



# THE KEY INGREDIENTS OF FLATBED PRINTING

INTRODUCTION TO  
THE ARIZONA  
TECHNOLOGY  
BACKGROUND

**Canon**

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Chapter 2 - 5 are part of the Full 'The Key Ingredients of Flatbed Printing' document. Contact your local Canon specialist to receive the full version of the document.

## Executive Summary

### A growing market with exciting new applications

In the expanding market of Large Format Graphics (LFG), Print Service Providers (PSPs) are becoming increasingly creative and daring, producing exciting new applications on a greater variety of substrates. This dynamic environment offers exciting opportunities for PSPs who not only understand their business, but also know what's necessary to produce the range of applications their customers are looking for, with the speed and cost efficiency required.

### What do you need to know to make the most of the opportunities?

Investing in large capital goods such as a flatbed printer is not something you do lightly. This is why, when putting together this Technology Backgrounder on the Key Ingredients of Flatbed Printing, the editors focussed on the aspects that can really make a difference when it comes to quality, versatility, workflow efficiency and productivity.

We cover the different types of curing technology, the ink choices available and the impact these have on the durability and general suitability of the final product for a particular environment. This technology backgrounder outlines the main trends in this growing market and explains what you need from a printer in order to take advantage of the commercial opportunities that are out there. We discuss the challenges these trends present, and explain how these can be addressed by the different types of flatbed printers available on the market.

Canon specialists from across the organisation worldwide share their extensive knowledge and expertise, to make the technology behind flatbed printing accessible and to help you decide which device is the right one for your business.

We support the story with images, to show you what is possible and to inspire you to consider the incredible applications you too could create.

## Total Cost of Ownership

How can you achieve the required productivity and offer customers the on-demand flexibility necessary at the right price? To address this question, we look at all the aspects you need to consider when assessing the Total Cost of Ownership of your flatbed printer. Detailed evaluation of consumables used and the technical reliability of the different types of printers provide important insight into calculating your Total Cost of Ownership. We also outline how smart software solutions and robotics can help you increase workflow efficiency and save costs.

## Legal and environmental considerations

It is clear that taking care for the environment both inside and outside of your operation is no longer a nice-to-have, but simply a necessity. While many aspects of sustainability are a question of basic good practice, others are governed by legislation, which may differ between countries or regions. We outline the main regulations and legislation you need to be aware of, and their implications for your choices.

## Further information

Even in a publication of this scope, there is so much more we could say. This is why, throughout the report, we include links, further reading suggestions and other valuable sources of information. And of course, our experts are available to answer any specific questions you might have.

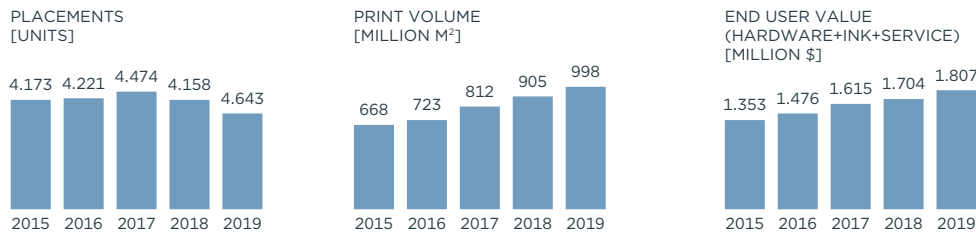
You can contact us via the Canon websites.



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## Market trends in Large Format Graphics

The increasing output being produced digitally by professional Print Service Providers (PSPs) in Large Format Graphics (LFG) currently caters mainly for the advertising and retail industries. However, PSPs are now exploring new opportunities to deliver higher-value, customised products, for example in the growing interior décor sector. Innovative applications are boosting demand, with volumes continuing to increase year on year, as UV flatbed printers, in particular, take the sector to the next level.



**FIGURE 1: Global Flatbed/Hybrid Market Trends**  
Market and environment analysis for Large Format Graphics<sup>[2]</sup>

At the same time, customers are looking for faster delivery times and shorter print runs. As a result, workflow efficiency and productivity are key drivers for PSPs when deciding which technology to invest in.

LFG is a longstanding, mature segment of the digital output market, selling into nearly every other industry in some form. Traditional segments served include photography, technical printing and especially sign and display. Manufacturers of digital LFG printing technology are helping PSPs open up new markets, with devices that offer faster turnaround times and unprecedented levels of application versatility.

Adapted from Keypoint Intelligence<sup>[1]</sup>.

[1] Analysis Outstanding Innovation, Innovation Award in Wide Format Category, October 2020

[2] Source: Keypoint intelligence

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## Market trends in Large Format Graphics

The growth in digital print is being driven by its ability to create stunning images that not only attract the attention but also stimulate human emotion. New applications are being developed all the time, motivating PSPs to explore the many commercial opportunities that digital technology is opening up.

### 1.1 A growing market with new value-adding applications

LFG is an increasingly fragmented market, with a growing demand for customised one-off prints. These include bespoke wallpaper, as well as very short runs, for example a few banners or panels for an exhibition or corporate event. Digital technology gives PSPs the flexibility to create such applications quickly and affordably, and thus serve numerous segments and different individual customers.

#### LFG: Let your imagination soar

##### Interior applications

- Posters
- Banners
- Backlit display - glass, acrylic
- Permanent, semi-permanent and permanent point-of-sale (PoS) displays
- Corrugated floor displays
- Wall divider panels
- Exhibition and trade show materials and panels.

##### Exterior applications

- Billboards
- Banners, backdrops
- Durable printed panels
- Vehicle and fleet graphics decals/transfers

Digital printers are able to produce increasingly stunning images that not only attract the attention but also stimulate human emotion. New applications on a wider range of substrates are being developed all the time, motivating PSPs to explore the many commercial opportunities that digital technology is opening up.



*Illuminated print and other astounding digitally printed Large Format creations*



## A profitable solution

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LFG is a technology-driven industry that produces high-value applications which can offer upwards of 50% gross profit on top applications<sup>[3]</sup>.



## 1.1.1 Outdoor applications

Traditionally, the majority of LFG applications were produced for temporary indoor printed signage for in-store promotions and events, such as Point-of-Sale (PoS) graphics and exhibition wall panels. Outdoor applications include billboards, fence panels and canvas products such as banners, as well as applications for permanent usage as metal road signs and company names on vehicles or buildings. Curing technologies and inks are further developing, to achieve the levels of durability necessary for such usage.

Introducing flatbed digital printing techniques to create new décor and industrial products is enabling PSPs to produce added-value applications faster and more cost effectively. At the same time, the range of substrate possibilities and opportunities for customisation are opening up new business. And this trend is expected to accelerate further.

### New substrates

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LFG applications can now be produced on an increasing range of flexible and rigid substrates. These include coated papers and boards, corrugated board, flexible and rigid plastics, textiles, metal, wood, ceramic tiles, wood, glass composites, aluminium sandwich and others. These applications are increasingly being printed with UV-cured inks on flatbed inkjet printers.

### Targeted campaigns

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The ability to produce customised prints easily and cost-effectively is enabling PSPs to offer targeted (right-place, right-time) campaigns, making this valuable marketing tool now affordable for everybody, even small retail outlets.

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## Market trends in Large Format Graphics

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The latest advances in digital flatbed technology are increasing the popularity of many new applications, for example car wrapping and bespoke decoration.

Printing on rigid substrates is gaining momentum. Material use is about a 60%/40% split for flexible/rigid, which is up from a 75%/25% split in previous years<sup>[4]</sup>.

*[3] 2019 Big Picture Magazine/  
Keypoint Intelligence Wide Format  
Application and Utilization Survey*

*[4] Keypoint Intelligence Analysis  
Outstanding Innovation, Innovation  
Award in Wide Format category,  
Oct 2020*

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### Interior décor market

The interior décor market places additional requirements on the printed output, such as a strict size and colour consistency when panelling large surfaces. This applies not only within a single job, but also when you need to provide reliable and repeatable colour reproduction over time.

### COVID-19

While the need for applications for exhibition stand builders and events hosts effectively disappeared during the corona pandemic, there was significant new demand for floor signage and interior décor. PSPs able to respond quickly with the right applications within fast turnaround times were ideally placed to meet this unexpected need in the market.

### 1.1.2 Designer creativity in interior décor

As architects and designers become increasingly aware of the possibilities new generation digital printers offer, we are seeing more and more indoor applications in the form of room dividers, printed glass panels, and textured ceramic tiling with astounding results.

### 1.1.3 Analogue to digital transition for low and high volumes

The entire value chain is learning how to capitalise on the flexibility, versatility and added value of digital printing. Growth is being fuelled by the ability to print on an increasingly wide range of substrates, which is opening up new markets, in particular in the lucrative interior décor and architectural materials sector. In addition, the ability to print in low quantities, means that PSPs can produce small runs cost-effectively. At the same time, the reliability and productivity of digital devices is also increasing access for digital solutions to the higher-volume segment.



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## Market trends in Large Format Graphics

Smithers Pira Consulting predicts a growth in the market share of inkjet LFG printing in the digital signage sector from 2019 to 2024 of more than 45.5%. This represents 5.22 billion square metres by the end of the forecast period<sup>[5]</sup>.

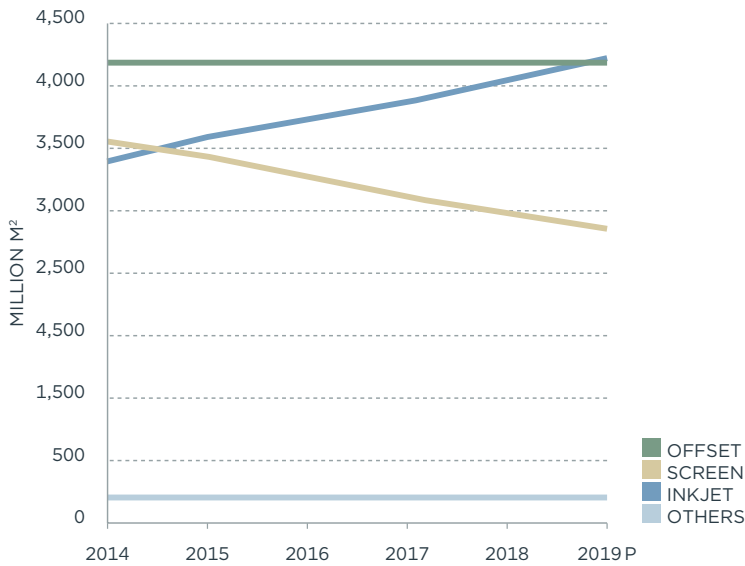


FIGURE 3: Global PoS/signage printing output by process type, 2014-19 (million m<sup>2</sup>)  
P = predicted<sup>[6]</sup>

[5] *The Future of Printed Signage in an Electronic World to 2024*, Smithers Pira Consulting, 2019

[6] *The Future of Printed Signage in an Electronic World to 2024*, Smithers Pira

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## Market trends in Large Format Graphics

### 1.1.4 UV technology continues to increase market share

For the reasons outlined above, digital print volumes in LFG continue to grow, and UV technology is increasing its market share over other less efficient, less productive and less cost-effective technologies<sup>[7]</sup>.

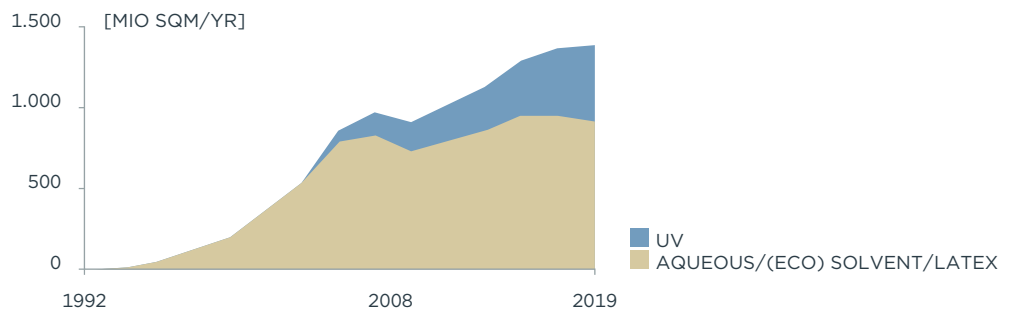


FIGURE 4: Large Format Graphics global print volume

[7] IT Strategies

## 1.2 Factors driving investment in digital LFG devices

In 2019, Canon conducted in-depth discussions with a variety of PSPs – large and small – in Europe, the USA and the Asia-Pacific regions. During this qualitative research, participants outlined the key drivers in the market and the elements they considered when choosing the right Large Format printer for their business. The findings are reinforced by other research carried out by Keypoint Intelligence<sup>[8]</sup>.

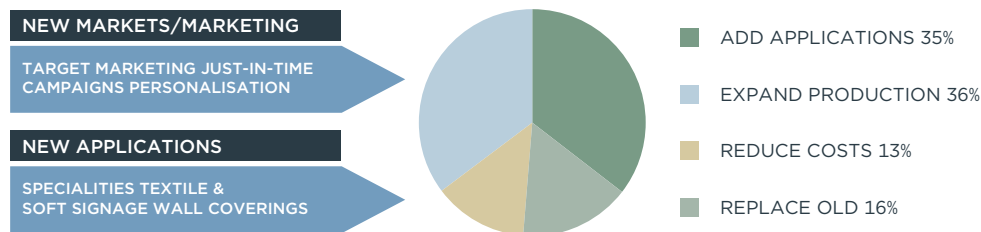


FIGURE 5: Factors driving investment in digital large format devices

### 1.2.1 Increased productivity, flexibility and lower cost of ownership

New job preparation software and the ability for customers now to submit designs directly to the PSP are leading to faster reaction times and greater flexibility to handle shorter runs. In addition, new levels of automation, including robotisation of media handling, is reducing production times, increasing productivity and decreasing costs.

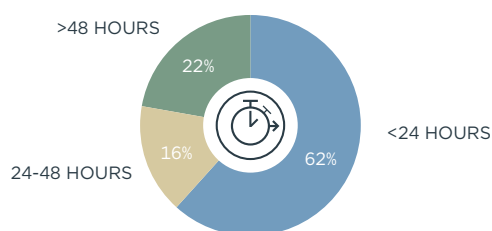


FIGURE 6: There is pressure for same-day delivery

More than 60% of LFG print jobs need to be delivered within 24 hours<sup>[9]</sup>. As a result, workflow optimisation is an increasingly critical component of the print operation. This is why PSPs are looking more and more to integrate state-of-the-art printing technology with web-to-print, e-commerce and automated workflows, with optimised shopping using tablets and smartphones<sup>[10]</sup>.

The COVID-19 pandemic has further increased the need for online communications between the customer and the PSP. Recent insights from Keypoint Intelligence highlight how 2020 has brought unprecedented change in all industries<sup>[11]</sup>. In particular, purchasing patterns have migrated to online platforms. As a result, PSPs are shifting to web-to-print services and tapping into new e-commerce opportunities. This type of service is further raising expectations as far as delivery times is concerned, so time savings – which were already important – are now essential in this highly competitive market.

PSPs are shifting to web-to-print services and tapping into new e-commerce opportunities.

[8] 2019 Big Picture Magazine/ Keypoint Intelligence Wide Format Application and Utilisation Survey

[9] Looking for BIG Opportunity in Graphic Communications and Specialty Printing; InfoTrends 2017

[10] 2019 Big Picture Magazine/ Keypoint Intelligence Wide Format Application and Utilisation Survey

[11] Analysis Outstanding Innovation, Innovation Award in Wide Format Category, Keypoint Intelligence 2020

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### 1.2.2 Quality

End-users quite rightly expect stunning prints. As new markets open up, quality demands are extending to include suitability for the environment in which applications are to be used. Developments in printheads and inks have resulted in inkjet devices now being able to achieve the required quality, in terms of visual impact and durability, at high speeds.

Quality is determined by various aspects of the technology deployed: from the printer architecture and software, to the inks and curing process. It is important to maintain the right balance between quality and other critical factors such as productivity, flexibility and cost.

### 1.2.3 Environmental impact and sustainability

Now, more than ever before, businesses are striving to reduce their impact on the environment, and the printing industry is no exception. Sustainability has become a 'must-have' aspect of any operation.

The importance of a Circular Economy is increasingly recognised, and the mandate on equipment manufacturers is to not only improve the sustainability of their manufacturing operation, but also to look for ways to maximise the continuous use of resources, by implementing remanufacturing processes. At the same time, workflows and technology need to minimise waste and respect the health and safety of operators and everyone involved in the print process.

For the printing industry, this is about creating a sustainable printing process that takes every aspect into consideration. These include the inks and materials used, emissions during the printing process and from the final product, as well as the energy consumed by the device. In addition, reducing operational waste due to misprints impacts not only the environment but also productivity and, ultimately, the bottom line.

Energy-efficient technologies, together with inks and drying processes that are safer for operators are just some of the ways in which manufacturers are addressing the challenges of reducing the environmental impact of LFG printing.

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## Market trends in Large Format Graphics

### 1.3 Conclusion

The opportunities for ambitious PSPs to offer exciting applications in the growing, profitable market of digital LFG are clear. Volumes and application versatility are increasing, as are pressures on turnaround times. Workflow efficiency and reliable productivity are essential. At the same time, consideration of cost of ownership, the environment and health and safety are acknowledged as other key factors in the decision-making process. To ensure you choose the right printer for your business strategy, you need to understand many different factors, and how they affect the applications and volumes you can produce. The following chapter looks into each of these factors in detail.

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You have just read the first part of 'The Key Ingredients of Flatbed Printing' The rest of the information is part of the full document. Contact your local Canon specialist to receive the full version.



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