

White Paper



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The Fujifilm Acuity LED 1600

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Executive Summary

UV-curable inkjet has emerged as the fastest-growing technology segment within the wide format digital printing business. UV-curable inkjet offers multiple advantages over alternative production technologies such as productivity, low running cost, the ability to print onto rigid substrates, and improved eco-friendliness. These are crucial advantages in a wide format graphics market that is becoming commoditized, causing wide format print service providers to look for new solutions and new markets which can add to their top and bottom-line.

Key Findings

- Print buyer user demands for fast turnaround, high image quality, and eco-friendly characteristics are on the rise. UV-curable inkjet printers provide those capabilities and more, and have become, in many ways, the ideal solutions to compete in today's wide format signage and graphics market.
- New capabilities introduced to the digital wide format printing business, such as printing white, multi-layer printing, and truly optically clear ink enable new applications.
- Wide format printing companies must be sure they don't just employ new wide format digital printing technology to simply reduce costs. New technologies should enable top line growth through the participation in new markets.
- One such printer, the Fujifilm Acuity LED 1600, has proven to be a device that has enabled print service providers to migrate into high-margin graphics applications.
- Print service providers are adopting the Acuity LED 1600 to produce a wide range of graphics while in-plant operations are employing the Acuity LED 1600 to take production of some graphics applications in-house.
- Advanced wide format digital printing technologies are contributing to the emergence of a new "environmental graphics" market. This market uses print which is integral to a design specification to enhance or add functionality within a building space and has helped to drive a new set of applications that are fueling organic growth of the wide format digital printing business.
- The right types of hardware investment can have dramatically advantageous return on investment and profitability levels, a key consideration for many print service providers.

Recommendations

- Print service providers should look for ways to move into new markets and "change the conversation" from one oriented around price to one oriented

around branding, value, and experiential marketing. This type of strategic selling requires a different kind of mind set, but is important to moving into the environmental graphics market.

- Small wide format print service providers should consider multiple aspects of any new investment in production printing technology. These include applications set (indoor and outdoor), volume and turnaround time, initial investment and operating costs.
- A strong selling strategy would include identification of key application markets within the environmental graphics segment and the development of a specific plan to address those markets.
- In-plant printing operations have to find ways to increase the value they bring to the corporations they serve. New technology like the Acuity LED 1600 enables production of environmental graphics as well as the conventional graphics that many organizations outsource.
- The Fujifilm Acuity LED 1600 is a unique device in that it incorporates high-end, high-quality technology in a low-cost, small footprint device that is suitable for production of a wide range of applications.

Introduction

Wide format digital graphics is a growth business. This growth has been spurred by the gathering of print volume from the conversion of analog to digital print and from the organic growth of particular wide format applications, i.e. large format graphics, displays, etc. While much of the analog-to-digital conversion is based on short-run lengths and graphics that are versioned to increase the impact of the graphic message, part of that conversion also comes from the improved economics of digital wide format printing, which come from the improvements found in the technology within components of a digital printing system - the ink, the media, or the printer. New tools are available that bring these technologies to the forefront for use by print service providers.

Tools

Success in the wide format graphics business requires investment in the right production tools and technologies. There are a few key characteristics that need to be established. The printer must provide excellent image quality on a wide variety of materials, provide low running costs, offer flexibility of applications, have unique abilities on materials such as clear films, and provide enough productivity to meet fast turnaround time requirements.

There are several printing technologies that have the ability to competitively produce wide format signage and graphics AND have the environmental properties and image quality abilities to serve the environmental graphics market. Latex is low-priced, has good production speed, and has strong image quality, but does not offer white ink, clear ink or rigid media printing. Similarly eco-solvent inkjet offers very low initial investment levels and strong image quality, but does not offer white ink or rigid media printing which limits the application variety that eco-solvent can produce. Only UV-curable inkjet offers the combination of productivity, low running costs, high image quality, additional colors, application flexibility, environmental friendliness, and applications flexibility. The single biggest factor driving investment in UV-curable inkjet printers is speed, not just production speed, but the fact that prints are instantly dry means that prints can be packed and shipped instantly, allowing print service providers to fulfill orders much faster. InfoTrends research indicates that up to 60% of wide format prints need to be fulfilled within 2 days, which means that printers don't have time to leave graphics around to fully dry or "de-gas" for 12-24 hours which is required by solvent-based technologies.

Table 1 – Comparing the Technologies

	Eco-solvent	Latex	UV-curable
Instant-dry	No	Yes	Yes
Low running costs	Low	Low	Lowest
8-color printing	No	No	Yes
White ink	Some	No	Yes
Application flexibility	Good	Better	Best
Eco-friendliness	No	Yes	Yes
Print directly onto rigid substrates	No	No	Yes

Among UV-curable printers, one solution, the FujiFilm Acuity LED 1600 has a unique combination of technologies to meet the needs of graphics producers in both the general graphics markets and the emerging environmental graphics markets.

The Acuity LED 1600

At 1.6 meters (64-inches) wide and with the ability to print on both roll media and rigid substrates up to .375"/10mm thick, the Acuity LED 1600 is able to produce a very wide range of applications. Furthermore, because the Acuity LED 1600 uses LED curing, running costs are lower, and it produces less heat which also makes it possible to print onto a wide range of substrates, including thin films which many other printers are incompatible with.

Figure 1: Fujifilm's Acuity LED 1600



The Acuity LED 1600 has several unique features that make it unlike many other wide format digital printers and even unlike other products in the Fujifilm Acuity line in several important ways. The Acuity LED 1600 is comprised of all Fujifilm technology, which is why it is able have such a wide range of capabilities. The Acuity LED 1600 is a 1200 dpi 8-color printer (CMYKLCMw plus Clear) using Fujifilm inks. 8-color printing provides an extremely wide color gamut for very high image quality. The white inks used by Fujifilm are 95% opaque which is significantly more dense than other white inks used by other UV-curable printers, and the use of clear inks enables this printer to offer both gloss and matte finishes. These features offer users of the Acuity LED 1600 the ability to produce higher quality window graphics, backlit prints, and package prototypes.

The Acuity LED 1600 is based on Fujifilm-Dimatix Q-class print head technology. Q-class printers offer native 1200 dpi resolution and are part of the innovative two-step pinning-curing process that enables higher quality and speed (up to 215 ft²/hr. or 20m²/hr.). The Acuity LED 1600 uses Fujifilm VersaDrop technology which adjusts ink droplet size according to the image, which ensures smooth tonal gradations.

The unique abilities of the Acuity LED 1600 separate it from its competitors including its capabilities to serve the general digital graphics market as well as the emerging environmental graphics market. This dramatically changes the calculations that a typical print shop would use to decide which type of printer they would invest in.

The Fujifilm Acuity LED 1600 is a combination of productivity, low running costs, image quality, image durability, eco-friendliness, and application flexibility that gives users the opportunity to produce indoor and outdoor graphics. Low-heat LED curing and a robust media handling configuration are keys to the application flexibility that the Acuity LED 1600 offers.

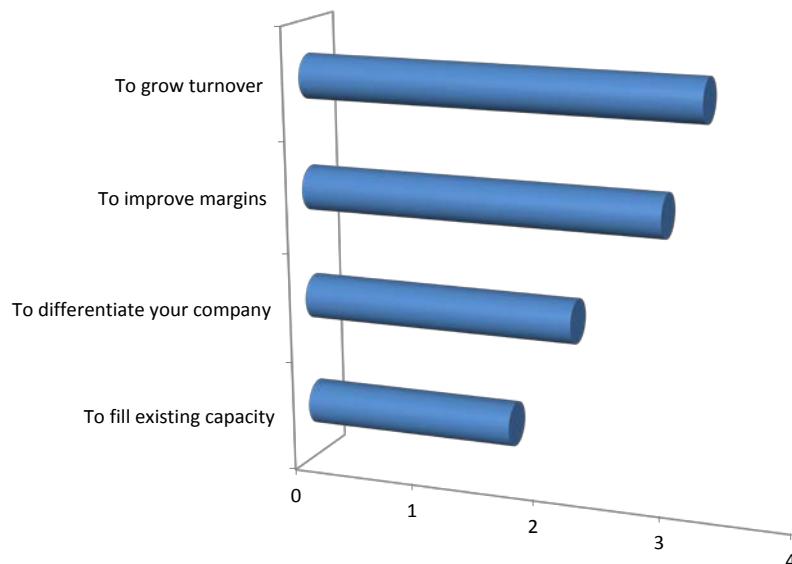
Table 2 – Applications & Substrates

Application	Typical materials used
Signs	Lightweight aluminum panels Re-board 10mm thick
Banners	Paper, Film (PET, PVC, OPP)
Posters	Paper (roll & sheet)
Backlit	Film (roll & sheet)
Banners	Paper & film (roll & sheet)
Window Graphics	Paper, clear film (roll & sheet)
Decals	Pressure sensitive film (roll & sheet)
Vehicle graphics	Pressure sensitive film (roll)
Floor graphics	Film (roll & sheet)
Commercial/domestic interiors	Paper & film (roll & sheet)
Maps	Paper & film (roll & sheet)
Packaging samples	Paper, film, corrugated (roll & sheet)
Presentation graphics	Paper (Roll & sheet)

A new segment emerges – Environmental Graphics

A recent InfoTrends study found that 75% of wide format digital graphics printing establishments have made strategic changes over the past couple of years to offset declines in their traditional business, improve margins, differentiate their companies, or fill existing capacity. The reason for this shift is that the conventional wide format digital graphics business is becoming increasingly competitive due to the convergence of printing segments.

Figure 2: Why are you diversifying?



Source: InfoTrends – Image Reports' WidthWise research 2013

There are many types of printing establishments such as quick and commercial printers, copy shops, sign shops, screen printers, reprographics shops, and even office superstores that have entered the wide format digital graphics market seeking higher margins than they can derive from their traditional business. As a result of this increased competition have been lower prices and smaller margins for all digital graphics providers.

The companies that have been able to adapt to this increasingly competitive marketplace have done so in two key ways:

- Investing in tools and technologies to become as operationally efficient as they could be in order to sustain higher margins
- Making the type of strategic changes that help them change the conversation with customers and prospects from one based on costs to one based on value.

Of course these shops need to be price competitive. They are also using their knowledge of the customer to differentiate their company by adding value beyond promotional print to execute better signage and graphics campaigns.

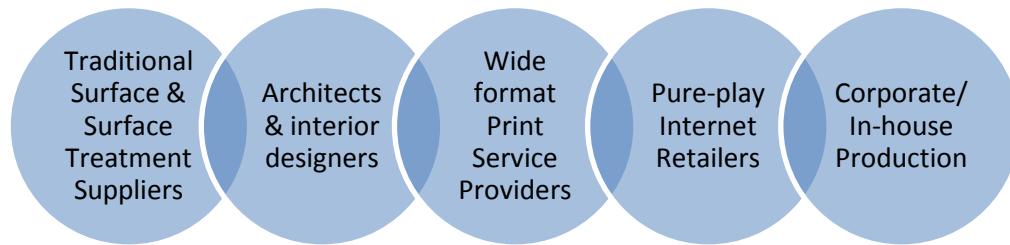
The market of “environmental graphics” looks to be the solution that will fill this need. The environmental graphics market is adjacent to the promotional graphics market, and leverages much of the same technology. It is differentiated by the functionality, quality, and audience of the end product. Environmental graphics are printed products that have a practical function such as providing shade, dividing a space, or creating ambiance. For those print service providers that have the ability to create new lines of business based on new technical capabilities - the environmental graphics market represents an area of growth. There are tools and technologies that allow companies to participate in the environmental graphics market, but the best solutions are those that enable innovation and authentic participation in the market by design.

InfoTrends believes the next step in the evolution of wide format digital printing is best described as the emergence of the environmental graphics market.

Environmental graphics are similar to promotional graphics in some ways – such as sizes and some substrates, but differ in some key aspects. Whereas promotional graphics are used to promote certain products or services, environmental graphics have a functional purpose and are used to set the ambiance of different environments. Examples of environmental graphics include: digitally printed wall coverings, window films, and public-facing surfaces. While each of these can also be used as a promotional graphic, to promote a specific product or brand, environmental graphics have much more of a functional role and so are typically specified and purchased not by marketers. Instead they are purchased by space planners, interior designers and architects. People in these roles are highly aware of the functional use of the substrates listed above, but are only starting to become aware of the ability to use digital printing to customize these surfaces to create unique environments.

Figure 3: Door & window graphics – for interior office space

One factor in the expected development of the environmental graphics market is the transition of analog to digital print for more cost-effective production of customized products. The use of digital printing technologies is transforming the supply chain for many graphics products, and environmental graphics is no different. In fact environmental graphics are expected to be an area where this trend will occur at an accelerated pace because the production technology is available, fast enough to be viable for production environments, and material/production is relatively inexpensive. The combination of these factors is contributing to adoption of new process and new business models for many different types of environmental graphics suppliers.

Figure 4: Players in the Environmental Graphics Market

The manufacturers of traditional surfaces and surface treatments are looking at digital printing processes to: offer supply chain improvements and the ability to offer higher-margin custom products. For architects and interior designers, offering customized environmental graphics products is a differentiating factor and additional service offering. Wide format digital print service providers want to leverage their existing capacity and move into new markets.

Some segments of the environmental graphics market, such as digitally printed wall coverings, have seen the development of pure-play internet companies. These companies accept artwork, designs, and corporate logos for including in customized environmental graphics products ordered on-line. Some in-plant

operations are looking for ways to provide new services and have taken production of these types of graphics in-house. This allows them to more tightly control branding, to create a consistent in-store experience across dispersed locations. The goal for all of these organizations is to move into more profitable niches.

How to Participate in the Environmental Graphics Market

The two core elements to being able to serve the environmental graphics market are: (1) the ability to sell the products, (2) the ability to produce the products needed for an interior/exterior space. Entering new markets requires a new mindset, and a new way of selling. The environmental graphics business is unlike the promotional graphics market where the primary influencers are print buyers and marketing executives. Instead environmental graphics are functional, so there are people involved in space planning, architecture, and interior design.

Companies that want to develop a business producing environmental graphics should make every effort to work with the types of organizations responsible for planning private, corporate, retail, and public spaces. The core of this market resides within architects and interior designers, and even these roles are often categorized within certain practices and specialties. There are hundreds of thousands of establishments that are suitable for the application of environmental graphics, so companies targeting this market should develop a strong knowledge of what types of environmental graphics could be used in certain settings.

Table 2: Locations for Environmental Graphics

Type of Location	Number of Establishments in United States
Corporate Headquarters (companies with 20+ employees)	600,000+
Event Centers	4,000+
Showrooms	20,000+
Educational Institutions	4,500+
Hotels	53,500
Hospitals	5,700
Restaurants	616,000
Retail Locations	1,500,000

Marketing Plan

Once the target markets are identified, it is important for a print service provider (in plant or print-for-pay) to develop a marketing plan. The marketing plan must include an identification of the company's plan as to how it will satisfy the four P's of marketing – product, placement, price, and promotion.

- **Product:** by examining the market potential and target customers, the environmental graphics provider can decide which products it will create.
- **Place:** also known as distribution, place is about the sales model. The environmental graphics provider may decide to sell direct, through partners, or on-line or some other combination of these.
- **Price:** the environmental graphics provider should approach pricing on a value basis as opposed to the traditional "cost-plus" basis that many print service providers base pricing on.
- **Promotion:** the key to successfully promoting an environmental graphics business is getting involved in the conversations that architects and interior designers have. Print service providers need to raise the awareness of their capabilities to these groups and the benefits of using environmental graphics. Use interior design and architectural associations, attend conferences, and participate in physical and social networking activities to drive awareness.

InfoTrends' Opinion

One of the constants in the wide format digital graphics printing business is change. The graphics market is constantly getting more competitive; even as new technologies and applications are developing that create opportunities for those that are actively seeking growth and profitability. The environmental graphics segment is an emerging segment of the digital graphics market. Print service providers that effectively sell these environmental graphics are likely to recognize outstanding profits based on the unique capabilities of wide format digital printing systems such as the Fujifilm Acuity LED 1600. The Fujifilm Acuity LED 1600 has a unique feature set that make it uniquely positioned to allow printing establishments to compete effectively in the conventional signage and graphics market but to grow their top line through participation in the emerging in the new environmental graphics segments as well.