it is expected to produce high volumes of pages.

In scaling up to a combined monochrome and colour press, O'Neil's is replacing four Océ 7650s and a couple of 9020s. The company wants to offer improved colour services to existing customers and is gaining interest from new ones because of the IWP investment. Apart from the performance and the fact that this machine meets O'Neil's quality requirements, the cost model was central to the company's decision to invest with HP. O'Neil's is throwing out Océ in part because of Océ's adherence to the click charge rather than a consumption-based model. O'Neil's CEO Jim Lucanish speaks on behalf of printers everywhere with his request to click charge diehards: "Can you just treat us like printers and just sell us some ink?"

During the testing phase O'Neil's has experienced three or four head failures per month out of a total of 140 heads. Each head has 10,560 nozzles, with 1200 nozzles per inch across the 4.25ins print head width and there are 70 heads per print station; the heads can be snapped in and out by the operator. Jim Lucanish is firm in his belief that "a toner box isn't going to keep up with one to two million personalised pages per month". He's also very keen on HP because "HP stick with you through the good, the bad and the ugly". Such is their confidence in HP and in this technology that O'Neil's plans to install a second IWP at the beginning of 2010.

The SmartStream Ultra DFE has an astounding 144 Harlequin RIPs, mounted three per blade on 48 multicore blade servers.

Keeping Pace

Central to the efficiency of a high-speed variable data press is the speed with which it is fed data. Jim Lucanish understands that "the front end's the whole solution because you can overload a system very quickly" so he was keen to make sure his system has enough oomph. The front end system installed at O'Neil's is HP Exstream, a document composition and automation system working in conjunction with Doculynx' Mercury. Developed under the aegis of Madison Advisors, which HP acquired last year for $900m, Mercury is a high volume digital data output

system for encrypted, compressed and secure document storage and retrieval. Madison Advisors specialises in content management, data ingestion, variable publishing, output and fleet management.

The arched paper path is critical for stabilising paper moving through the print zone because it reduces wet cockle effects and controls printhead to paper spacing.

Mercury delivers content via any channel including print and provides a long term digital archive for online viewing, audits and reprints. The system works with HP Exstream to generate and manage variable data documents. Via a special plug-in, HP Exstream's PDF e-driver module feeds XML index files or PDFs generated with HP Exstream into Mercury. This data is then passed to the Ultra RIP for processing ready for output on the IWP. Workflow integration is the next step with this front end, so that multiple jobs can be managed efficiently for fully automated output. Jim Lucanish is keen on this as an added value: "I'm pushing for integration with workflow, because the value to me makes sense".

The SmartStream Ultra DFE has an astounding 144 Harlequin RIPs, mounted three per blade on 48 multicore blade servers. Each RIP parses part of the incoming PDF file, applying colour profiles and generating the CMYK raster Indigo Compression Format (ICF) frame. It takes 0.023 seconds to RIP a fully variable A4 page on the fly, versus ten minutes for the same page twenty years ago. Only the number of RIPs required to complete a job is used, and as this is a scaleable architecture the DFE can have as many RIPs as needed. HP has borrowed Indigo's screening technology as well as ICF, RIP'ing 600 x 1200 dpi with a throughput capacity of 1GB of data per second.

Output

The IWP is an extreme iteration of HP's Thermal Inkjet technology co-invented with Canon in 1979, although only HP has pursued it. The underlying technology is now ubiquitous in homes and offices. Across its 762mm width the IWP can print 2600 US Letter (8.5 x 11ins) or A4 pages per minute with a throughput of 400ft (122 metres) per minute of stocks up to 200 gsm. It has a 125° F (about 52° C) dryer to ensure that the water-based pigment ink sticks to the paper. This may affect the performance of more delicate stocks prone to the effects of extreme heat, and may make it difficult to de-ink.

The IWP is designed for average volumes of 30m to 70m double-sided pages per month. It electronically converts CMYK contones into halftones using proprietary HP halftoning algorithms and generating five halftone planes: CMYK plus the Bonding Agent plane. These are output in two slices, one for each column of 5,280 nozzles (10,560 total per printhead) in the seven-printhead print bar, with slices overlapping for seamless stitching. Each 4.25ins printhead prints 122 million pixels per second per colour with 0.5Gbits per second of control data.

The ink is heated up and at around 100° C per second is jetted at a rate of 48,000 droplets per second. Drop volumes are 6pl for cyan, magenta, yellow and the bonding agent, which is only printed onto areas to which ink will be applied, and 9pl for black. An inline process monitoring module is synchronised with the print engine controllers, with RGB LED light bars that illuminate 46 test patterns used for quality control. Among other things, this module checks for optical density uniformity across the web and nozzle-to-nozzle alignment within a primary and colour-to-colour when printheads are replaced.

According to Ross Allen senior technology specialist at HP's Imaging and Printing Group, the "arched paper path is critical for stabilising paper moving through the print zone [because it] reduces wet cockle effects and controls printhead to paper spacing". The basic architecture can however be organised in different ways. HP has incredible flexibility in how it configures these basic technologies and is working on wider formats, higher productivity and with different stocks for greater image quality. The bonding agent technology, head technology and

media technologies are all HP's, part of its "toolbox of technologies" many of which are already proven, needing only to be adapted for a specific system design.

Ross Allen also reckons this combination of data processing grunt, printing technology, media and ink could be configured to provide production systems for various types of print media. The model of using proven and pre-existing technologies is one that "will allow us to confidently implement HP technologies in our products, like the IWP" according to Ross Allen. He observes: "HP inkjet technology performance has doubled every 18 months following Moore's law". HP is confident that it can use this head for other web widths or different functionality, for example assembling heads along as well as across the web for more colour options and media versatility, higher speeds and greater fault tolerance.

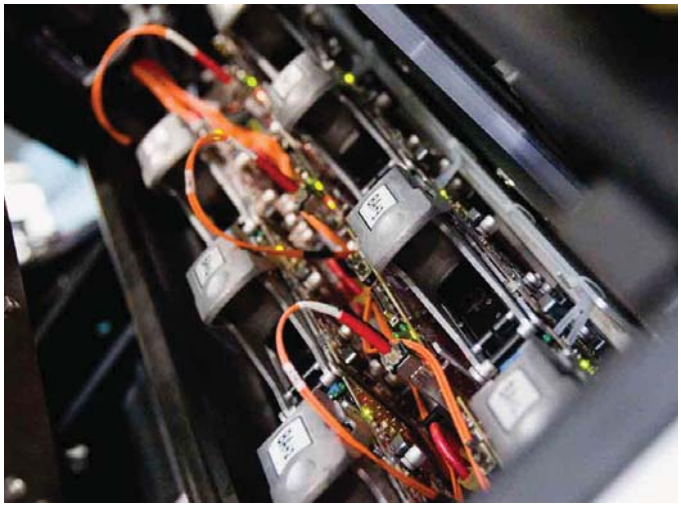
What next for HP & the IWP?

HP has been very clear about its plans for this engine. Since its top brass's announcement at its pre-drupa press conference in Israel that they wanted to strengthen their position in the printing market there has been a string of announcements and products delivered to the market. Next will come news of installations. According to Aurelio Maruggi, vice president and general manager, Inkjet High-Speed Production Solutions Division, Imaging and Printing Group: "Each of these installations has been very thoroughly thought through, from customer order to finished job". He adds: "We could have installed many more units than this". The IWP will be commercially available in the autumn, so the market can confirm or refute this soon enough. A 40ins version of the IWP is coming next year and will increase HP's market scope to tackle the commercial print sector, or catalogue and directory work.

Further installations

Following the successful implementation at O'Neil's, Consolidated Graphics which is already now part of the press's pilot programme, is next on the list for completion. This conglomerate has 50 Indigo presses deployed at several of its 70 printing companies in 27 US states. Consolidated Graphics also has operations in Eastern Europe and Canada. It will take delivery of the machine this summer and according to a representative of the company "this is the next step for us – it's taking us in a new direction and we can't wait for our press".

The next site, due to go live in September, will be CPI in France where the IWP will be used for book printing. CPI produced 600 million books in Europe last year with an average run length of 8,000 copies, which is about 25% of the European book market. CPI is seeing an 8% growth rate in 1,000-3,000 run lengths, primarily at the cost of longer runs, hence its investment into digital print.



Each head has 10,560 nozzles, with 1200 nozzles per inch across the 4.25ins print head width and there are 70 heads per print station, which can be snapped in and out by the operator.

Courier, the US's third largest book printer is also partnering with HP for an IWP to facilitate its move into digital printing. The Courier's IWP is scheduled for delivery by the end of the year. Courier owns Dover Publishing and in 2008 printed over 175 million books. Courier's representative recognises that "the book industry needs help to reduce inventories and reduce waste". Courier's digitally printed book runs range from 300 to 3000 copies, above which it is more economic to print conventionally. That number is expected to rise to 5,000 as the technology improves.

HP is also working with Taylor Corporation which provides business and personal communications products, technologies and services. Taylor is a very large company with a myriad of operations, so HP and Taylor are investigating if and how the IWP can be economically viable. This complexity may be why progress on this

sale seems to be relatively slow. The two companies are striving "to find the right approach for this technology" according to Aurelio.

Since drupa, HP is on target with its plans to support books, newspapers, direct mail, and transactional printing applications. This last is "gaining momentum" though HP will only say "the European market represents a better and closer potential for us".

Across its 762mm width the IWP can print 2600 US Letter (8.5 x 11ins) pages per minute with a throughput of 400ft (122 metres) per minute of stocks up to 200 gsm.

Book printing is the market most large digital press manufacturers are eyeing up. The general consensus appears to be that books are close to tipping point and that an explosion in digital printing of books is about to happen. In anticipation of this HP has developed various partnerships so that materials can be prepared and printed. For example, it has worked with Ultimate to develop tools to create multiple digital impositions for different formats, such as book signatures and covers in single multistreamed workflow. Ultimate has also recently introduced the Ultimate Bindery tool for automated finishing, using JDF profiles to instruct bindery operations on the fly. HP is also working with companies such as Hunkeler, MBO, Müller Martini and Pitney Bowes so that output from IWP and Indigo presses print can be properly finished and distributed.

HP marketers like to remind people that "the quality is in the system" and mostly they are referring to technology. However the same can be true of HP and its ambitions in the printing industry. Over the last year or so it has become increasingly clear that HP does what it says it will do, and that its marketing people are in close touch with the science and technologies behind the products. HP has developed the consultative process of system development to a fine art. It includes not only customer collaborations, but extends to include various bits of HP and its partners as needed. Ambitions are high and the machine that drives their realisation is formidable. As Aurelio Maruggi said in Los Angeles: "this is for us, the start of the journey … we are humble and eager to learn".

– Laurel Brunner

Crossing the Rubicon

We all know that the technology that underpins the printing industry changes quickly but the web-to-print arena seems to be evolving at a faster than usual rate.

When the Internet really started to take off in the mid-90s, many people in the print industry worried that it would herald the end of printing as we know it today and lead to a paperless world. Then with the advent of cheap broadband connections many vendors introduced portal solutions that would enable customers to upload jobs to printers, but it's only in the last couple of years, with the emergence of the web-to-print concept that printers have really started to think of the World Wide Web as a place to conduct their business.

Arwin Rasul, workflow business manager for Xerox Europe, says that web-to-print offers a number of advantages: "It helps to streamline a print provider's workflow and they gain better productivity, reduced errors and they avoid manual tasks such as job ticketing." He adds: "You are offering a 24/7 service that's truly international to enable your customers to enter your print shop 24 hours a day 365 days a year regardless of holidays or international barriers."

Danny Morris, managing director of EFI UK, says that people are much more aware of web-to-print these days: "I would say that one trend is that before we used to have to educate people as to what web-to-print was, and now people know what it is and what they want to see from it. We are finding that there are a lot more requests for a wider spectrum of features around specific applications. So for example, a lot of people are looking for photo applications, they are analysing the scope of the current products on offer and then where will it go in the next year or two, so we have a lot more conversations about road maps."

Initially web-to-print appealed to larger printers but Simon Ellington, head of ROI's 360 division in the UK, says that more of the smaller printers are now looking at this market: "Web-to-print is being treated as a method of securing revenues, of providing a value-add that is just essential now and I think that's what's driving it in this turbulent climate. And to have that differentiator to lock in customers is really at the top of the priority list for a lot of printers, where they might have seen it as a luxury for the bigger boys two years ago. We are seeing interest from two man bands upwards."

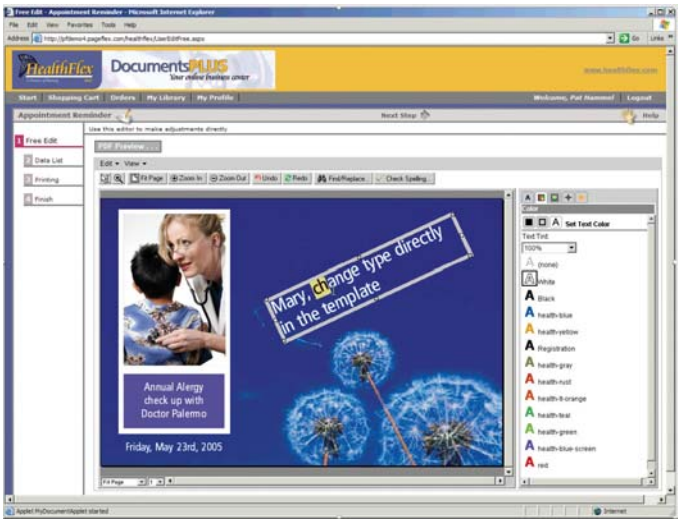
Danny Morris, managing director for EFI in the UK and Ireland.

Morris says that web-to-print is now starting to appeal to a wider spectrum of people: "Before you could say that it was larger commercial printers that were looking for it, but now inplants are coming to us and saying that we need this to drive more volume to my print room. And there are quickprinters looking for a way to get people online and be able to transact on the net. Also, print management companies are looking at it as well."

And nor is web-to-print limited to digital printing, as Matthieu Bossan, enterprise solutions director for Kodak, says: "We tend to think of web-to-print as being for digital printers but there are a lot of litho printers who do get into that route because at the end of the day, the fact that you print a product digitally or offset, doesn't really matter if

you decide to put your business online. Many customers look at that e-business opportunity regardless of the technology they have inhouse. Of course, some have both and it complements quite nicely what they are doing."

Another big trend is towards having more variable data as Douglas Gibson, managing director of Infigo (a niche developer in the UK), points out: "People want to have more control online so cropping pictures and adding text is becoming very essential." But he adds that people don't want the system to be any more difficult to use: "We have recently launched Infigo Go VI which is a simple tool to create templates and upload them to the server so that empowers the printer to be able to create the templates in a simple form without them having to be rocket science developers which we've found has been quite an essential tool."



Users are increasingly demanding more flexibility in editing content online, as can be done with Bitstreams Pageflex.

And Morris of EFI adds that it's just as important to make it easy for end users to find their way around the system, saying: "People have really grasped the idea that self service on the internet is the way forward. With our Digital Storefront you could create a basic self-service model for your general client base but then you can create custom storefronts that your sales people educate those customers to be able to upload complex jobs. And the easier you make it for them to upload databases and so on the more often they will use it but you have to take the initiative an educate your customer in how to do that. If you can remove the complexity out of all forms of transaction on the Internet then you are going to win more business and the take-up will be far quicker."

Hosted services

One of the major trends that emerged last year was for vendors to host the web-to-print system for their customers. Marian Stefani, managing director of Red Tie (developer of web-based software), explains: "Where we see people unable to adopt it's not because they don't want to, it's just that they are really running on a shoestring budget, trying to keep as lean a business as possible."

Some vendors believe that web-to-print is now heading towards greater integration with cross media campaigns.

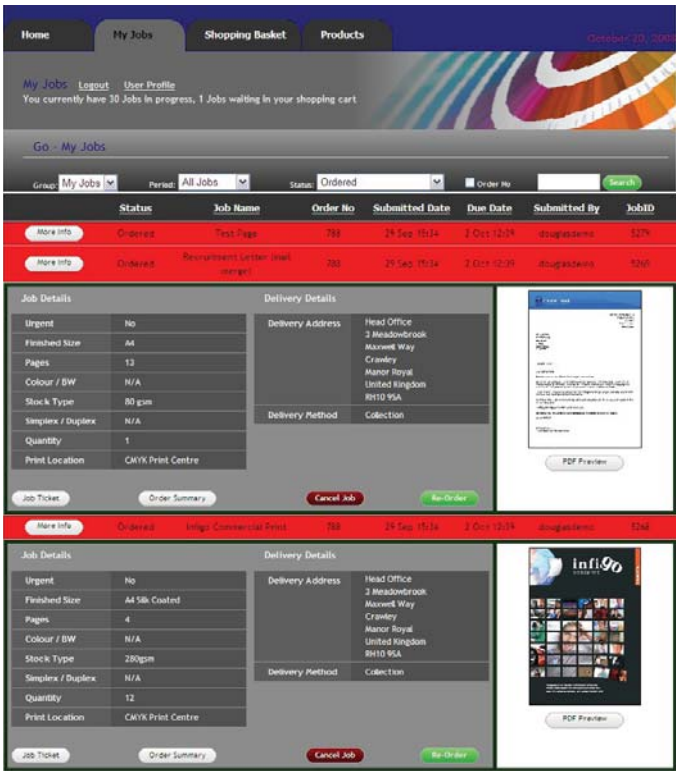
Morris says that the economic worries have made people more nervous: "There's a big demand for a low risk start-up, with people wanting to see if the interest is all that it's cracked up to be, from cautious printers who know they have to do something about it but don't want to invest too much money."

However, most vendors have found that it's not enough to just host the server, but that a degree of handholding is necessary, as Ellington of ROI explains: "We've found that getting into these technologies can be difficult for a very reactive printer or a very small printer that has a small number of people who between them have to perform a lot of functions. So our ROI 360 service provides the glue between the product and the customer, which could be customer visits where we go with the printer to help pitch the software, and they take the initial brief, which is a very large opportunity for the client. Or it's their first opportunity where they are just finding their feet to articulate the software, so we wear the client's hat, or go in as a partner of the printer, and we would demonstrate the software and take a brief as to what they want to achieve."

Cross Media

Some vendors believe that web-to-print is now heading towards greater integration with cross media campaigns.

Bossan of Kodak explains: "Print service providers, being under real pressure, are trying to find ways to enhance the service capability that they can offer to their client. So clearly they want to go much more upstream, and some believe that this is where they need to be, or otherwise they may not survive, or they fear that price erosion is inevitable and they will suffer from that."



Infigo has just launched a system to help users build their own templates to make it easier to set up jobs.

He adds: "Some customers as well as doing the print want to be involved in helping the customer with their marketing campaign which means the preparation, the data cleaning and data segmentation, and in that way they believe that they can prepare the data upstream and establish the variable group that will be targeted and therefore the main part which could be the print, the email, the landing page will be better targeted. And for a print service provider, if you are able to offer all of this to one client, this could be potentially very interesting if only because you are able to react much quicker than if there would be two or three companies involved in the preparation of a marketing campaign."

However, although many vendors agree that printers will have to compete more directly with marketing agencies in the future, not all are convinced that web-to-print is the best way to do this. But privately most believe that web-to-print is heading in this direction, as Morris says: "People want to be able to do cross media campaigns but whether they do that all from a browser, well I can see in the future that that will happen and we are driving our technology that way and working with partners like XMPie, but it is a secondary consideration for now. For the moment the primary concern is advertising your services online and transacting specific jobs and winning new business."

Procurement

The other big trend is for printers to use their web-to-print software as a procurement system, and to encourage their customers to look beyond just procuring print. James Gray, managing director of distributors Transeo, says: "I think that a lot of printers are realising that it's not about printing any more. The printing is important but its purely a service and a lot of my customers now are focussing on being a service provider, which in the web to print guise is offering complete management solution for your print buying needs but even in some cases taking on additional areas that are not print related. The obvious example is pens, stationery items, books, tee-shirts - all items that might be part of the buying cycle but not necessarily print orientated are also being facilitated through the same web-to-print service."

All of the vendors that we spoke to agreed that what has really changed in the last year or so is the willingness of printers of all shapes and sizes to engage with their clients on the Internet. This is helping to drive greater automation and efficiency within printshops, but the most important element is that end customers like to do business online. We have all become used to buying music, airline tickets and so on from the Web, and many people are comfortable with buying business cards, books and other printed matter online.

- Nessan Cleary

Efficient magazine production

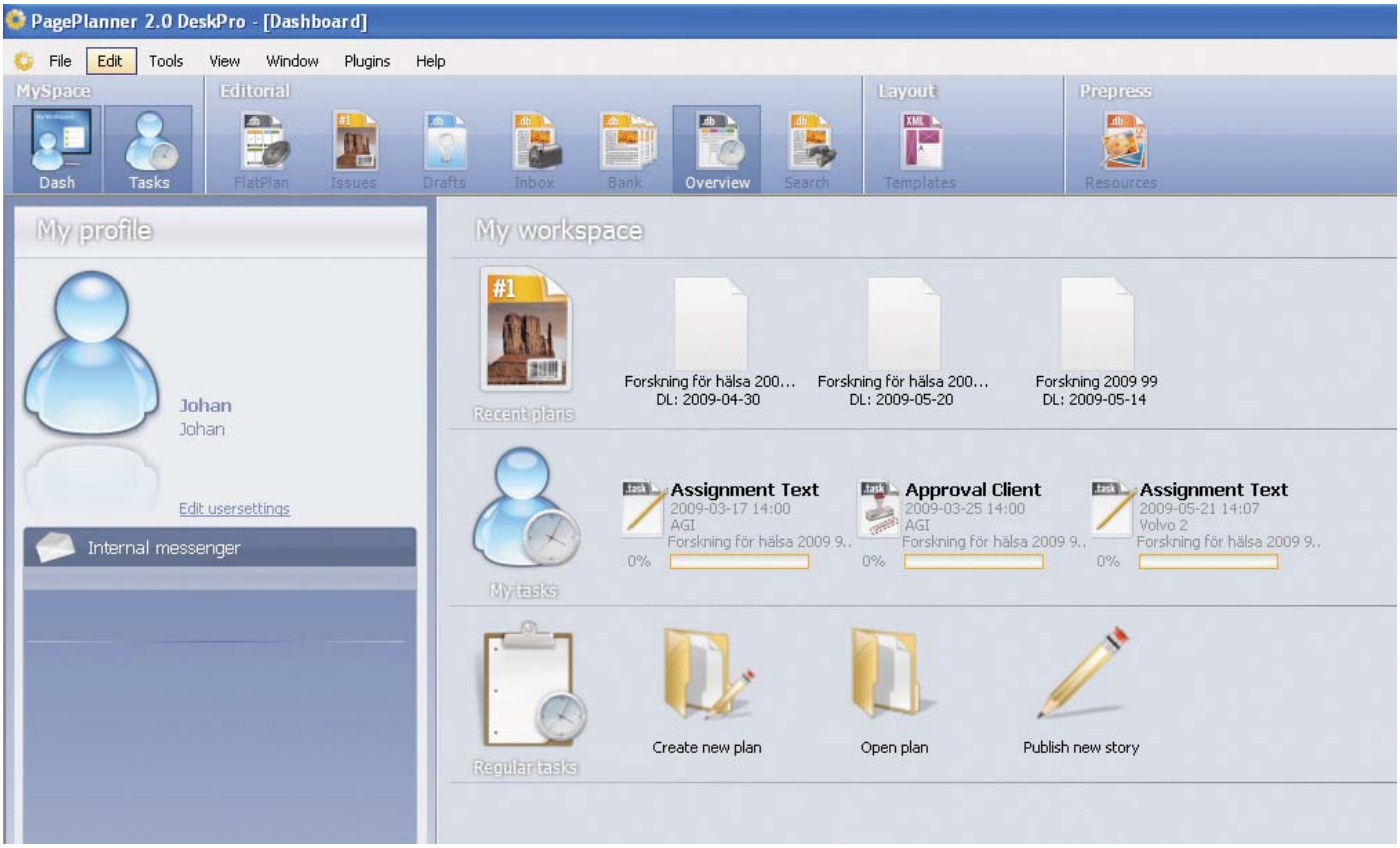
Most people would probably associate the term 'editorial system' with big newspapers usually meaning quite costly, specialised systems. For a somewhat smaller magazine a full-blown editorial system might be overkill, and still not entirely fit for purpose. What is needed is a system that helps with editorial planning and the day-to-day production.

The Norwegian company PagePlanner Solutions PagePlanner magazine production system fills the gap between large editorial systems and manual magazine production. The founder of PagePlanner Solutions , Arild Elverum, got his ideas for a modern editorial system dedicated for magazine production while working for one of the largest magazine publishers in Scandinavia, Aller Press.

One thing that was very obvious to Elverum and is a cornerstone of the system, is that it has to be centred on a database. For PagePlanner this means using the MS SQL database and .net technology, in combination with support for common standards like XML, XMP, IPTC and Exif. Layout and editorial work is done in Adobe InDesign and InCopy, with support for text editing in MS Word if requested.

The PagePlanner Solutions

There are three main activities at the core of the Page Planner system: Tasks, Images and Layout. In effect this means that PagePlanner functions as an asset management system, with functionality to help with cross media publishing as well as paper-based publishing.



Every user is assigned their own Workspace in PagePlanner, where tasks are listed. Workspaces can also be shared and accessed over the Internet.

A typical workflow will consist of several elements including the Planning, Text (the name of the author assigned for each article), Layout (made internally),

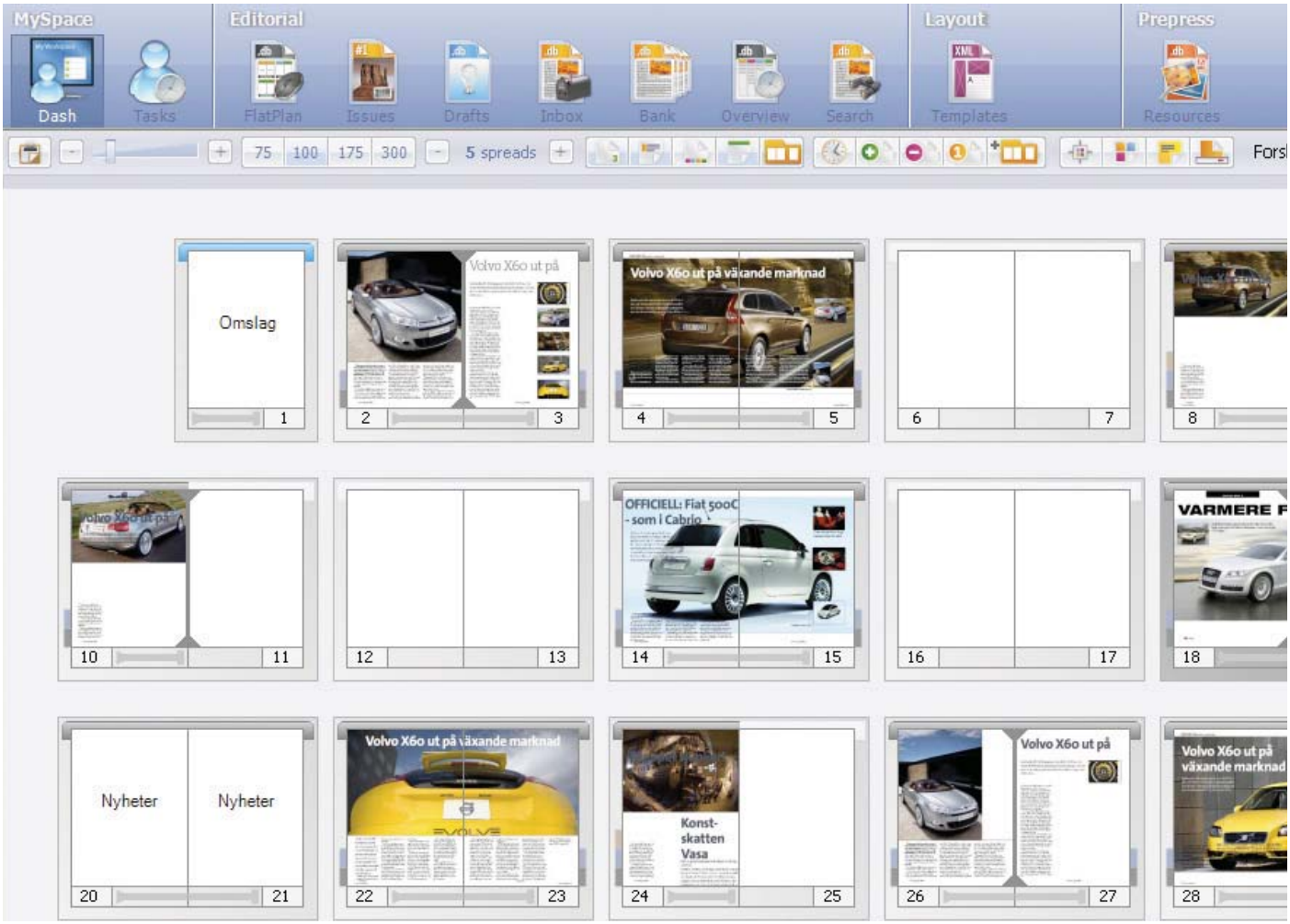
Layout (made externally by freelancers), Images (archived and new, and who they have been ordered from), Prepress (image conversion and PDF creation) and Completed (including Back Up and archiving activities).

The system assigns the users different roles, and connects the different publications to the user. All resources and information is then shared in real time across the editorial staff, using a visual interface, for example page flat plans. The planning of pages and their separate articles and ads is simply done by dragging and dropping the elements into the right place.

Each magazine will probably create its own set of article types, connected to InDesign style sheets for automated layout. Images can be tagged with their status, and ads can be monitored and placed by the ad department. A virtual workspace is created for each publication and issue, which can be accessed over the Internet by workgroup members working remotely. An overview of the status is presented for all the elements so it's easy to see if work is started, almost ready or completed/approved. The beauty of having a database at the core of such a system lies in the powerful search functions.

Once the planning of a magazine is done, the actual page layout can be fully automated or just roughly done with final polishing by the designers. But PagePlanner Solutions believes their system provides a possible time saving of typically around 25-30%, compared to conventional manual layout.

Some of the time savings can also be made in the image preparation stage, if an automated repro element is added to the system. One of the solutions PagePlanner can integrate is the ColorFactory solution from FotoWare.



There are several views to choose from when checking the status of publications in progress. Here the Flatplan view where pages and ads can be moved around (for users with the right to do so), and actual status is easily checked.

This means that all images are colour managed into the correct resolution and colour space automatically, as well as electronically sharpened for the output media.

Another point of automation is the PDF creation, which is done from within the system, thanks to the integration with InDesign Server. Once the publication workflow is set up, PDFs will be generated automatically and sent off to the printer when the pages are approved, according to what is requested for the combination of paper type and print technology used. If two or more printing technologies are used for different sections, they can each be given their own deadline in the planning stage. This can also be used for inserts, so that the bindery has all of the components in time for final delivery.
The integration with Adobe Creative Suite is done both through direct programming, and through the use of plug-ins. PagePlanner can also be integrated with third party solutions like MediaBooking, MediaBank, Escenic and FotoWare.

But what do users make of the system? Maria Westman, Design Manager at Appelberg Publishing Group, Sweden, pointed out that their main objective was to enhance teamwork and quality. Appelberg produce about 30 customer magazines, and are about to implement PagePlanner for all the titles. "We started in 2008 by trying out a demo version, while continuing to check what other systems were on the market," explains Maria, adding: "While time and cost savings might be part of the benefit of using an editorial system of this kind, our aspiration is to collect all information about the production in one place, to ensure quality and avoid misunderstandings and mistakes".

Another publishing house that uses PagePlanner is Egmont, head quartered in Copenhagen but with media production in 30 countries. One of the publications within the Egmont group that uses PagePlanner is the Norwegian publishing house Hjemmet Mortensen.

We spoke to Gunnar Bleness, Editor in chief and vice president, about his experience with PagePlanner. He comments: "We have used the system for several years now, and are at the moment implementing the new version, 2.0. In this step we also add Adobe InCopy to the software suite, as well as adding more titles than before in the workflow. Our finding is that using an editorial system like this enhances quality, makes the journalist more engaged in the planning of new articles, as well as improving the overall efficiency of the production".

"Our aspiration when implementing an editorial system like PagePlanner is to collect all information about the production in one place, to ensure quality and avoid misunderstandings and mistakes", says Maria Westman, Design Manager at Appelberg Publishing Group, Sweden. (Photo Sanna Skerdén)

So there would seem to be both time and quality gains that are possible with editorial systems like PagePlanner. But while at first glance the needs seem to be very similar for magazine production and newspaper production, when looking closer into the workflow, there are significant differences. As usual it's important to have a clear view of your own needs and objectives, before deciding on what systems to test and finally buy.

– Paul Lindström

Quiz

Maybe you're stuck on a plane with nothing to do? Or perhaps you simply can't face the work you're meant to be doing? Spend some time with this little quiz and keep your mind ticking over, and wait for less dreary times when the sunshine tumbles down and a following rain washes everywhere clean.

1. What tool should you buy for measuring spectral values in print?
a. Densitometer
b. Spectrophotometer
c. Photospectrometer
d. Dot meter

2. Who invented the offset litho process?
a. Senefelder
b. Mergenthaler
c. Lithothaler
d. Seinfeld

3. There are web sites and web sites, but what are they for?
a. This is a silly question. There is no difference.
b. One is used for producing print at low cost per copy. Print from the other costs a lot per copy.
c. News for duck fanciers is available at one but not the other.
d. All of the above.

4. Which ISO standard is most relevant for print process control?
a. 32000
b. 15404
c. 12647
d. 136/9870

5. What is a bit?
a. A Bipolar Ingrate
b. A Binary Interpolation
c. A Base-2 Interval
d. A Binary Integer

6. Who invented the first computer?
a. Christopher Sholes in 1838
b. Bill Gates in 1980
c. Eric Morecambe in 1932
d. Charles Babbage in 1822

7. How many paper categories has ISO defined?
a. Four
b. No one cares because they are out of date
c. As many as the paper companies have categorised
d. 136

8. Which colour space is the largest?
a. sRGB
b. CMYK
c. CIEL*a*b*
d. HSV

9. What is a GIF?
a. A low-res image used on the web
b. A special kind of TIFF
c. Graduated Integral File
d. A dedicated graphics database

10. Who is considered the Father of Desktop Computing?
a. Steve Jobs
b. Bill Gates
c. Paul Brainerd
d. Chuck Geschke

11. How many colour units are there on a ten-colour sheet fed press?
a. Ten
b. Four
c. Impossible to say.
d. Eight

12. What is the single most important factor in a colour managed workflow?
a. Ink control
b. The colour management system.
c. Paper
d. ICC profiles

13. What do screening technologies do?
a. Convert contone data into halftone data.
b. Define which colours print where.
c. Change solids into halftones.
d. Create vignettes.

14. Where would you expect to find a doctor blade?
a. On a gravure press
b. In a backup server
c. In a finishing system
d. With the printers' tools

15. What term describes the number of individual tones in a halftone?
a. Grey patch
b. Grey lines
c. Grey wedge
d. Grey scale

Each correct answer gets you four points for a maximum of 60.

Answers
1. (b)
2. (a)
3. (b)
4. (c)
5. (d)
6. (d)
7. (b)
8. (c)
9. (a)
10. (c)
11. (c)
12. (c)
13. (a)
14. (a)
15. (d)

A score of 0-19 suggests that you are far more interested in waiting to get off the treadmill and enjoy the sun. Perhaps you've given up on tracking technology and production processes, or maybe you're just having a bad day. Have a little nap and take the quiz again once you're fully awake.

19-40 Are you new to this industry? If so you've made a good start, so don't stop reading and learning more about what goes on in the murky world of print media. If you aren't new to the business, you too need to get on with your reading and research and try to do better next time.

41-50 is impressive and suggests that you keep up to date with changes in the market, with process improvements and with technology. Your superior knowledge is certain to be helping you run a highly profitable and successful enterprise. Keep it up!

51-40 is surely impossible so you've either had help or spent ages researching the possible answers. It's not clear whether this counts as cheating or if it's all just part of the game. Probably the latter.

X-word Puzzle

Number 17 – Answers

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