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## DIGITAL PRINTING COMES OF AGE

Digital printing onto fabric is finally coming of age and is about to create a revolution in the textile printing industry. Slow to start on technical grounds - it was too slow, inflexible and expensive - the technology is now so improved as to be viable. And at the forefront of those embracing it in production are



the Italians. Digital printing on small machines, such as the Mimaki, is already commonly used for sampling, cutting out the cost of screen making during the sampling stage. But, since the launching of several new machines with vastly greater speeds - from Mimaki, DuPont, Konica, Robustelli's Monna Lisa and Reggiani's Dream - the landscape for digital printing is changing. Hitoshi Ujii, Director, The Center for Excellence of Digital Ink Jet Printing of Textiles at Philadelphia University, speaking at a seminar in London on digital printing technologies, thinks the way is open now for what he calls a 'neo cottage industry'. That is to say, small production units, which will not need much in terms of services such as water, and could be set up with any number of printers, capable of small production runs.

The printing industry is big - roughly 16.8 billion metres per year. But demands on the industry are changing with greater need for small print runs and shorter production cycles - which is where digital printing scores. Its big advantages are: unlimited creative possibilities without the screen making costs, customization capabilities, the use of a variety of fabrics and flexibility in terms of volume. It is also more sustainable as it does not need water, so there is less environmental pollution.

Improvements, which are making digital printing more viable, include a greater flexibility in available inks, the development of bulk ink delivery systems and, most significantly, the integration of pre- and post-treatment devices for the fabric with the printing machine. Fabric handling has greatly improved in the bigger machines and there is greater head clearance allowing for different types of fabrics.

But the most important factor are the new speeds attainable by the medium to high-end production printing machines and also, now, by flat bed garment printers. The Mimaki TX2, well established as a small-scale printer for sampling, will print between 3-28 square metres per hour. But bigger machines on the market are speeding up considerably, such as Konica with between 20-60 sq. mt. per hour, Robustelli's Monna Lisa at 26-75 sq. mt. per hour, while the really big Reggiani Dream machine will do 150 sq. mt. per hour. And launching later this year is the Osiris printer which will be even faster at between 2.5 - 18 square metres per minute, claiming also to be able to use any inks for any fabric.

Como is well known for high-end apparel prints including silk scarves and ties. Multiple Mimaki printers and the latest Dupont 2020 and Robustelli printers have been installed in the region for production. Over 700 units of the Mimaki TX2, for instance have been installed.

*Mantero* is one company, which has invested in several machines, for the small-scale production of accessories such as silk scarves and ties. *Creation Baumann* in Switzerland print high-end drapery on cotton and microfilament polyester on several printers. *Nomega Digital Printing*, with 12 Monna Lisa printers, prints 3,000 linear metres daily.

The cotton shirting weaver *Leggiuno* launched an all digitally printed collection at Milano Unica in February, focussed on printed shirtings, currently a strong fashion feature. The collection, featuring innovative designs with a photographic flavour, was well received. It included photographic flower themes and abstract designs, as well as small-scale reptiles and bird motifs and fruit or jewel motifs. The company decided to switch to digital printing last year, having used its system for sampling for some time, eventually dropping both its screen and roller printing.

The future at last looks good for digital printing. A comprehensive introduction to the whole subject, its history and how it has evolved, technical features and a guide for product developers, retailers, designers and academic researchers, can be found in the recently published 'Digital Printing of Textiles', edited by Hitoshi Ujii, and published by Woodhead Publishing. Hitoshi Ujii is Director of The Center for Excellence of Digital Ink Jet Printing of Textiles at Philadelphia University, USA.