Revolution? Evolution! Few Comments in Respect to the Development of Digital Wide Format Industrial Printing

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Industrial wide format digital printing has greatly developed during the 1990's. We have witnessed the movement from airbrush technology, capable of very low quality, to continuous inkjet and later on to drop on demand (DOD) inkjet technology; from very low resolution of less than 20 dpi to 300 and 600 dpi and from very low throughput of only a few square meters per hour to tens and hundreds of square meters per hour.

Throughout the first decade of wide format printing, machine vendors concentrated on supplying the market with enhanced solutions for the newly created market segment of digital printing. There wasn't even an intension to use this innovative technology to replace traditional analogue technology and if there was, then its target was for the very long term.

This was the beginning of digital wide format systems. Now the next generation is here and we are moving from digital printing to **digital production**. For this reason users are now looking to replace or complement portions of their analogue production lines with digital solutions. In order to maintain profitability, printers must be able to achieve real industrial throughput from their new digital systems, enabling them to replace and enhance traditional workflows rather than try to create a line of new business.

Replacement of analogue printing processes with digital workflows will not come as a one step revolution, but rather as a slow step-by-step process. The pace of this process is dependant upon the ability of developers of core inkjet technology to come up with industrial solutions that will allow high capacity, continuous, reliable printing.

A good illustration of this process is the penetration of Scitex Vision's drum technology systems to the European and US paper billboard market. Until not so long ago, this market used offset technology for the long run jobs and screen-printing for the medium and smaller quantities. There was no real answer for small-medium quantities or customized (personalized/localized) jobs. By installing an Idanit Novo (up to 170 m2/h) or Scitex Pressjet (up to 240 m2/h), a traditional printer can digitally achieve unique print runs and respond to the demands of his market.

There are some entry barriers that must be removed in order for a digital system to be able to address specific needs of industrial market segments. Primarily, the equipment must be able to perform in an industrial environment (as opposed to office or hi-tech environment). It must also be capable of integrating into an existing industrial workflow and not create a bottleneck in a workflow that currently works in a satisfactory manner. Throughput must be high enough to allow industrial production rates and job run lengths. Equipment must also be robust and reliable enough in order not to fail at critical moments and the vendor must have the infrastructure to support its costly products on a 24/7 basis.

No system, even if it complies with the above-described parameters, will succeed in penetrating any traditional market segment, if the question of consumables cost is not seriously addressed. There is no point for a user to acquire a 500m²/h digital printing piece, if the ink is too expensive to allow for a reasonable break even point with analogue printing that will enable full utilization of the system's productivity potential. It is a challenge that digital printing systems still need to meet.

In the first decade, the choice of applications to address using digital wide format printing was not too complicated due to the simple fact that the technology could only address a limited number of applications (Mainly long distance viewing outdoor applications to which the low resolution was good enough). The struggle in the nineties was to bring the technology to minimal specifications that will enable decent production of final products that today are not considered to be ambitious at all. Since then, technology has advanced significantly and can now, as well as in the future, address many more applications in different market segments (i.e. out of graphic arts).

Markets that have already been approached are high graphics corrugated packaging (Scitex Vision CORjet, Inca Columbia) and textile (Reggiani DReAM, Du-pont, Mimaki). These two markets are highly industrialized on one hand and on the other hand almost not affected by the digital revolution. The main stream of production (99.9%) in both industries is done using heavy duty and tremendous capacity analogue equipment that did not change much in the past 50 years. The main use today of digital printing technology within these industries is for sampling and proofing. The Scitex Vision CORjet and, for a reduced extent, the Inca Columbia, are the first systems with a real potential to address real needs of packaging manufacturers for an industrial solution that

will allow them to better serve their customers with short run jobs (less than 1500 m²) and address their customers' needs for customization. The definition of short run in the textile industry is quite similar to that of the packaging industry (~1000-2000 m², contingent on the width of the roll) and the needs for shorter runs and customization are accumulating rapidly. The Reggiani DreAM system is a first of its kind enabling its users to print 150 m²/h of high fashion textiles in short runs of up to ~1000 m².

What would be the parameters that will help us to define the market segments to target next as potential for digital technology penetration? One important parameter would be if there is an existing or a latent need for short run. Another important parameter is the need, existing or latent, for customization or mass customization. There are also other gaps between existing analogue reality and digital future such as the ability to print larger formats than those currently covered by traditional technology, need to print on media sensitive to pressure caused by impact printing (such as open flute card board) and a need to reduce costs of full color printing.

The process described until now is one of an evolution. Fast development of innovative technology also calls for certain revolutions. The case of super-wide format applications such as building coverings and full color truck side curtains is a good example for applications that were born only when new technology enabled them, as opposed to existing applications that migrate from old to new technology in a process of evolution. The field of personalized document printing is another example of a revolutionary development.

The evolutionary process is driven by technology improvements that gradually allow for more of each of the following parameters: quality, speed and reliability. The better we perform in each of these the wider is the choice of traditional applications that will be feasible for concept as well as technology transfer.

While revolutionary innovations appeal to new entrepreneurs who tend to live better with risks, evolutionary processes are directed at existing players who have their market share and are reluctant to take risks by trying new ideas. To persuade these potential users, a vendor must be sure that the solution offered is reasonably reliable and must invest in educating the market – creating demand for the unique digital attributes, coming from the end-users.

Biography

Amir Veresh is Scitex Vision's manager of business development, in charge of the company's strategic planning process. As such is involved in defining the areas in which the company is active currently and in the future, definition of new products and consumables and of the cooperation the company hold with different external bodies.

Prior to his position in Scitex Vision Amir served as a product manager in an Israeli start-up company in the field of imaging. Prior to that, and for 15 years Amir managed his own business in the field of prepress and print production.

Amir holds a LLB degree from the Hebrew University in Jerusalem.

About Scitex Vision: Scitex Vision is a leading developer, manufacturer and service provider of cutting-edge digital printing presses and consumables for industrial applications including wide format graphic arts, packaging and textile. Backed by global marketing and support networks, Scitex Vision is committed to continuously provide high-quality, flexible and cost-effective solutions to printing houses all over the world. The company owns a core technology based on Aprion's patented drop-on-demand piezo inkjet print heads and water-based inks. Scitex Vision employs more than 500 employees worldwide with headquarters located in Netanya, Israel, and subsidiaries in Atlanta, USA and Brussels, Europe. The majority of the company's shares are owned by Scitex Corporation Ltd.; and its additional shareholders include Clal Industries and Investments, IBM, Hitachi Koki, Toyo Ink, Discount Investment Corporation, Israel Infinity and TDA Venture capital funds and CDI.