

# To UV, or not to UV?

That is indeed one of the most challenging questions facing many companies operating in the pay for print sector, who are trying to decide whether to purchase a solvent inkjet printer or to buy into UV-curable inkjet technology.

Either way, it's a decision that will affect the long-term future of their businesses. Dr. Nicholas M Hellmuth, President and Founder of FLAAR, an organisation that evaluates and reviews digital imaging hardware and systems, provides information that will assist in the decision making process.

"Firstly, let's look at the trends. It was at DRUPA 2000 that three or four UV-curable inkjet printers were first shown to a curious public. Although the concept aroused much interest, these machines were just prototypes and indeed, some were not even functioning. However at DRUPA 2004, no less than 17 manufacturers exhibited UV-curable inkjet printers, most of which were flatbed designs, although NUR introduced a roll-to-roll version. Currently, there are more than 50 models of UV printers, produced by over 30 different manufacturers on the market and at least half of these will be exhibited at either the up and coming ISA show in the United States, or at the IPEX exhibition in the UK.

But at the same time, the popularity of solvent inkjet printers is growing at a comparable rate. Currently these machines are being produced by five Korean manufacturers, perhaps four Japanese manufacturers, several major manufacturers in the Americas, two in Israel, and more companies in China than anyone has yet been able to count! In fact, the solvent market is growing at such a rate that even HP has bought into this technology, through its purchase of Scitex Vision and its agreement with Seiko to take over the distribution of the popular mild-solvent ColorPainter 64S. Unsurprisingly, these new alliances have resulted in both Roland and Mimaki launching new models in order to compete effectively against a company with the market clout of HP.

However, these trends vary very considerably from country to country. For example, the recent Middle East Sign & Banner tradeshow, which took place in Dubai during early February, had very few UV printers, with not a single Chinese, Japanese or Korean UV-curable inkjet flatbed on display. HP made a similar decision, concentrating instead on its solvent machines. Chinese solvent printers were also much in evidence, with three times the usual number of manufacturers and distributors taking part. It

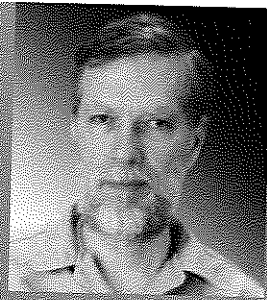
was a similar story at the Graphics of the Americas trade show in Miami, Florida, the week before Middle East Sign & Banner, when only a few companies featured their UV printers.

The reason for this is that in countries where neither law nor tradition calls for strict health or environmental protection, solvent inkjet printers are used without a qualm - it is primarily health-conscious businesses in the US and Western Europe who are leading the switch to UV printers. So apart from health and environmental benefits, what other issues should we be considering?

Solvent inkjet printers do well on uncoated vinyl and a variety of traditional signage material, including the textiles used to produce soft-signage. However, solvent inks work much less well on most thick or rigid substrates, since the ink does not dry properly on many surfaces. For example, when a mild-solvent flatbed inkjet printer was presented at SGIA 2005, it turned out that it could print successfully on a grand total of two, or at most, three, materials! And it is hard to name a flatbed solvent inkjet printer that has enjoyed real market success.

On the other hand, UV-curable inks will solidify on almost any material you can run through a printer, although in reality, there are a few materials that have limited adhesion, need a primer before printing and/or lamination after, if they are to last satisfactorily for more than a year.

I first became interested in UV-curable inkjet printers because of FLAAR'S background in architecture and museum displays. Architects and interior designers are learning that you can print on to wall sections, doors, ceiling and floor tiles, and table tops. You can also use UV-curable inks to print on to fabric, especially when using a roll-to-roll printer such as the new Durst Rho 350R. Gandinnovations will also be showing a roll-to-roll UV printer at ISA and IPEX, whilst Zünd is promoting a printer that can decorate kitchen cabinets and even the doors of a



## Dr. Nicholas Hellmuth

undertakes research, writes, and lectures in the field of photography, scanning and digital printing equipment, in particular wide format inkjet printers. The FLAAR evaluations of inkjet printers, RIP software, colour management tools, laminators, trimmers, and inkjet media reach more than 500,000 readers in over 62 countries each year, whilst another half-million people read Dr Hellmuth's comments on digital cameras and scanners.

FLAAR offers over 60 reports on UV printers, all of which are available on-line from [www.wide-format-printers.net](http://www.wide-format-printers.net) whilst all FLAAR websites can be reached via [www.FLAAR.org](http://www.FLAAR.org).

FLAAR personnel will be available in-person to answer your basic questions at the **FESPA Digital Conference on Thursday, 18 May, 2006, 15:00-15:45 hours**, where Dr Nicholas Hellmuth will be delivering a presentation entitled 'Printing on to Wood & Stone: The Opportunities and Options'.



- a Durst Rho offers a view of the future of UV curable inkjet printing: roll-to-roll UV both for traditional signage materials and textiles too. Furthermore, Durst offers innovative training at its manufacturing plant and demo center in Lienz, Austria.
- b Solvent ink printers are still a good addition to a print shop, especially with all the completely new models such as the Mutoh Phoenix, Mutoh Spitfire, and Mutoh Osprey.
- c Gandinnovations is setting records for sales of both grand format solvent and UV-curable flatbed printers.
- d The top-seller, worldwide, for the entry-level UV-curable inkjet market has been ColorSpan since 2005.

refrigerator and oven!

However, we should be aware of the differences in surface, texture and image quality. The Seiko ColorPainter (now succeeded by the HP Designjet 9000s) offers just about the highest colour gamut and quality of any solvent inkjet printer. The ColorSpan 72SI can reproduce fine art onto canvas for giclee-like display. The Gandinnovation's solvent inkjet printer even has a back-lit accessory that facilitates printing on both the back and front of the material, to produce awesome quality for backlit displays. So the output on solvent ink printers can be outstanding. Just remember that cheaper solvent printers can produce splotchy output with horizontal banding defects, so the image quality varies enormously, based on what brand you select, and which printheads you use. Seiko and HP use the Konica printhead whilst ColorSpan favours the Ricoh-Hitachi printhead and Gandinnovation's machines feature the Spectra printhead.

With UV-cured inks, you do not yet get continuous tone. The output has a grainy appearance, since each droplet of ink is solidified instantly, and it shows. Some inkjet printers have not yet been able to overcome horizontal banding effects, caused by poor feeding speed or by bi-directional angling of the ink. Nonetheless, for displays viewed from a distance of two metres or more, the output from the better UV printers looks great. So for printing on an architectural unit that will end up on a ceiling or wall, UV printers are a viable technology.

A good example would be the kind of graphics used in hotels, casinos, or in any building where the fire laws state that doors to fire exits must be made from materials other than wood. But if the

décor of that hotel is walnut, or mahogany, you can scan mahogany wood on a Cruise scanner, and then use the scanned image of the wood surface to print onto a fire-proof steel door. So if your company is the only one in town that can handle material as thick as a door, you have the perfect opportunity to distinguish your unique capabilities.

With my involvement in museum displays, I am interested in any printer that can handle thick material, even if it isn't using UV curable technology. For example, the Scitex Vision CORJet can print on to thick corrugated material, which can then be cut by an Esko flatbed cutter, into any shape. You could therefore exhibit Mayan pyramids and temples in a museum; you could cut out life-sized portraits of the Mayan deities, kings, and other characters that are well known to archaeologists, attempting anything from murals to paintings on funerary pottery in the process. The CORJet, which is now of course part of the HP printer family, uses the Aprion printhead, which does not need UV-cured ink. A Gandinnovation printer could use UV-cured ink on an even thicker and more rigid material to produce outdoor exhibits at an archaeological park.

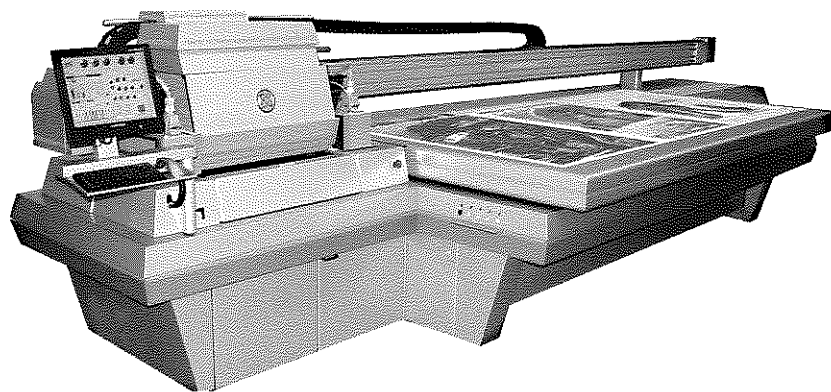
UV printers offer many advantages inside the print shop, besides the lack of carcinogenic chemicals. Printheads do not need to be flushed constantly and UV printers don't need to spit ink just to prevent them from clogging as is the case with solvent machines. In many ways, maintenance and cleaning for UV curable printers is a breeze when compared with the mess and expense of the cleaning routines required by solvent printers. Ink costs also tend to be less, since you are not wasting ink all day and night due to the

automatic purging cycles.

During a recent inspection of an Ohio print shop that was using a Durst Rho 160, I discovered that the company had enjoyed a significant increase in business since acquiring the machine, by taking on jobs that no competitor could handle. The Rho 160, could be used to print on to materials that no solvent inkjet printer could undertake and the print shop had even invested in a second UV printer to keep up with its increased workload. I have also inspected print shops using ColorSpan and Gandinnovations UV printers, who have found themselves in a similar situation and who also find that they are soon acquiring a second machine in order to service the increase in demand.

So despite the initial purchase price of a UV printer, which is higher than that of a solvent printer, it can enable you to print on to materials that your competitors can't handle, with the result that you can also command premium prices. You can also considerably widen your printing repertoire and thus you can service customers that previously, you could never have reached. Of course, I can't promise you instant wealth, and you also need to be properly business savvy, but UV printers do offer tremendous opportunities, especially for printers, photo labs, digital print shops and signmakers who want to be innovative and to enter exciting new market sectors. ●

# Many visitors will be attending the show specifically to see the latest crop of digital printers



Most companies prefer to wait until nearer the event to reveal the full extent of their offerings but all the signs are that this year will herald the introduction of many new and improved machines!

Danish company ASBRU will be demonstrating both its own brand and Roland solvent printers on **Stand C100, Hall 9**, as well as highlighting its new refill-cartridge and exhaust unit. Also on display will be the company's electronic continuous ink supply system (CISS), and its material take-up system.

**For further information visit:**  
[www.asbru.com](http://www.asbru.com)

Located just outside Milan, ATPColor SRL is an industry supplier who services customers throughout Europe and even as far away as Australia! The company has established OEM agreements with manufacturers such as Roland, Mutoh and Colorspan and can thus provide machines which can be tailored to meet the precise requirements of individual customers. See it on **Stand A150, Hall 8**.

**For further information visit:**  
[www.atpcolor.com](http://www.atpcolor.com)

Durst Phototechnik Digital Technology GmbH will be showing the complete family of Rho inkjet printers. Visitors to **Stand D800, Hall 8** will be able to see the versatile Rho 600, which offers both flatbed and roll capabilities; the Rhopac, the only UV printer purpose built for the corrugated printing sector and the Rho 350R, the new UV roll-to-roll machine for the graphics sector. The company will also be taking the opportunity to demonstrate the versatility of its machines, which can offer a number of different variations such as white ink printing, spot colours, and special effect varnish – the Rho family of printers are designed to grow along with your business.

**For further information visit:**  
[www.durst-online.com](http://www.durst-online.com)

Flora RTZ Co., Ltd., a manufacturer of wide-format solvent and UV digital printers, will be using the show to launch its new USB flatbed printer. Other printers on **Stand E1200, Hall 8** will include the Flora Light jet series, the Flora Heavy jet series of solvent printers and UV Flatbed Printers.

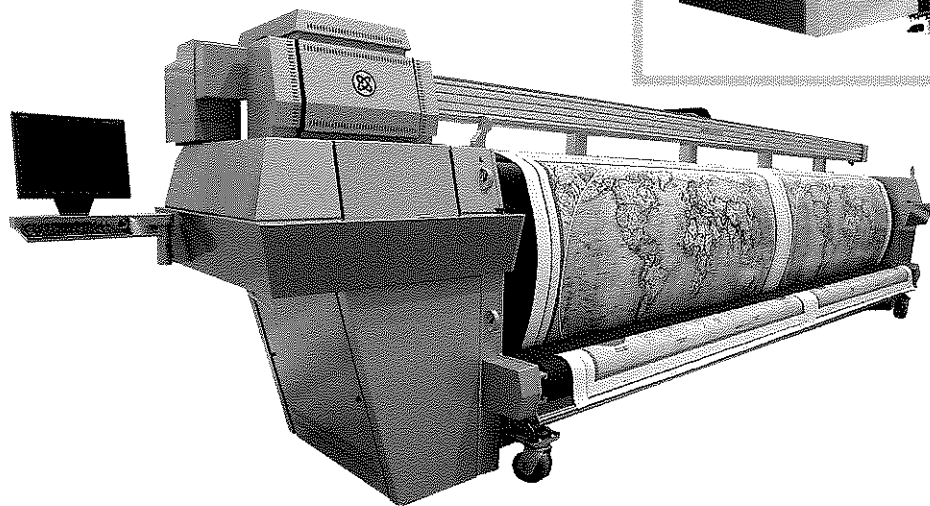
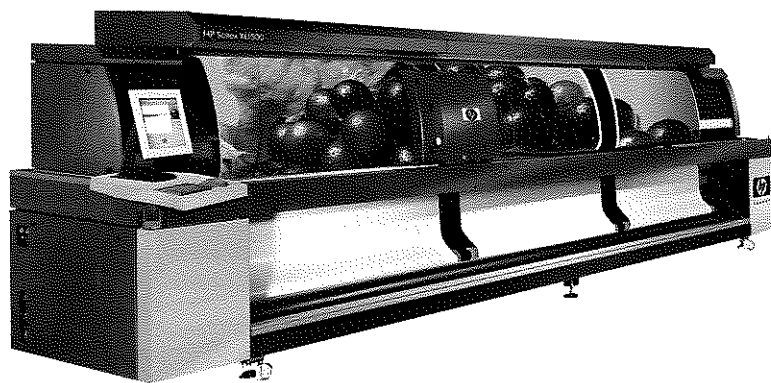
**For further information visit:**  
[www.floradigital.com](http://www.floradigital.com)

Visitors to the stand of Fujifilm Sericol UK Ltd, will be able to see the Columbia Turbo, reputedly the world's fastest wide format digital flatbed press, together with the new Spyder 320 6-colour press, which will be making its first appearance at a Fespa exhibition. Both printers use the award winning Uvijet UV curing inks, which will also be on show, together with the Color+, range of inks, which are said to be the fastest growing solvent-based digital inks for use on all wide and super-wide roll fed machines. Find Fujifilm Sericol

on **Stand D400, Hall 8**  
**For further information visit:**  
[www.fujifilmsericol.com](http://www.fujifilmsericol.com)

At the show, Gandinnovation's product line-up will include the Jeti 3312; a 10.5 foot, roll-to-roll solvent printer as well as the latest addition to its range, the Jeti 3318, an 18 Spectra print head, roll-to-roll solvent printer, which features an automated head wiping system. Both printers are available in dye-sub versions, which facilitate the printing of images straight on to woven and non-woven fabrics using a heat transfer press, or directly on to flag material with heat activation. Also on display will be the Jeti 5000, a 5m super-wide, roll-to-roll solvent printer and the Jeti UV 5m by 3m high-speed flatbed printer that uses 24 Spectra print heads to print on to rigid substrates.

Find Gandinnovations on **Stand D500, Hall 8**  
**For further information visit:**  
[www.gandininnovations.com](http://www.gandininnovations.com)



GCC Europe B.V. will be introducing the StellarJet 250UV UV-curable inkjet printer, a new 160UV UV-curable inkjet printer and the Jaguar JA-183S cutting plotter at the show. The StellarJet 250UV inkjet printer uses UV-curable inks to print across a wide range of flexible and rigid substrates and features an automatic ink-refilling system and a media thickness auto calibration function. It also offers a maximum print speed of 48m<sup>2</sup>/hr. See it on **Stand Hall 8, E650.**

**For further information visit:**  
[www.gccworld.com](http://www.gccworld.com)

GCS BV will be demonstrating several of its printing systems on **Stand E450/500, Hall 8.** On show for the first time will be the Mimaki JV5 eco solvent printer which is the successor to the legendary Mimaki JV3. GCS will also be introducing the Grapo Octopus, a UV printer with Xaar technology, the Mimaki JV22 multi purpose, large format inkjet printer and the Mimaki CG-160FX, a specialised cutting plotter. An Aristo digital pre flatbed cutter system will complete the GSC line-up. The company will also be taking the opportunity to promote its recent collaboration with Igepa Belux, an alliance that, it believes, will further strengthen its overall operating strategy.

**For further information visit:**  
[www.gcsweb.nl](http://www.gcsweb.nl)

On **Stand D100, Hall 9,** HP Scitex will be presenting the HP Scitex 1500 5 metre super-wide format printer, (formerly the Scitex Vision XLjet Premium) as well as the wide format, HP Scitex TJ8300 (formerly the Scitex Vision TURBOjet.) During the show, these presses will be carrying out live demonstrations, thus enabling visitors to see them in action and to find out how HP Scitex can help them to expand their businesses.

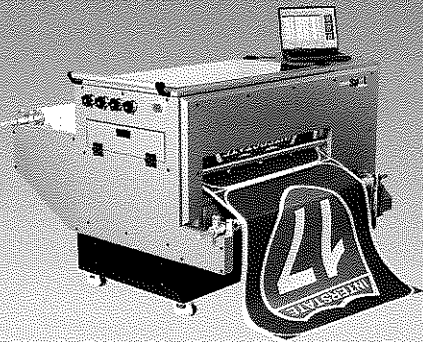
To demonstrate the effectiveness of the HP Scitex FB6700, (formerly the Scitex Vision CORjet Premium) flatbed printer, which is currently gaining popularity in the sign and display market, a 3x3m walled section of the stand will be printed entirely on corrugated board by the machine. Additionally, the stand will feature comprehensive information and printed samples from its entire range of industrial digital inkjet solutions for wide,

super wide-format and rigid substrate printing, as well as information about the HP Scitex DREAM textile printer.

**For further information visit:**  
[www.hp.com](http://www.hp.com)

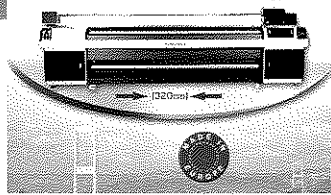
On **Stand B300, Hall 9,** Infiniti-Europe will be demonstrating the full breadth of its range. The company's newest wide-format-high resolution solution, the Xstream23s, is certainly worth a look. This six colour, high resolution printer is suitable for use with flexible materials for outdoor large-format applications. It features six Konica printheads with 512 nozzles per head and offers 720 dpi resolution and speeds of up to 36m<sup>2</sup>.

**For further information visit:**  
[www.infiniti-europe.com](http://www.infiniti-europe.com)



NEW  
**EUROTECH**  
DIGITAL GRAND FORMAT PRINTER  
SERIES

**S6**



**NUR**  
MACROPRINTERS

Visitors to MacDermid ColorSpan's stand, B700, Hall 8, will be able to see the company's full line-up of UV-curable flatbed inkjet printers, including the DisplayMaker 72uvr, 72uvx and 98uvx, which, since their launch just over a year ago, have become bestsellers, with over 500 now in operation globally. These 185cm and 250cm wide printers each include productivity features such as AutoJet mapping and AutoSet calibration. Made in the USA, they feature low cost ink, 600-dpi quality and print speeds over 40m<sup>2</sup> per hour.

**For further information visit:**  
[www.colorsan.com](http://www.colorsan.com)

First established in 1994, Man Print & Sign BV supplies a wide range of large format printers, which include those manufactured by Roland as well as its own label machines. In addition, the company also offers a range of complementary media for use with both eco-solvent and solvent inks. It will be showing its latest flatbed printers, which are available in widths of 1.8 m, 2.5 m and 3.0 m together with the latest super wide format printers in three sizes from 2.5m up to 3.5m. See the company on Stand D300, Hall 9.

**For further information visit:**  
[www.manprint-sign.nl](http://www.manprint-sign.nl)

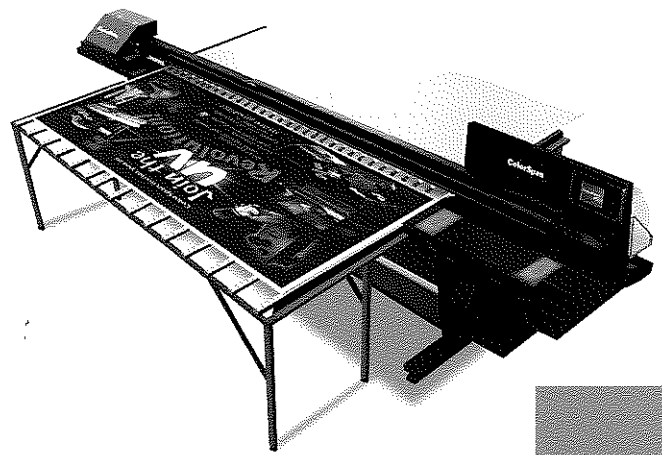
Matan Digital Printers will be using the show as the launch pad for the Matan Spot36. This machine, which has been designed specifically to meet the specialised requirements of companies operating in the wayfinding and traffic signage sectors, can also be used for window graphics and other industrial applications, which require short-run, high-durability two-colour printing.

The Matan stand will also feature the Matan SpringPro professional label and decal printer, for specialised applications and the Matan JetSet industrial wide format solvent inkjet printer. Find them all on Stand C725, Hall 8.

**For further information visit:**  
[www.matanprinters.com](http://www.matanprinters.com)

Mimaki Europe B.V. a subsidiary of Mimaki Engineering Company Ltd., headquartered in Nagano, Japan, will be launching a number of exciting products at the show, one of which, the DS-series (DS-1800), is a direct dye-sublimation plotter, which offers direct sublimation printing onto fabric and is more environmentally friendly and efficient than traditional transfer sublimation systems. Find Mimaki on Stand E700, Hall 8.

**For further information visit:**  
[www.mimakieurope.com](http://www.mimakieurope.com)



**DisplayMaker**  
**98uvx**

As Europe's only grand format printer manufacturer, Eurotech, part of the Turkish NAC Digital Group will be exhibiting its newest digital printers on Stand E1300/1350, Hall 8. Making their world-wide debut will be the HQ and ECO HQ models, which print 1440DPI resolution to a size of 2.5m. The Eurotech range also includes grand format printers, the XR500 and XR126, and a variety of other machines that use Spectra head technology and are available in sizes between 3.2 and 5m.

**For further information visit:**  
[www.eurotechprinters.com](http://www.eurotechprinters.com)

One of the leading suppliers in the Netherlands, Nauta Sign BV, offers a complete portfolio of machines and consumables from leading brands such as 3M, Grafitack, Ferrari Stamoid, 3P Textiles, Mutoh, HP, Seiko, Fotoba, Summa, Zünd and Signalize. Find the company on Stand B1200, Hall 8.

**For further information visit:**  
[www.nautasign.com](http://www.nautasign.com)

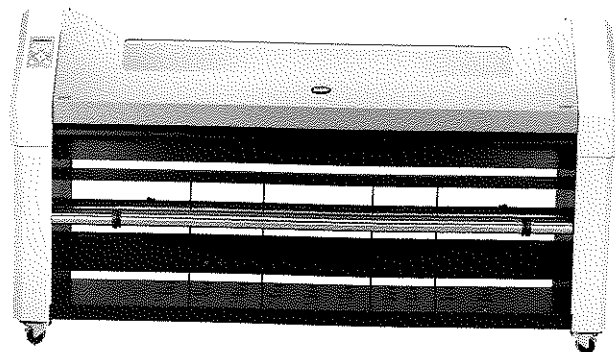
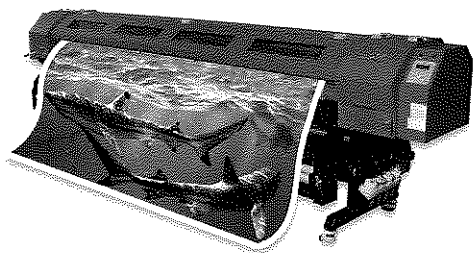
NUR Europe SA, a leading supplier of wide format inkjet production printing systems, will be focusing on UV technology at the show. The company plans to use both its flatbed and roll-to-roll wide format printers to demonstrate how UV-curable inks ensure a faster return-on-investment, whilst delivering

outstanding quality output at the best speed. See NUR on Stand B500, Hall 8.

**For further information visit:**  
[www.nur.com](http://www.nur.com)

Océ Display Graphics will be showing its newest, large format full-colour solutions on Stand E1075/E1150/F1000, Hall 8. There will be three main themes the first of which will be high quality outdoor printing, an area which is represented by the new Océ CS9090 (eco)-solvent printer, the HP DesignJet 8000/9000 and the Océ CS6100 printer and also incorporates print and cut workflow solutions. The second theme focuses on special print applications, which are achieved on the new Océ CS70xx UV-flatbed printer, which is used in combination with vacuum forming, and dye-sub printing, whilst the third theme highlights photo quality indoor printing and finishing. This is achieved by using a combination of Epson printers, Océ's LightJet high-end laser printer and several laminating and cutting devices. All three solutions are combined with Océ's Onyx workflow software, together with the company's on-going expertise, which enables customers to select the equipment that is most suitable for their application.

**For further information visit:**  
[www.oce.com](http://www.oce.com) and  
[www.displaygraphics.oce.nl](http://www.displaygraphics.oce.nl)

Spandex, will be welcoming all visitors to **Stand D1000, Hall 8**, where the main spotlight will be on the Gerber Solara UV2, Spandex's first hybrid UV printer. Offering both flatbed and roll-to-roll capabilities, the UV2 prints onto various rigid and flexible materials up to 13mm thick and 152cm wide. Its unique six-colour violet and green UV-inks produce instant-dry, ready-to-apply prints, which open up a whole new range of applications. The UV2 can also be used in conjunction with Gerber routers to provide a complete print and cut facility. Visitors will also be able to see the Jetster XL Ultra65/90 featuring new EcoUltra inks, the 2.6m Jetster Solvent 65/90/100 range and the Gerber EDGE FX and P2C S-Series of integrated print-to-cut solutions. Additionally, Spandex will be showing a comprehensive range of rigid and flexible materials from ImagePerfect, 3M, Avery, MACTac, and more.

**For further information visit:**  
[www.spandex.com](http://www.spandex.com)

SPÜHL AG will, for the first time, be showing its combined flatbed and roll-to-roll UV-Printer SPÜHLvirtu RS35 - a large format printer with an impressive printing width of 3.5m. It is available in either four or six colours, or four colours plus white. Visitors to **Stand D750, Hall 8** will be able to enjoy a cup of coffee and a nice piece of Swiss

chocolate, whilst they watch the machine being put through its paces!

**For further information visit:**  
[www.spuhl.ch](http://www.spuhl.ch)

Belgian manufacturer Summa will be introducing its new thermal transfer print and cut system, the DC4, a large format, thermal transfer printer which combines a full 127.5cm print width with integrated contour cutting. Its resin ribbons can be applied on a wider range of print media and it also offers a new maximum resolution of up to 600 dpi. Also on **Stand F450, Hall 8** will be a selection of Summa's vinyl cutters, including its two market-leading drum fed machines, The S Class Series and the SummaCut.

**For further information visit:**  
[www.summa.be](http://www.summa.be)

A distributor of hardware and software solutions, TEPEDE, who is based in Belgium, but exports to more than 50 countries throughout the world, will be concentrating on the outdoor signage sector at the show and will be showing both printers and media suitable for this marketplace on **Stand C900, Hall 8**. It will be featuring the first HP solvent based printers, the new HP DesignJets 9000s and 8000s, together with the Mutoh Rockhopper 3, in combination with Mutoh's new eco-solvent ultra inks, and the Mutoh Spitfire

100. The Mutoh Ultima cutter will complement the printer offerings and in addition, TEPEDE will be introducing two new films, a new photo paper and two, low-cost display systems.

**For further information visit:**  
[www.tepede.com](http://www.tepede.com)

Trend Srl - The LFDP Group was originally established to unite several Italian companies specialising in the distribution of wide format printing solutions. It now offers systems from the most recognised brands, such as Mimaki, Digital Color, Colorspan and Infiniti and is also the European Distributor of "Bestinks" inks and "PrintJet" media. The Group will be using the show to recruit new partners to distribute its products across Europe. Visit The LFDP Group on **Stand A900, Hall 8**

**For further information visit:**  
[www.trendsrl.net](http://www.trendsrl.net)

Amongst the printers on exhibit on VUTEK's stand will be the PressVu UV 320/400 UV-curing flatbed printer, the ideal machine for digital image providers who want to increase productivity and profitability, which is now available with a new 600 dpi mode. This 3.2-metre, 400 dpi or 600 dpi UV-curing flatbed printer accommodates rigid substrates up to 3.2 metres wide, and offers excellent productivity up to 93 square metres per hour and also

features roll-to-roll capability, giving customers the flexibility to offer more services. It is ideal for applications ranging from billboard to high quality P-O-P and everything in between. See it in action on **Stand B450, Hall 9**.

**For further information visit:**  
[www.vutek.com](http://www.vutek.com)

As a leading supplier of flatbed cutting equipment, Zünd Systemtechnik AG will be demonstrating a range of digital finishing solutions. These will include automated digital production of displays, posters, banners, labels and decals which includes trimming as well as contour cutting of all printed materials. Regardless of printer type and technology, common benefits which Zünd can offer are increased printer productivity, less material waste, and better overall quality. Check out these advantages on **Stand C750, Hall 8**.

**For further information visit:**  
[www.zund.com](http://www.zund.com)

Based in Turkey, Digirex Digital offers a wide selection of digital printing solutions, which fulfil all customer requirements and areas of application. Find Digirex on **Stand Hall 8, E800**.

**For further information visit:**  
[www.digirex-tr.com](http://www.digirex-tr.com)



Peter Kiddell

**Peter Kiddell, Partner, PDS Consulting**, is a leading expert in product decoration. Having spent more than thirty years in the industry, he has been at the forefront in the development and application of digital and analogue technologies. His books, articles and training programs have been distributed and used throughout the industry in dozens of languages. A mechanical engineer by training and a printer by choice, his clear presentation style makes even the most complex applications and concepts totally comprehensible.

**Ann Noonan, CEO Colour Interlink NV**, was educated in New Zealand and worked as a teacher for 10 years. Her husband specialised in industrial practices and statistics at Massey University and in the late 1970's they moved to Europe. By 1980 they had decided to develop software for textile design with output for production firstly in weaving and then, when PCs became the industry standard, into textile printing. To simulate samples for production, they worked steadily on colour reproducibility, whilst also considering production parameters. Digital printing was the next logical next step and in 2003 they started Colour Interlink NV to focus on digital printing for textile substrates for both soft signage and the traditional textile markets.

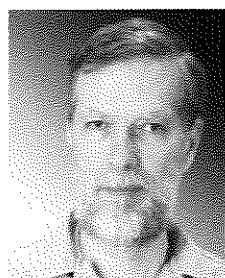
**Andre America, Managing Director, Studio America** is President of Studio America, one of the leading wide format print production companies in Europe. Based in Leiden, the Netherlands, Studio America specialises in large and special format communications. The company prints on both common and

unusual materials and produces applications for both indoor/outdoor use. In 1999 Andre America established GIGA (Global Imaging and Graphics Association), a global organisation of wide format print production companies with a common interest in the use of large format digital imaging technology. The organisation has grown considerably over the last few years, and now has members on five continents.



Keith Ramsay

**Keith Ramsay, Area Manager – Europe, Middle East and Africa NAZDAR**, a graduate of the University of Greenwich with a Masters in Marketing, has been responsible for building, managing and supporting Nazdar's distribution channels in Europe, the Middle East and Africa since 2005. Keith Ramsay has extensive experience in the technology, market development and sales and marketing of products and services to the printing industry across a wide range of market sectors on an international basis. He has been involved in the printing industry throughout his career.



Dr. Nicholas Hellmuth

**Dr. Nicholas Hellmuth, Director, Large Format Digital Imaging Division, FLAAR at BGSU**, undertakes research, writes, and lectures in the field of photography, scanning and digital printing equipment, in particular wide format inkjet printers. He is President and Founder of FLAAR, an organisation that evaluates and reviews digital imaging hardware

and systems. The FLAAR evaluations of inkjet printers, RIP software, colour management tools, laminators, trimmers, and inkjet media reach more than 500,000 readers in over 62 countries each year. Dr. Hellmuth received a Bachelor of Arts degree from Harvard University in 1967, and an MA from Brown University in 1969. In addition he holds a doctorate in art history from the Karl-Franzens Universitaet in Graz, Austria.



Norbert von Aufschnaiter

**Norbert von Aufschnaiter, Large Format & High Speed Printing Division, Durst**, joined Durst Phototechnik AG, Brixen, Italy in 1977 and has been actively involved in the product development and marketing of the Durst commercial line of products. Since 2004 he has been responsible for the strategic business unit industrial printing which has developed the world's first direct digital ceramic printing system for use with ceramic wall and floor tiles and uses pigmented ink technology. Norbert von Aufschnaiter has a degree in Electrical Engineering.



Bernard F. Girma

**Bernard F. Girma, President, DigiTech Strategy**, is the President of DigiTech Strategy, a digital imaging management consulting firm. His experience covers a wide range of digital imaging technologies including electrostatic, inkjet, laser, thermal transfer, dye sublimation and imaging on to exotic material. He is an expert in the market and

technology of inkjetheads, imaging controllers and digital displays. He also has an in-depth experience developing in-store point of purchase imaging systems, including the distribution of images over networks. He has been instrumental in the formation of the business strategy and subsequent strategic alliances between large digital equipment manufacturers in Japan and the US. Bernard Girma was the co-founder and past chairman of the Digital Printing and Imaging Association and is also a Board member of the Professional Digital Imaging Association (PDIA). He is currently serving on the board of two US companies, one European company and one Japanese company. He is a frequent speaker at many digital imaging technology conferences worldwide.



Christian Duyckaerts

**Christian Duyckaerts, Technical Director, Print & Display**, is a Managing Partner and Technical Director of Print & Display, which is based in Kontich, Belgium and specialises in large format printing for outdoor publicity and in-store promotions. He is also a Director of GSI Holding, which is concerned with digital printing for POS, posters, building wraps and outdoor publicity. A FESPA Board member, Christian Duyckaerts is also President of the Screen and Digital Printing section of FEBELGRA, the Belgian screen and digital workgroup.