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FESPA
PRINT CENSUS

Research

2018 FESPA Print Census Report

JULY 2018

FESPA's Global Reach

Connecting over
16,000
members

Reaching over
70,000
participants
each year

Supporting over
50 **Association activities**
each year

Investing over
1 million
Euros a year

Welcome...

The FESPA Print Census is a unique worldwide research project which collects and shares market intelligence every few years. It's a central pillar of our industry investment programme, designed to help our global community keep abreast of industry trends and to be a barometer of the industry's wellbeing.

The Census reflects reality 'on the ground', offering an up-to-date picture of real market conditions as experienced by speciality printers. In the last year, we heard from 1,405 businesses in 102 countries, with respondents including sign and display businesses, screen printers, commercial printers, textile and garment printing specialists and packaging printers.

The data is collected with the support of FESPA's Association network and analysed in partnership with InfoTrends, a division of Keypoint Intelligence. Looking at the findings, we can assess how these businesses view the future, which opportunities they are embracing, what challenges they face and how they are planning for growth and development.

The picture in 2018 is a very positive one. We see a diverse community of thriving businesses enjoying sustained growth, responding to evolving customer expectations and taking advantage of technological developments to expand and innovate their product and service offerings.

As in 2015, we have distilled six key trends from the data, which the research shows to be shaping the industry over the long-term. Read on to discover these trends and some of the stand-out statistics from the Census. They offer a fascinating insight into the fast-changing world of speciality print in 2018 and beyond.

Sean Holt
FESPA Executive Director

2018 Trends at a Glance

OPTIMISM

83% ARE OPTIMISTIC FOR THEIR BUSINESS

DIGITAL PRINT IS EXPECTED TO CONTRIBUTE **53%** OF TOTAL REVENUE WITHIN 2 YEARS

48% OF BUSINESSES HAVE INVESTED IN TRAINING STAFF IN NEW AREAS SUCH AS COLOUR MANAGEMENT

CUSTOMER DEMANDS

59% THINK JUST IN TIME DELIVERY WILL INCREASE

72% SAY CUSTOMER DEMAND FOR FAST TURNAROUND IS INCREASING

61% SAY THE TREND TOWARDS SHORTER RUNS IS INCREASING

PRODUCT MIX

TOP 3 APPLICATIONS

BANNERS, SIGNS & BILLBOARDS

74% SAY WALLPAPER & INTERIOR DECOR IS A GROWTH AREA FOR THEIR BUSINESS

59% SEE GROWING DEMAND FOR POP DISPLAYS

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TEXTILE

56% OF FABRIC PRINT BUSINESSES HAVE INVESTED IN DIGITAL WIDE FORMAT TECHNOLOGY
A FURTHER 19% PLAN TO DO SO IN THE NEXT 2 YEARS

MORE THAN **80%** OF TEXTILE PRINTERS ARE ACTIVE IN SPORTS APPAREL & GARMENT FABRIC

FASTER PRODUCTION SPEEDS DRIVE INVESTMENT FOR **69%** OF TEXTILE PRINT BUSINESSES

DIGITAL TECHNOLOGY INVESTMENT

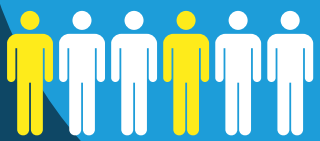
54% OF TECHNOLOGY BUYERS SEE INCREASED PRODUCTION CAPACITY AS THE REASON FOR INVESTMENT

EXPECTED INVESTMENT IN DIGITAL OUTPUT TECHNOLOGY IS **43%** HIGHER THAN IN 2015

1 in 3 BUSINESSES PLAN TO INVEST IN SOFTWARE TO IMPROVE QUALITY CONTROL

ENVIRONMENT

76% SAY DEMAND FOR ENVIRONMENTALLY SUSTAINABLE PRODUCTS IS INFLUENCING BUSINESS STRATEGY



1 IN 3 PSPs HAVE INVESTED IN ENERGY EFFICIENT OR ENVIRONMENTALLY CERTIFIED EQUIPMENT TO SATISFY CLIENT DEMAND

72% OF PSPs HAVE INVESTED IN SUSTAINABILITY WITHOUT INCREASING PRICES

Table of Contents

Executive Summary

Executive Summary

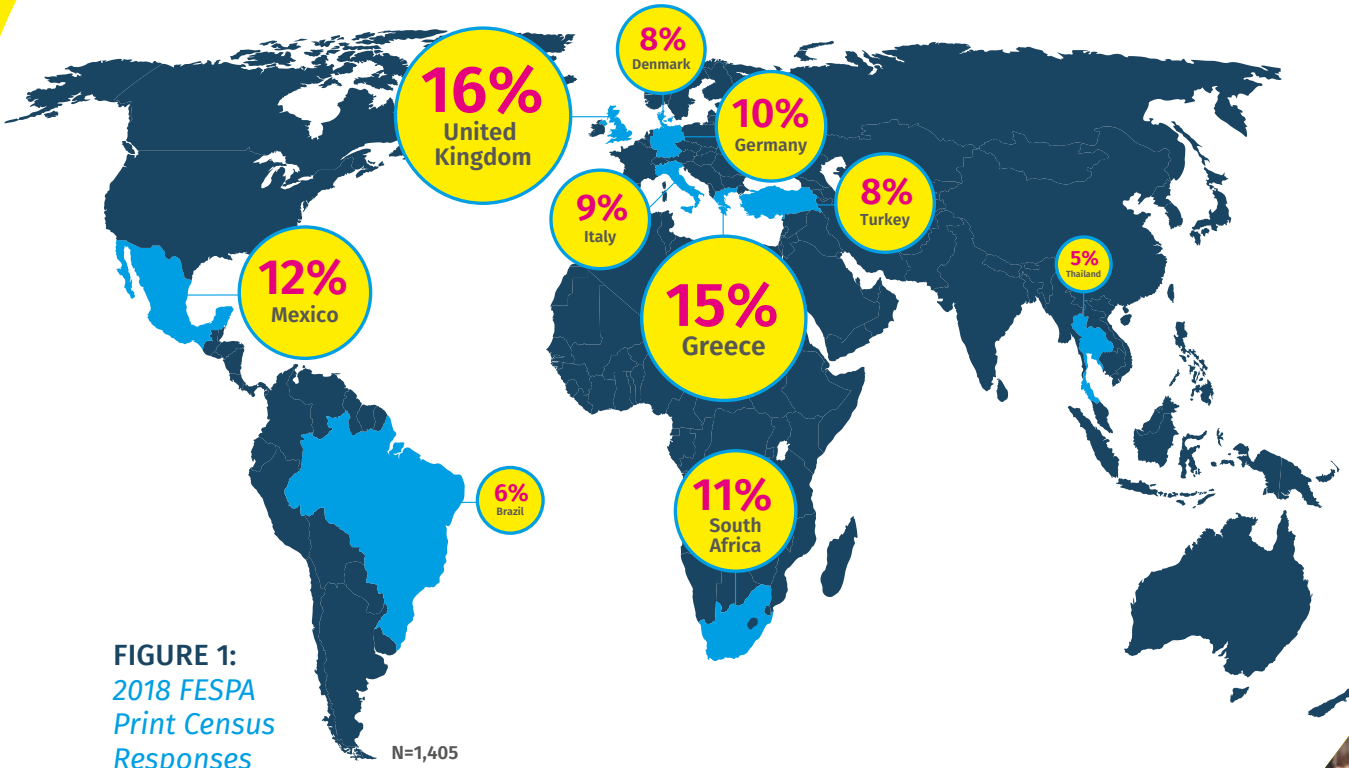


FIGURE 1:
2018 FESPA Print Census Responses (Top 10 Countries)

The FESPA Print Census is an industry barometer that helps vendors and print service providers understand market dynamics in key industry segments.

With over 1,400 respondents from 102 countries, this survey continues a research partnership between FESPA and Keypoint Intelligence - InfoTrends (InfoTrends) that began in 2007. Data collection for the current Print Census began in January 2017 and ended in December 2017. The respondents from the top 10 countries represent 61% of the total responses in our survey and are dominated by European countries. FESPA members represent 24% of total responses.

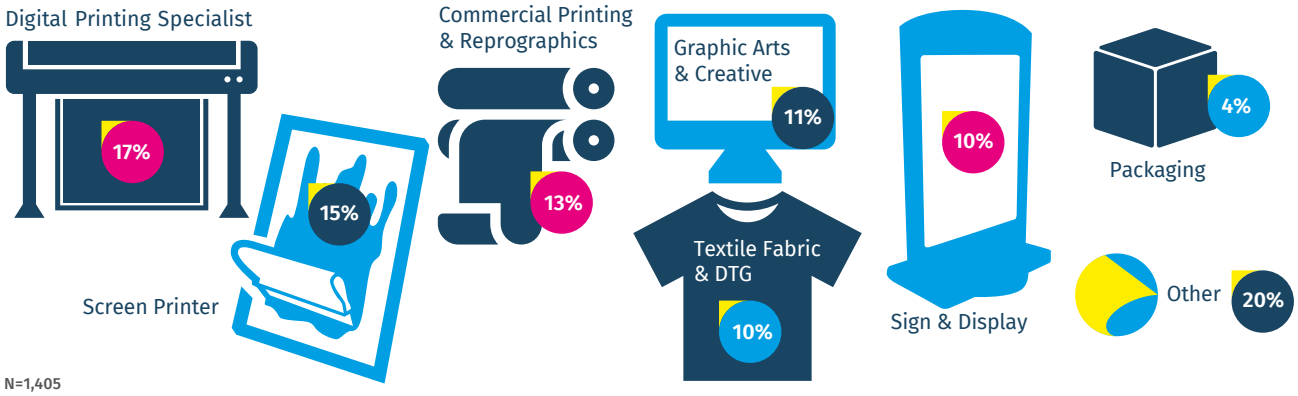
The FESPA community is diverse and growing and this study was designed to explore service providers in these segments. Survey respondents represented a broad range of graphic arts and industrial segments whose primary business revolves around printing.

We have further refined the industry segments into primary business areas such as textile and commercial printers. This provides better insight into the various groups' current and future strategies.

Continuing the tradition over the past 11 years, businesses remain quite optimistic about their industry as a whole. This optimism is linked to revenue growth as well as growth in relation to overall businesses.

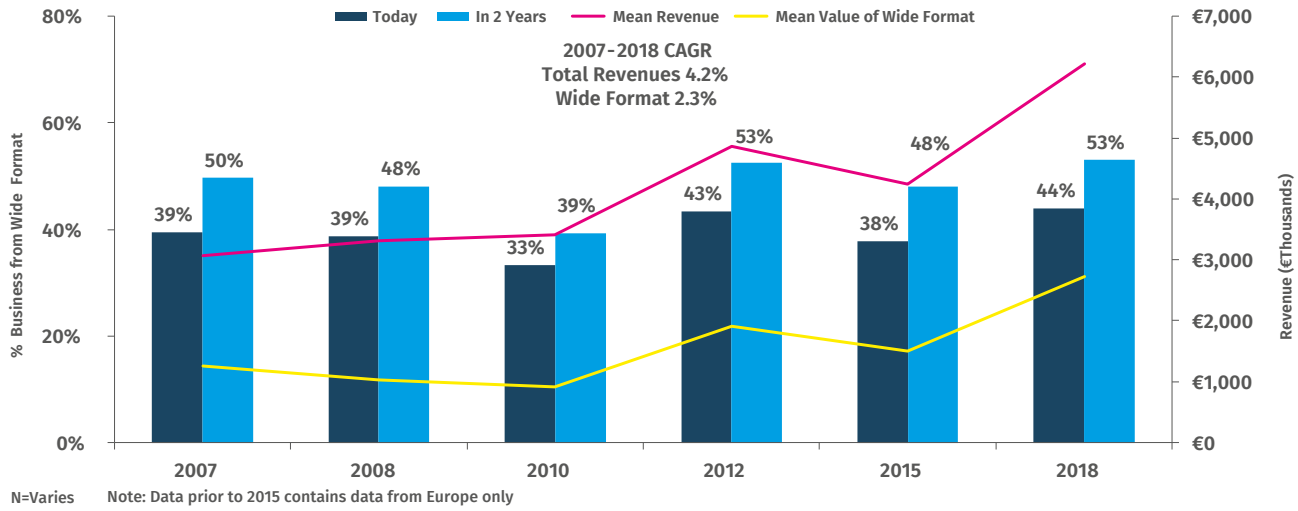
The FESPA Print Census is an industry barometer that helps vendors and print service providers understand market dynamics in key industry segments. FESPA members around the world are exploring new applications that will help them grow their businesses and continue to innovate using a range of analogue and digital printing technologies.

FIGURE 2:
2018 FESPA Print Census Respondents by Industry Segment



N=1,405

FIGURE 3:
Business from Wide Format Continues to Grow



N=Varies

Note: Data prior to 2015 contains data from Europe only

KEY FINDINGS

The FESPA Print Census is ever-expanding and includes a wide variety of industry segments. Although some of the key trends that we observed are common across all industry segments, others are industry-specific. The bulleted list below provides a distillation of the major trends that we observed during this year's survey.

- **Continued transition to mass customisation**
  Over 50% of our respondents report that the demand for faster turnaround, short run printing, just-in-time manufacturing and personalisation continues to grow. This is driven by customer demand for batch manufacturing that meets their requirements for timeliness and inventory control.

- **Growth in digital printing investments**
  This is primarily due to a focus on increased capacity and the desire to grow by entering new market segments.
- **Investments in environmentally friendly products and processes**
  Our respondents reported making a range of investments in education, products and facilities to support the environment. Although these investments are not inexpensive, 70% of respondents were able to maintain their existing pricing and saw no negative impact on sales as a result.
- **Technological investments are focused on quality assurance, colour management and customer reach**
  Whilst completing just-in-time projects with a short delivery window, Print Service Providers (PSPs) must also ensure that output meets client specifications. Investments in tracking and colour management solutions are key to achieving these goals.
- **Machine productivity and diverse supplies (ink & media) are top of mind for PSPs and many of our respondents**
  As might be expected, most respondents report that improved productivity of their devices is critical. They are seeking technologies that can print on a broad range of media types. At the same time, however, it should be noted that media types vary dramatically by industry segment.

KEY FINDINGS BY INDUSTRY SEGMENT

Sign & Display

- Wide format printing in the sign & display sector is projected to grow at a rate of 9% over the next 2 years.
- We are seeing a continued shift in durable ink use from solvent-based technology to UV curable, latex and sublimation.
- Common sign & display applications such as banners, signs and billboards remain a strong base for the business today. Applications that will likely represent areas of growth in the future include interior decor, point-of-purchase displays and vehicle graphics.

Screen Printing

- Most of the screen printers that participated in our survey were textile printers focusing on fabric (32%) and direct-to-garment (17%) printing.
- Screen printers who focus on textile printing expect their digital printing business to increase by 12% in the next two years. The greatest percentage of screen printers who manufacture fabrics do so using analogue technologies (40%). Their digital printing revenues are primarily attributed to printing on synthetic fabrics.
- Among screen printers who produce fabrics, the top three applications are sports apparel (83%), fabric for garments (80%) and fast fashion (66%).

Graphic Arts & Creative

- In terms of technology ownership, solvent/eco-solvent and aqueous inkjet devices are mainstays for graphic arts & creative respondents. This concentration will likely shift toward UV and textile printers in the next 2 years.
- Top applications in this area include decals (62%), banners (58%) and photography (52%). This correlates with the future transition toward durable ink technologies.
- On average, graphic arts & creative respondents who plan to purchase a new wide format printing device expect to spend €114,000.

Commercial Print & Reprographics

- Digital printing dominates revenues. The 311 respondents in commercial print & reprographics report that digital print is a primary source of revenues with 36% from digital print/copy, 21% from wide format printing and 25% from traditional printing technologies (for example offset, web offset, gravure or flexo).
- When investing in new technologies, commercial print & reprographics respondents are modest and favor UV Inkjet and aqueous printers. The average expected equipment investment is €224,000.
- Top software investments include cloud-based content management (33%), advanced colour, management and quality control (32%), as well as web-to-print (31%).

Packaging

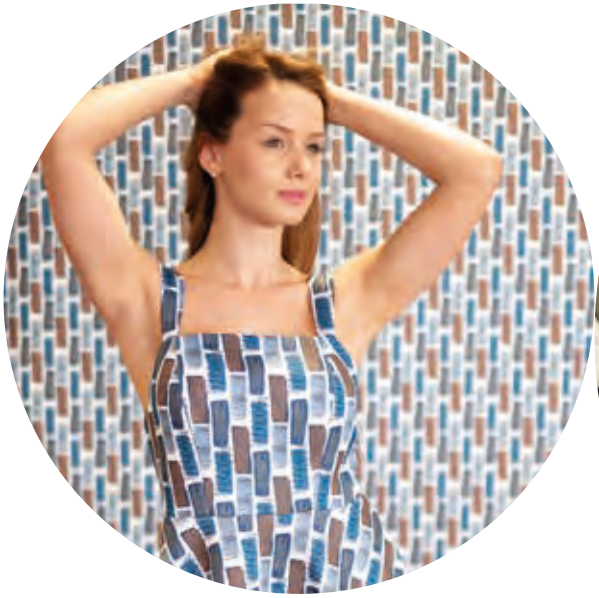
- The top segments served by packaging printers include private label food (43%), health & beauty (41%), gourmet food (36%) and non-alcoholic beverages (33%).
- Digital printing represents about 30% to 40% in packaging printing industry segments. The average print volume for digital printing is about 2,277m².
- 60% of packaging printers report owning UV flatbed or hybrid printers.

Textiles/Fabrics

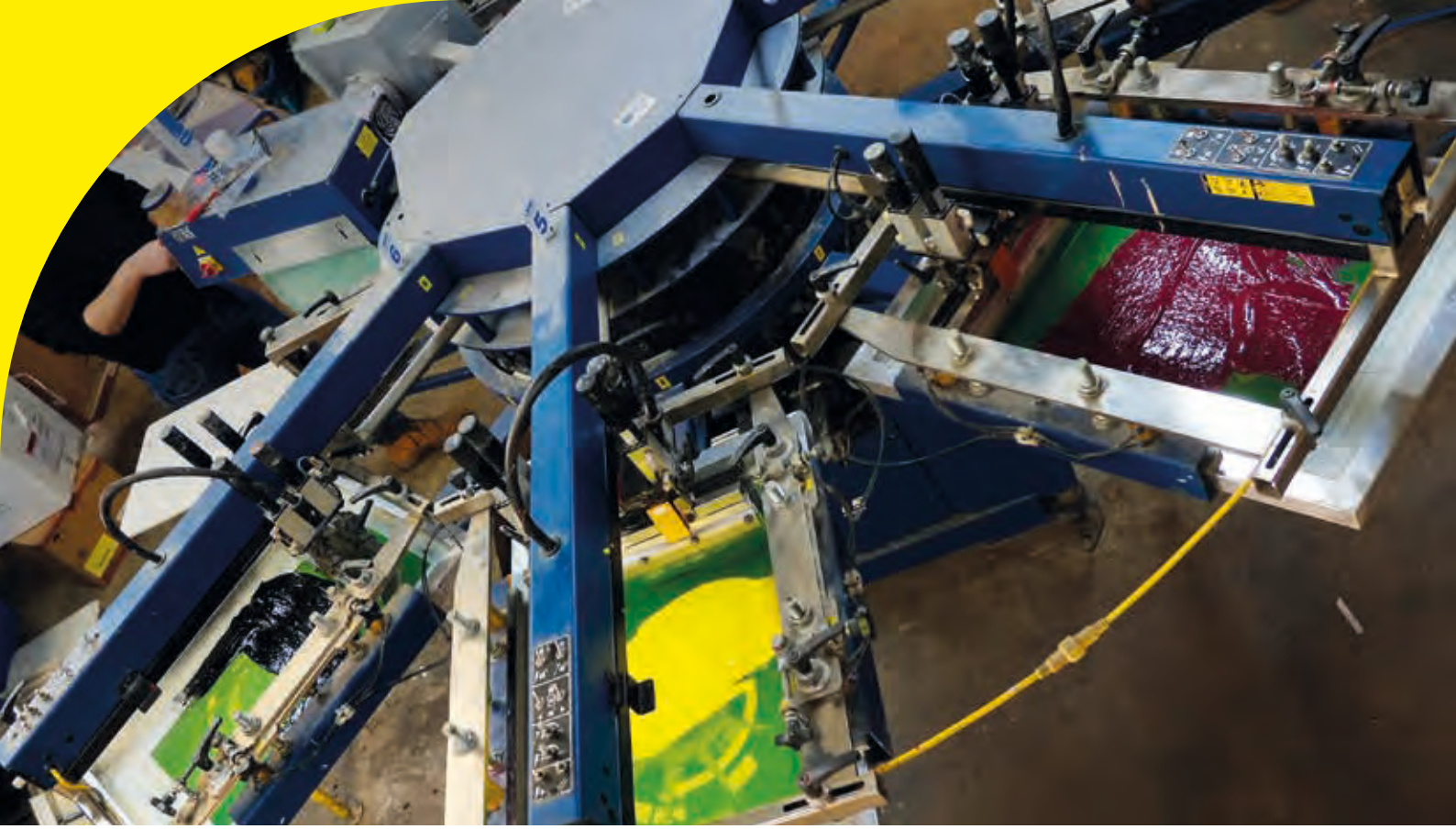
- Current and future applications for textile printers are focused on garments where the benefits of digital printing (for example time to market, creativity and customisation) are driving continued adoption. Moving forward, technological innovations in pigment printing and vat dyes will likely increase demand in the decor segment.
- Meeting the industry's colour consistency standards and entering new segments are of high importance to textile printers.
- Regarding equipment acquisition plans, sublimation printers (32%) and pigment printers (24%) are top of mind in the next 2 years. The average anticipated acquisition price is €243,000.

Direct-to-Garment (DTG)

- The majority of revenues in the garment decoration segment (70%) are from analogue technologies. At the same time, however, printing business value is migrating toward digital printing with 55% attributed to analogue printing, 28% to digital transfer printing and 17% to direct inkjet printing.
- Investments in the next 2 years will primarily be in commercial entry-level DTG (12%), industrial high-level DTG (12%) and industrial mid-level DTG (12%) devices. It is interesting to note that 12% of these respondents also intend to purchase roll-to-roll sublimation technologies.
- DTG respondents print an average of 7,500 shirts monthly. Many of these are printed using 1 or 2+ spot colour (47%), but the majority (53%) are printed with CMYK on light or dark materials.



Introduction



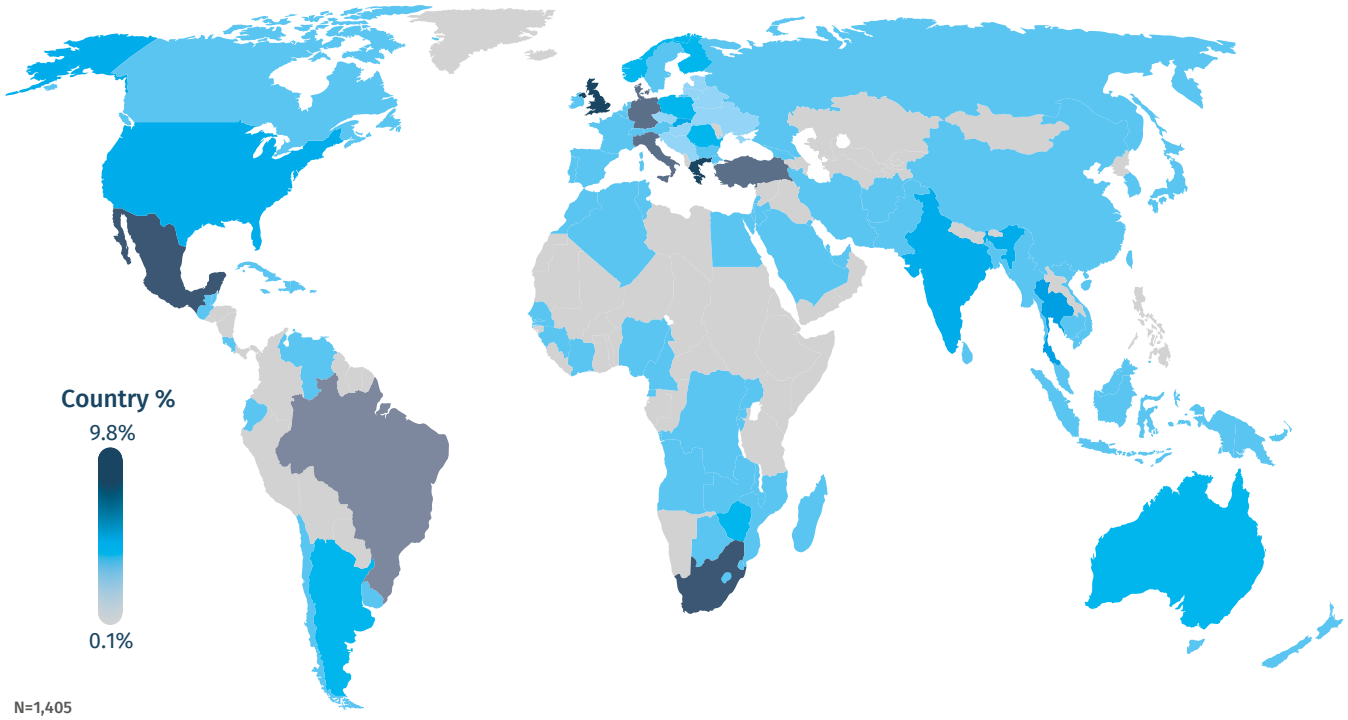
Introduction

The FESPA Print Census is a collaborative industry survey conducted by FESPA and InfoTrends designed to provide an in-depth assessment of the key industry segments where digital printing technology is prevalent. It can also help print providers (PSPs) offer value-added solutions across a broad range of applications. This is the sixth iteration of the study, with the first launched in 2007. InfoTrends has analysed the responses to the FESPA Print Census, executed data cleaning processes, compared this year's results to previous surveys and reported these results in the context of the global industry segments represented by the FESPA community.

With its roots in wide format printing, this research reflects core technologies that have been enabling a wide range of profitable solutions for print service providers as well as equipment suppliers. These are tabulated in the annual forecasts that InfoTrends has been producing for the past two decades.

According to InfoTrends' forecast data, digital wide format equipment revenues for UV, solvent and aqueous ink types will exceed €2 billion on a worldwide basis by 2021. This market is expected to demonstrate a compound annual growth rate (CAGR) of 1% between 2016 and 2021. This generally flat growth rate reflects the mature nature of the sign & display industry segment. Despite the maturity of this market, technological undercurrents are creating opportunities for growth as print service providers shift to higher print volume production systems and migrate to alternative ink sets such as latex, sublimation and UV curable inkjet. This migration is reflected in print volume growth, where media consumption of UV, solvent and aqueous wide

FIGURE 4:
2018 FESPA Print Census – Country Distribution



format printing is expected to demonstrate a CAGR of 5%, exceeding €5 billion by 2021. This growth can be attributed to an overall increase in print volume from 2.7 billion m² in 2016 to 3.2 billion m² in 2021 (4% CAGR). UV curable ink volume, which is expected to achieve a CAGR of over 11% through to 2021, is the primary contributor to this growth.

OBJECTIVES AND METHODOLOGY

The objectives of the 2018 FESPA Print Census were to canvas the FESPA universe of print providers and understand their business conditions, technology use, purchasing intentions and the innovations that will impact their technology adoption strategies today and in the future. The FESPA Print Census is exploring the transition that PSPs are making from conventional technology to environments where digital printing is integrated into the mix of solutions they offer their clients.

Our survey respondents were located all over the world, representing 102 countries across 6 continents. The FESPA Print Census was conducted as an "evergreen" online survey on the FESPA website, as well as provided at a range of FESPA exhibitions and events around the globe. Our target audiences were FESPA members and event attendees, who are typically print service providers of wide format printing equipment. The survey was offered in Chinese, English, French, German, Greek, Italian, Portugese, Slovak, Spanish, Thai and Turkish. More than 1,400 respondents completed the survey on a worldwide basis. The top ten participating countries were the United Kingdom, Greece, Mexico, South Africa, Germany, Italy, Turkey, Denmark, Brazil and Thailand.

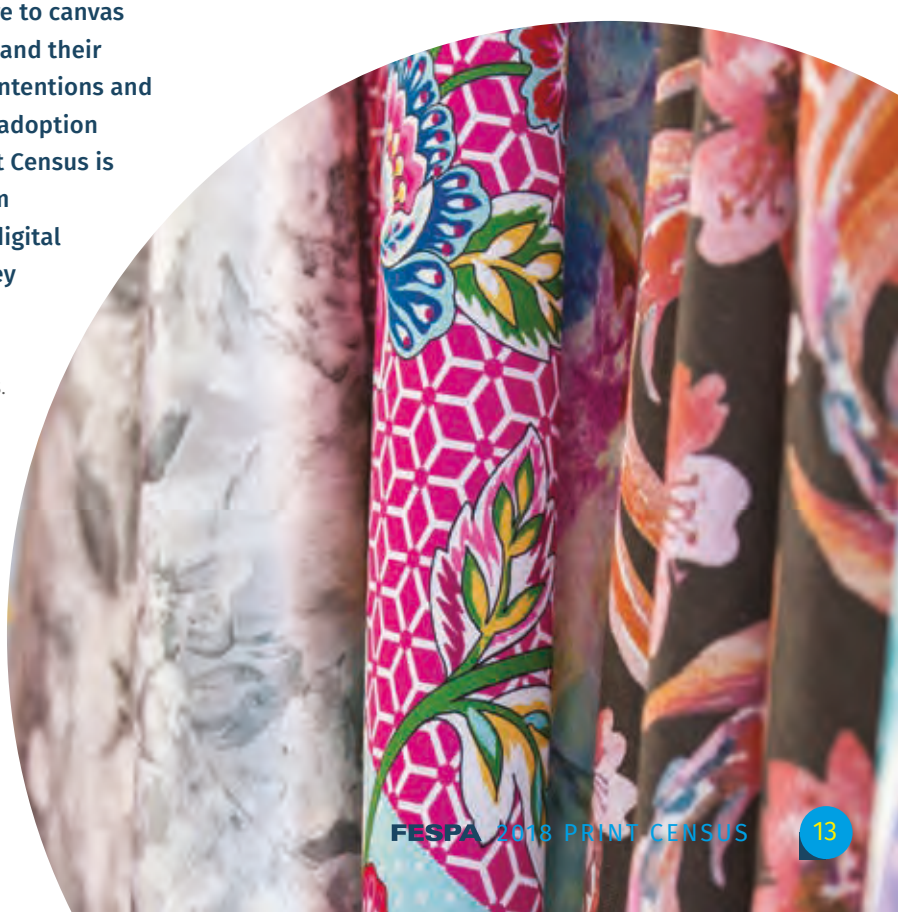
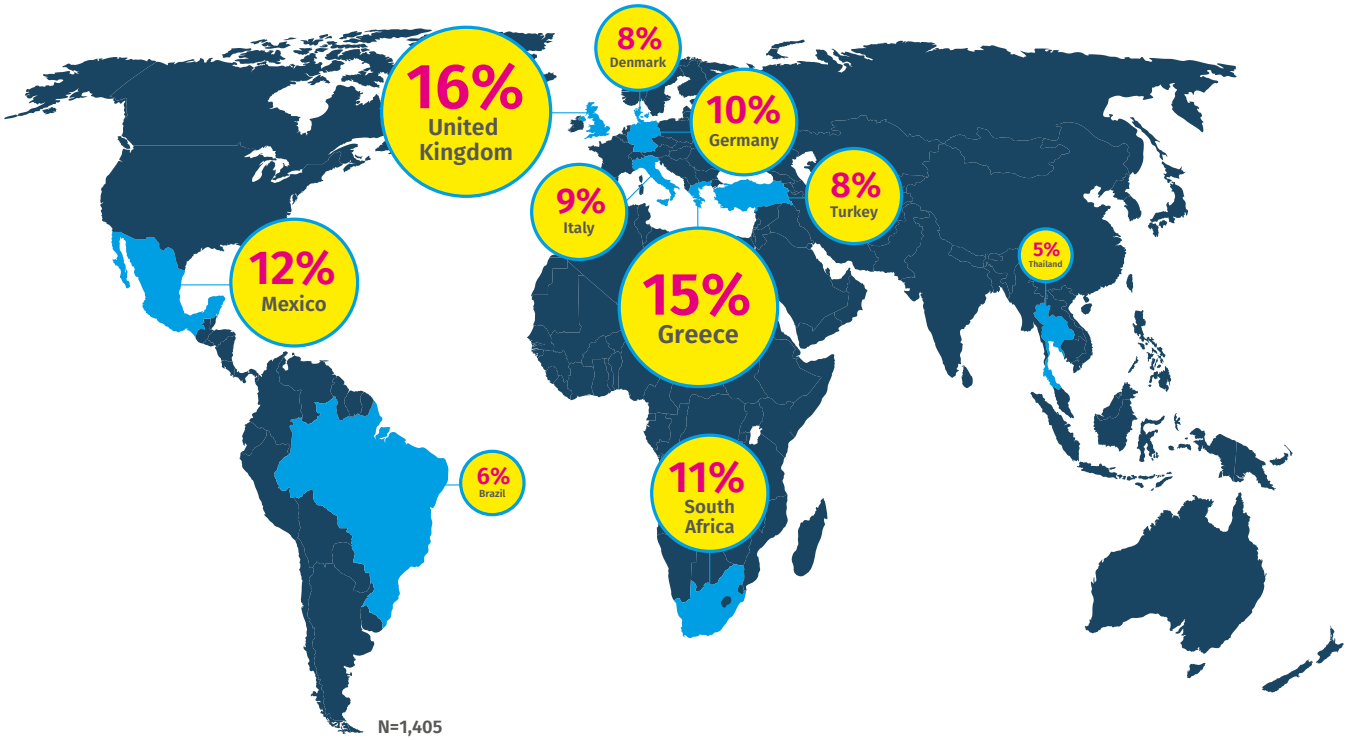


FIGURE 5:
2018 FESPA Print Census Responses (Top 10 Countries)



RESPONDENT PROFILE

It is always important to consider the types of companies that respond to any survey. We believe that the data within the FESPA Print Census is extremely valuable as the respondents cut across a range of industries and mirror the overall structure of the global industry, representing a variety of small, medium-sized and large establishments. The key characteristics of our respondents are outlined below. In the 2018 FESPA Print Census, the research team fine-tuned the methodology for identifying respondents by their primary industry segments. Furthermore, respondents were presented with specific questions to reflect trends in their industry segment in addition to being asked some common questions about overall market trends.

Type of Establishment

True to FESPA's core constituency, screen printers, digital printing specialists and sign shops represented over 42% of respondents in this survey. At the same time, the growth in FESPA membership has brought about a more diverse set of print providers that are connected by a common goal — the desire to embrace new technologies that will enable them to grow their businesses. The expansion in membership has brought a new richness to FESPA events and engagements. Some of these segments include commercial printers, packaging printers, textile &

FIGURE 6:
Which of the following best describes your company's primary business?

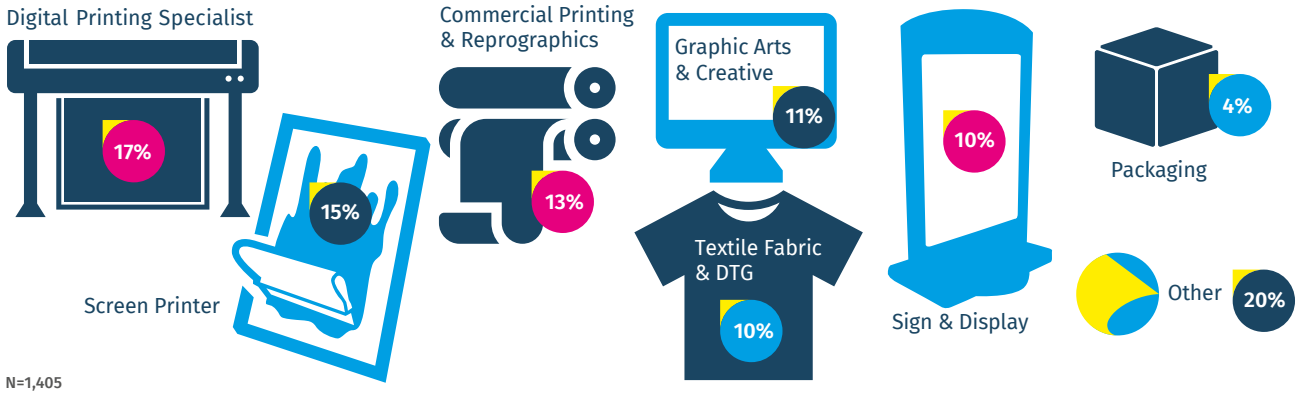
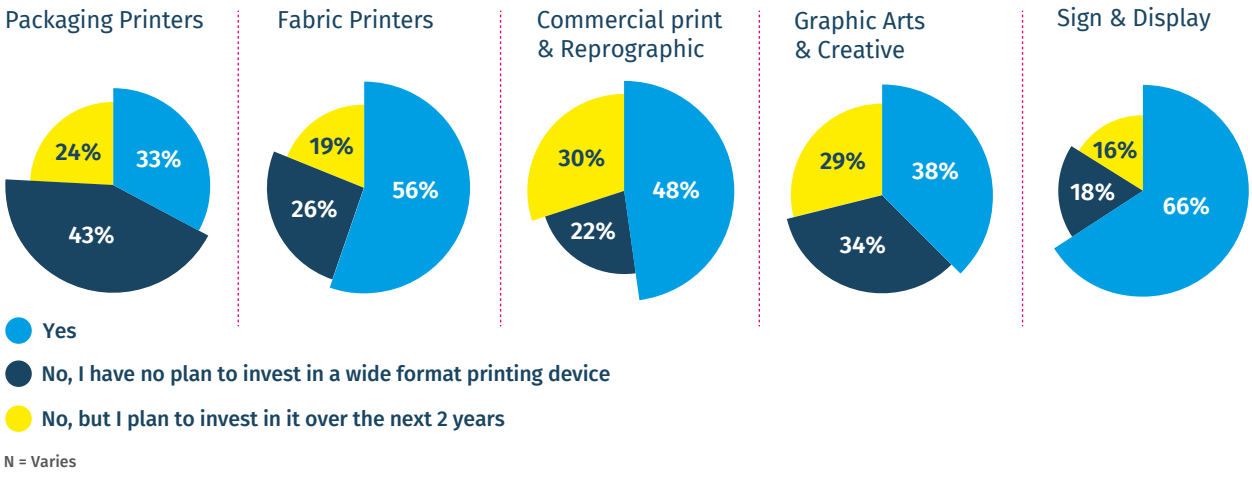


FIGURE 7:
Do you have any wide format printing equipment at your establishment?



N = Varies

direct-to-garment industrial manufacturers and graphic design firms. Many producers in these environments view FESPA as a place to learn about the markets and technologies that they should invest in to support their expansion and identify new revenue streams.

Most of the respondents to the FESPA Print Census (66%) reported using wide format printers in their companies. This represents a 10% increase over the 2015 FESPA Print Census for users in the sign & display industry segment. A closer examination of this information reveals that many of the industry segments responding to our survey have already deployed wide format printing devices in their facilities. As might be expected, 66% of sign & display printers are using wide format, along with 56% of fabric printers and 48% of commercial printers.

Our research includes segment-specific analysis that will provide greater insight into the use of technology and buying preferences. These topics will be covered later in this document.

We believe that the data within the FESPA Print Census is extremely valuable as the respondents cut across a range of industries and mirror the overall structure of the global industry.

FIGURE 8:
Approximately how many people work at your location? (2015 versus 2018)

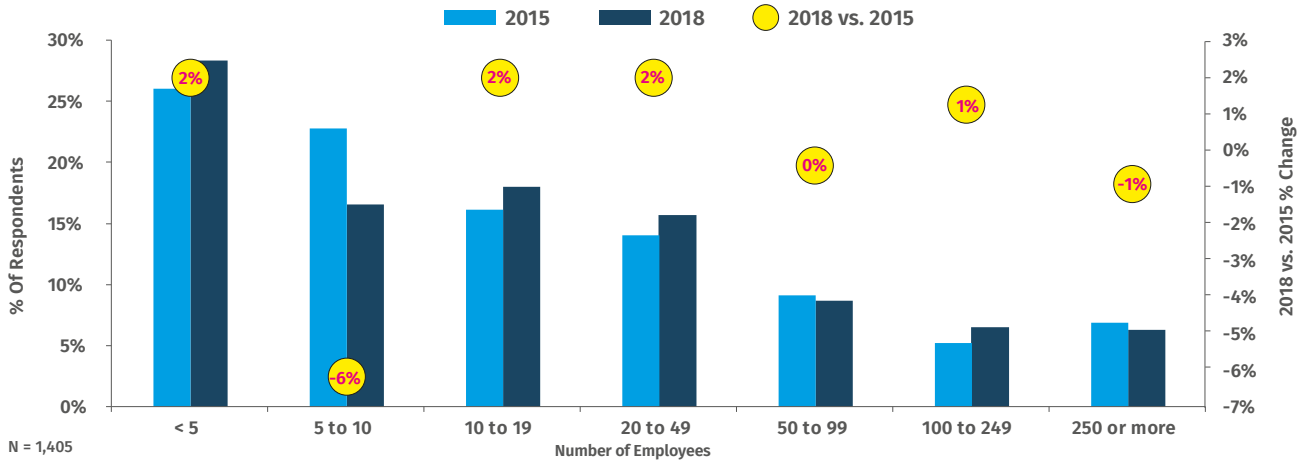
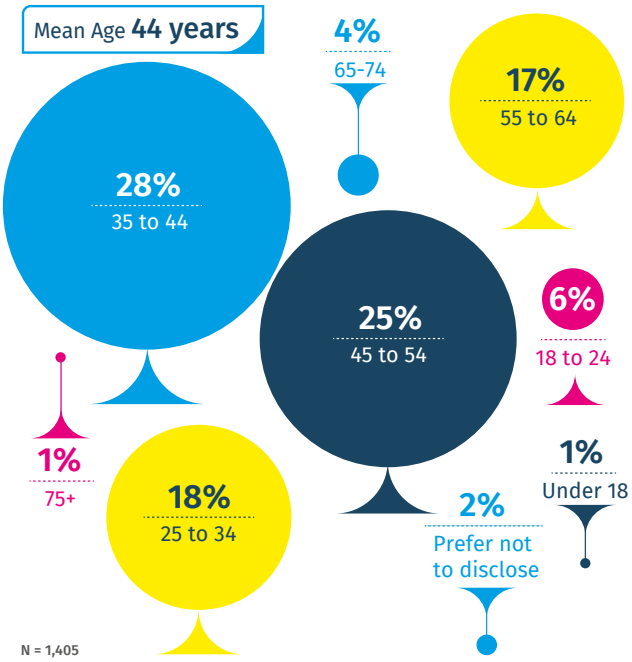
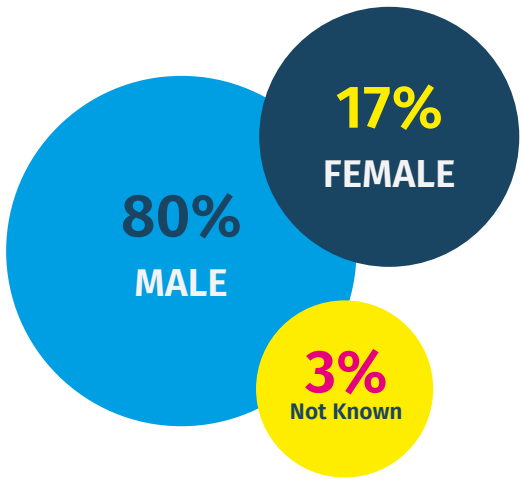


FIGURE 9:
What is your age demographic?





Number of Employees

Survey respondents worked for firms with an average of 45 people, but this mean was drawn upward by the very large companies in the mix. Nearly 63% of respondents worked for companies with fewer than 20 employees. Our survey sample is well-balanced and representative of print providers within the overall global industry. In relation to our 2015 FESPA Print Census, company size remained relatively consistent. The only marked change was the decrease in the number of firms with 5 to 10 employees.

Age and Gender

The 2018 edition of the FESPA Print Census identified respondents by gender and age group. The gender split was 80% male versus 17% female (the remaining 3% preferred not to disclose). The average age was 44 years.

FIGURE 10:
Approximately what are your company's annual revenues for printing and related services?

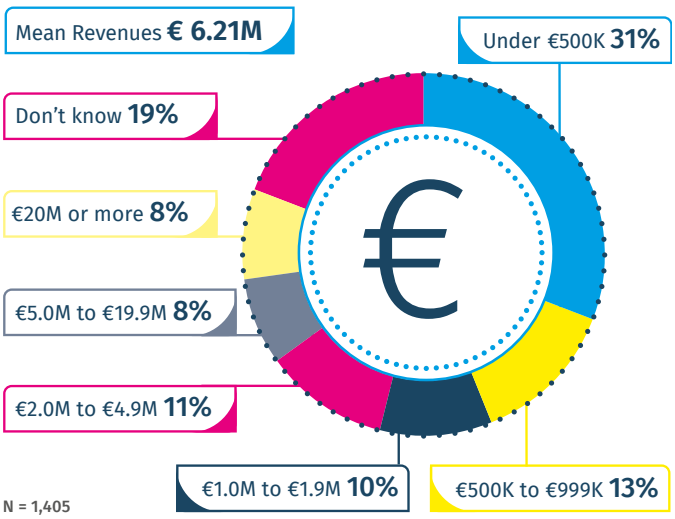
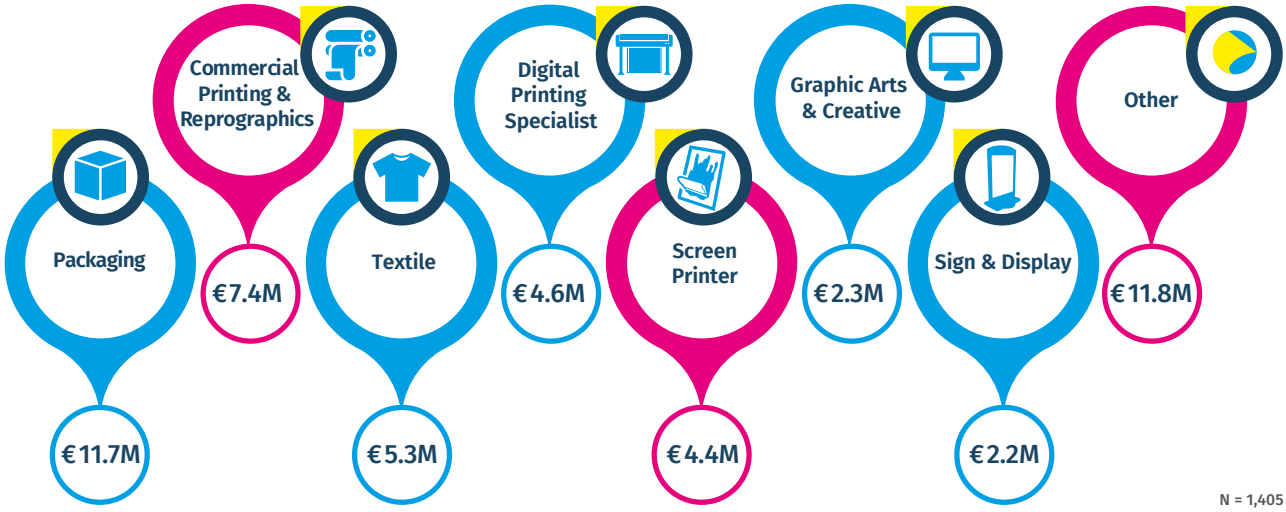
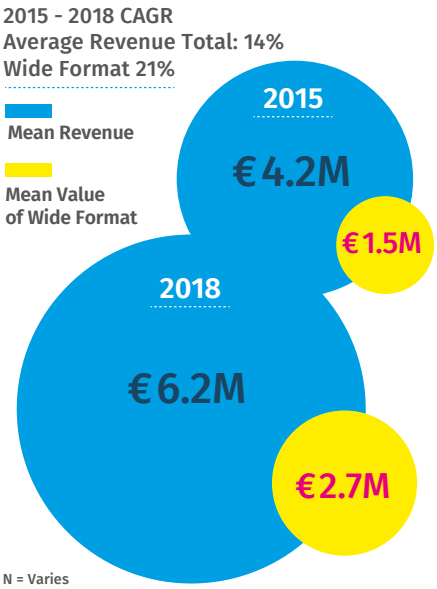


FIGURE 11:
Approximately what are your company's annual revenues from printing and related services? (By Business Type)



N = 1,405

FIGURE 12:
Roughly what percentage of your overall revenues are attributable to digital wide format printing? (EMEA-Centric)



N = Varies

Annual Revenues

Respondents reported an average annual turnover of €6.1 million. This is considerably higher than the 2015 average of €4.2 million and this can primarily be attributed to a change in the respondent mix. Despite the high overall mean, nearly 31% of respondents reported annual revenues of less than €500,000. In 2018, the distribution of respondents by company turnover was elevated in higher revenue brackets. Revenues, however, are closely aligned with employee distribution; larger companies typically report higher revenues.

A closer examination of the survey data reveals that average annual revenues varied by company type. Packaging printers reported the highest average annual revenues, followed by commercial printers and textile printers.

FESPA and InfoTrends have tracked a few key factors, one of which was mean annual revenues for EMEA. Since 2015, overall revenues for the global survey community experienced a 9% CAGR, while wide format printing revenues increased at a CAGR of 21%. The percentage of revenues attributed to wide format printing rose from about 36% in 2015 to 44% in 2018. We attribute this to the increased diversity of services that PSPs are offering their customers, which has created profitable new opportunities in adjacent industries.

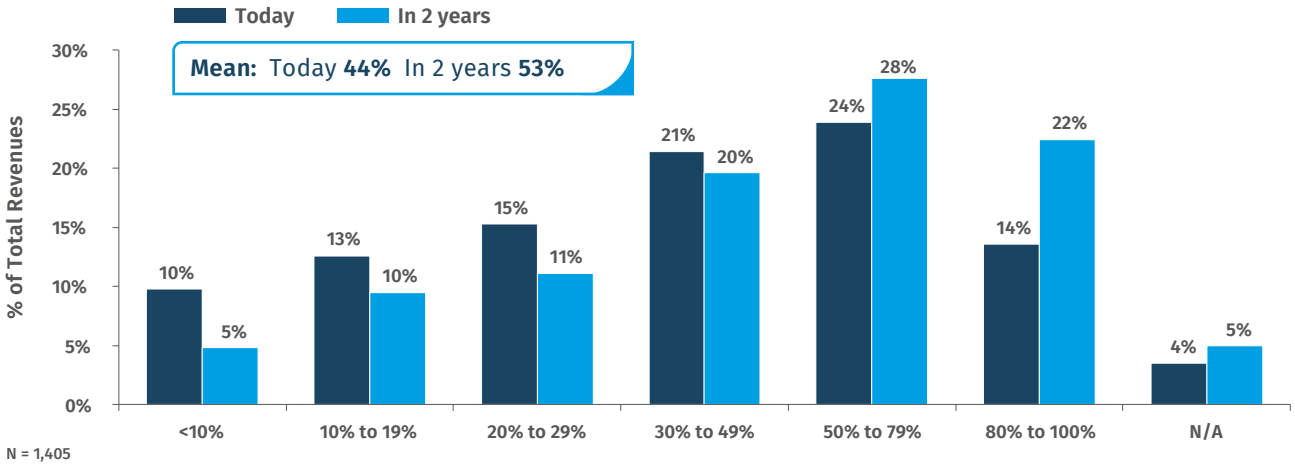
GLOBAL TRENDS AND BUSINESS CONDITIONS

A fundamental difference between the 2015 and the 2018 research is the attention we gave to the unique segment trends, applications and buying criteria. FESPA membership ranges across many segments so it is important to provide clear representation of these segments. As is the case in many industries, some trends are common to all respondents. Therefore, before we turn our attention to the individual segments, this section reviews key trends that reflect the responses of all interviewees.

Business Conditions

Respondents reported that the use of wide format continues to grow across all of the industry segments that were represented in our survey. Survey respondents indicated that digital wide format printing made up about 44% of their existing revenues, which is an increase of nearly 10% in relation to our 2015 survey.

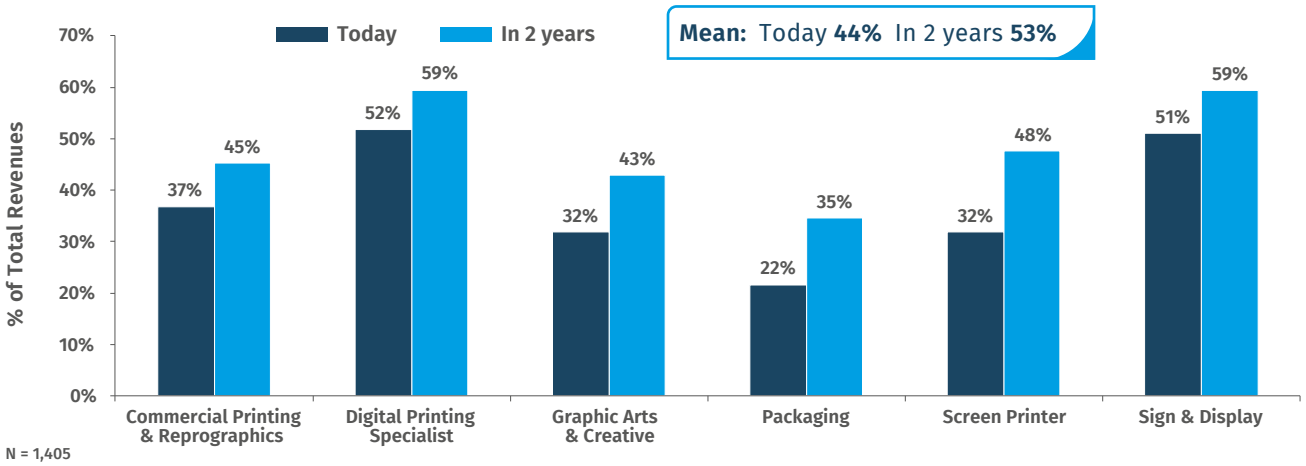
FIGURE 13:
Change in Digital Wide Format Printing Revenues



N = 1,405

FIGURE 14:

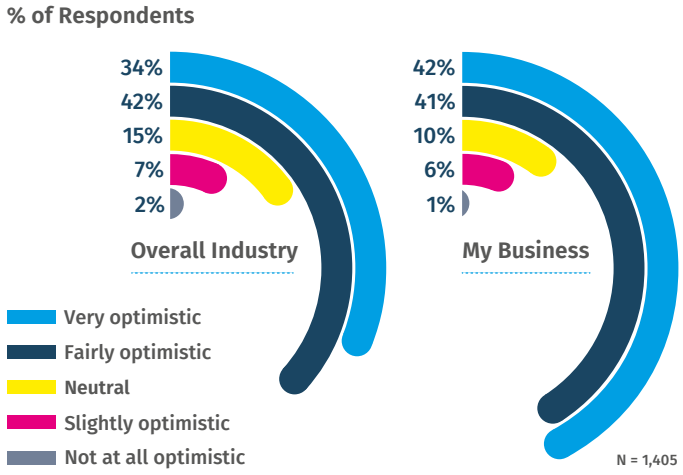
Change in Digital Wide Format Printing Revenues (Means by Industry Segment)



N = 1,405

FIGURE 15:

How optimistic are you about your business and the broader industry sectors that your company serves?



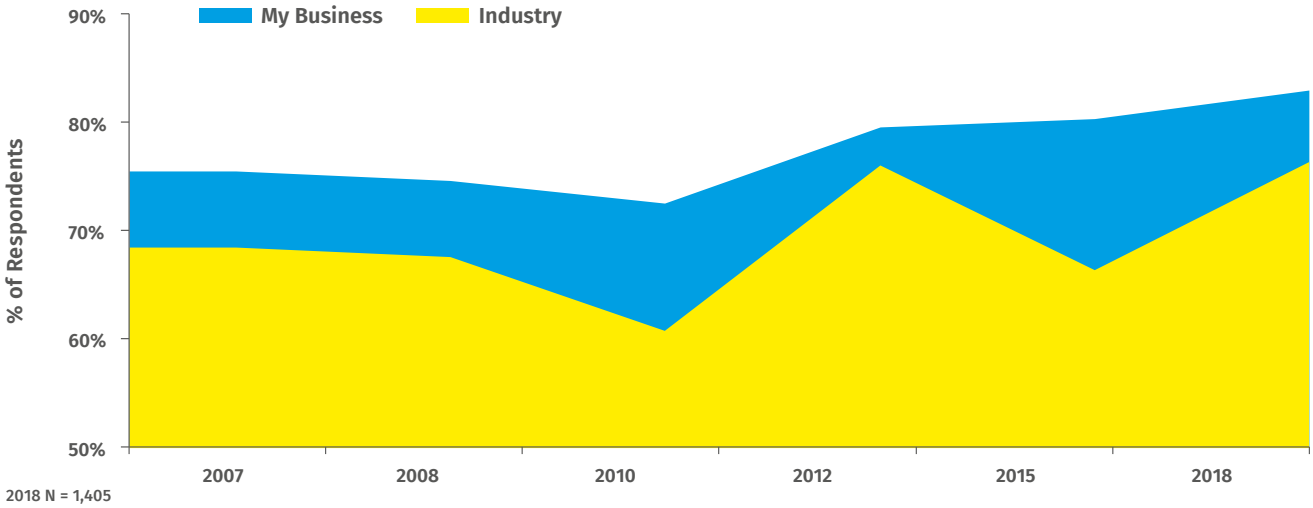
N = 1,405

Furthermore, digital wide format expansion is projected to continue—this value is expected to reach 53% in the next 2 years.

A closer look at the individual industry segments reveals that, although wide format printing is quite popular, opportunities for additional growth still exist. Digital printing specialists and sign & display PSPs attribute over half of their revenues to digital wide format printing but these shares are much lower for segments like packaging (22%), screen printing (32%) and graphic arts & creative (32%). At the same time, however, all PSPs expect their digital wide format printing revenues to increase over the next 2 years.

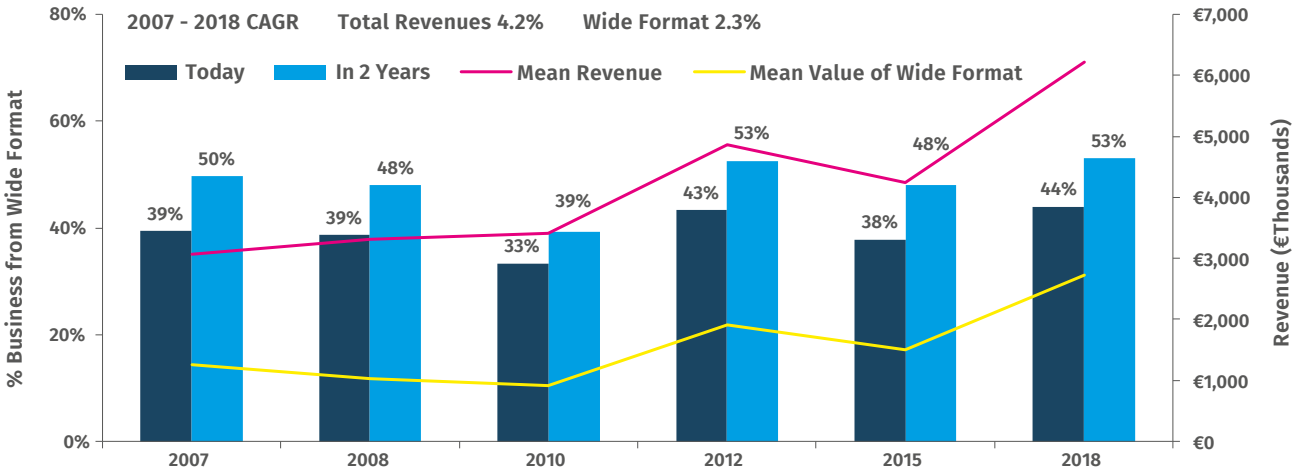
FIGURE 16:

How optimistic are you about your business and the broader industry sectors that your company serves? (2007 – 2018)



2018 N = 1,405

FIGURE 17:
Total Revenue versus Wide Format Revenue (2007 – 2018)



N = Varies Note: Data prior to 2015 contains data from Europe only

FESPA believes that this continued expansion of digital wide format printing indicates that PSPs are generally optimistic about their own businesses as well as the industry at large. As is often the case, PSPs are generally more bullish about their businesses — 83% of respondents were fairly or very optimistic about their own businesses, compared to 76% that were equally optimistic about the industry as a whole. In both cases, however, PSPs' confidence is high.

With our current track record of 11 years, we can now say with certainty that PSPs are generally more confident about their own businesses than the overall industry. This optimism is manifesting itself into increased technological investments and purchasing plans as firms strive to take their businesses to the next level.

A closer look at this data reveals that mean annual revenues reached €6.2 Million in 2018, representing a CAGR of 4.2% over the past 11 years. Meanwhile, wide format revenues saw a CAGR of 2.3% during the same period, reaching €2.7 Million in 2018.

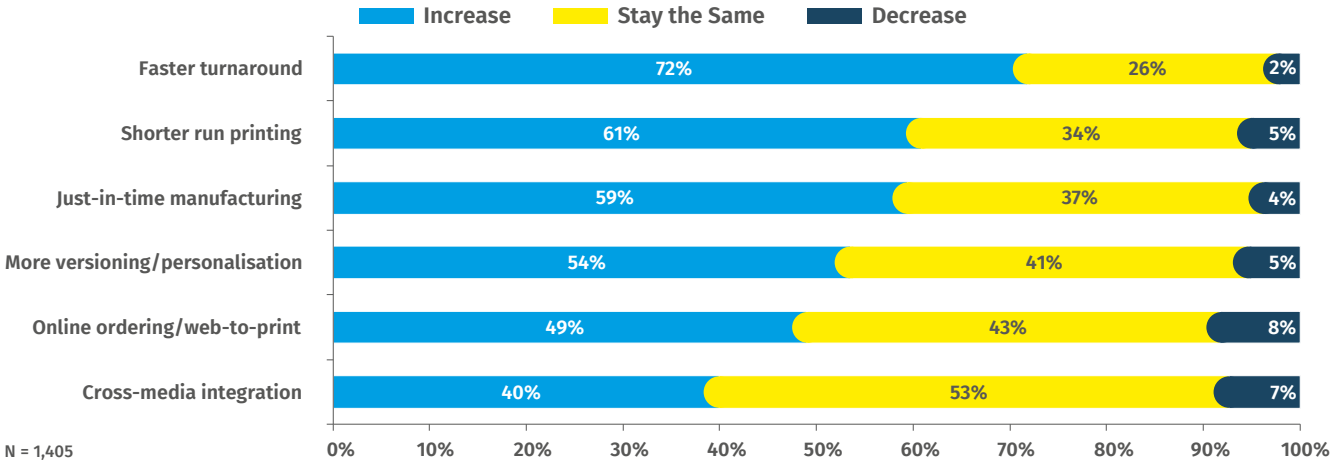
Mass Customisation is a Key Customer Requirement

As revenues continue to grow, it is evident that customer demand for mass customisation continues to drive the adoption of digital printing technologies. Core customer requirements include fast turnaround, short-run printing, just-in-time manufacturing and the increased use of versioning and personalisation. During the 2015 FESPA Print Census, these requirements were similarly important.

Digital printing technologies and the workflow associated with onboarding jobs and processing them in a seamless operation are critical components for PSPs as they strive to innovate and grow their businesses in the future. Many customers demand a 48-hour shipping timeframe and PSPs must embrace digital printing and automated workflow tools to meet this requirement.

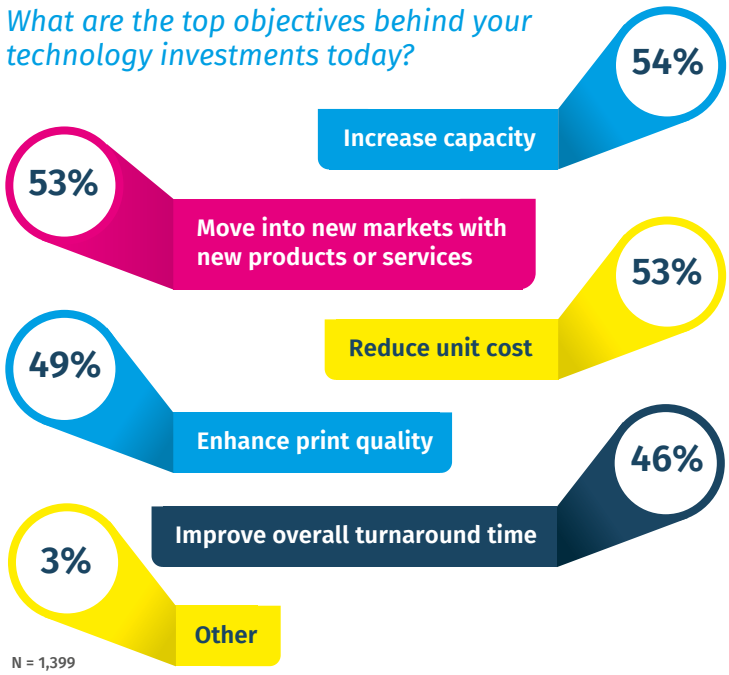
Correlating their need for fast turnaround and just-in-time manufacturing, respondents reported that their top reasons for investing in digital technology were to meet the increasing need for print capacity (54%) and to use their digital printing technologies to enter adjacent

FIGURE 18:
What is the trend for each of the following in terms of your customers' demands?



N = 1,405

FIGURE 19:
What are the top objectives behind your technology investments today?



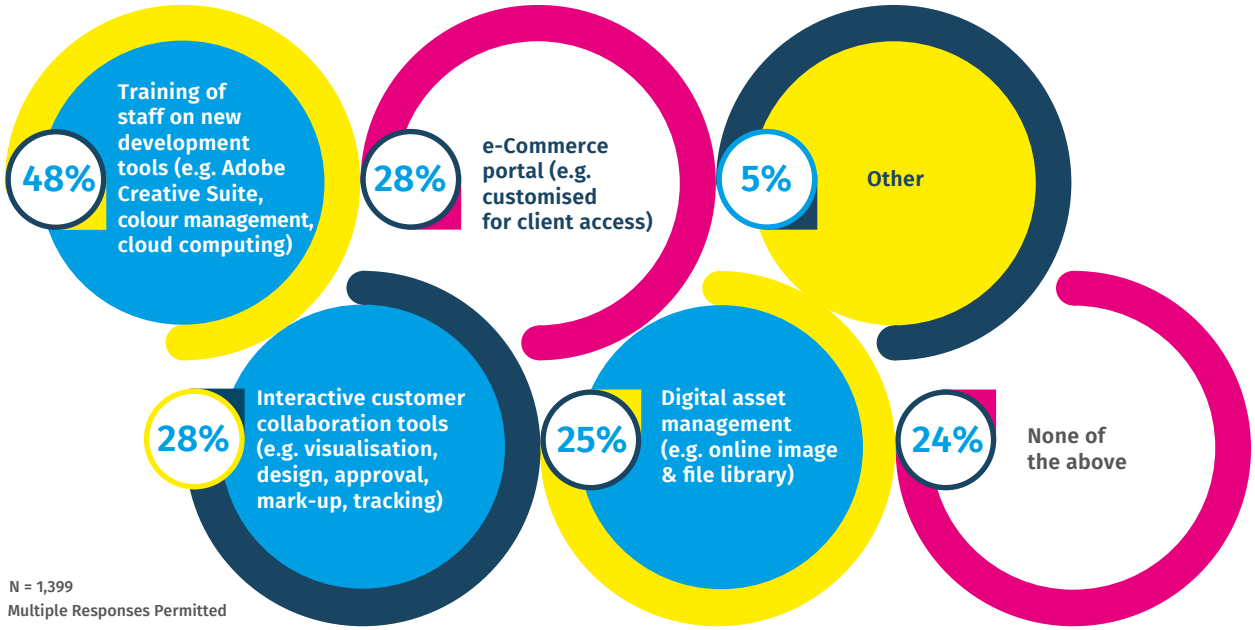
N = 1,399

and new industry segments (53%). It is interesting to note that although quality remains a top-tier concern to PSPs, it is not the number one concern. This is because equipment suppliers are advancing quality management in their devices, improving ink formulation and developing media that is designed for a wide range of applications.

As our PSP respondents continue their technological investments, we wanted to explore other non-technological investments that they are making. Not surprisingly, well-trained staff members topped the list at 48%. Employee training is key to equipment maintenance, customer satisfaction and efficient production.

The next tier of investments is also expected as a natural development in companies that are investing in digital technologies. Investments like online collaboration tools, e-commerce portals and digital asset management are linchpins for efficient production and the ability to produce jobs with more automation and fewer human errors. They are critical in environments where large numbers of jobs must be effectively managed.

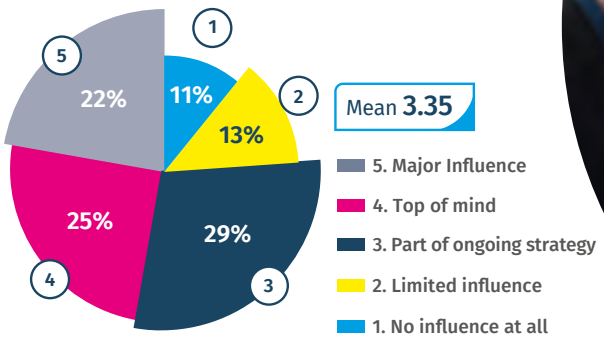
FIGURE 20:
Which of the following have you invested in over the past 2 years?



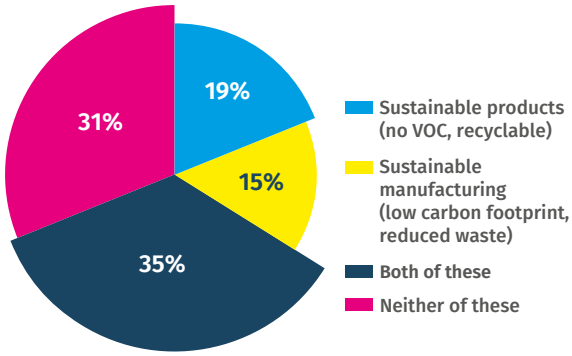
N = 1,399
Multiple Responses Permitted

FIGURE 21:
Environmental Responsibility Drives Strategy

Q: How much of an influence on your business are your customers' requirements for environmentally friendly products and services?



Q: When it comes to environmental responsibility, what do your customers typically ask for?

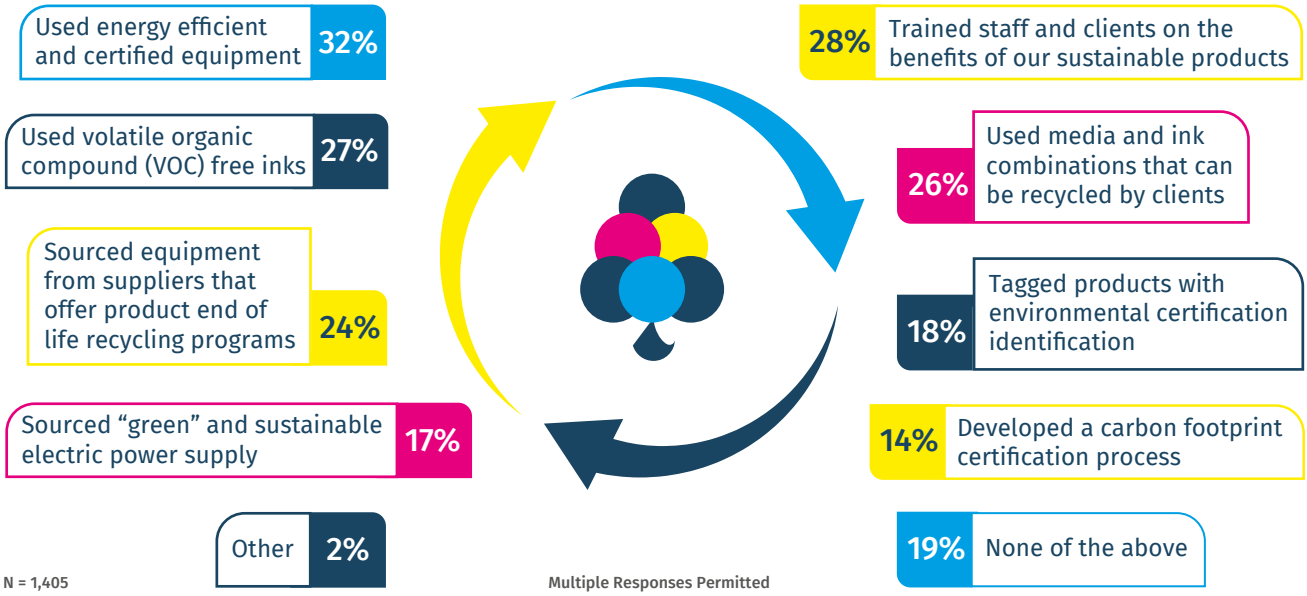


N = 1,405

Printing and The Environment

Our respondents represent a diverse range of producers from a variety of industries. Despite their differences, they all share a commitment to the environment. Most of our respondents indicate that their customers require environmentally responsible processes. About 70% of respondents indicated that sustainable manufacturing and/or sustainable products are desirable. Only 31% of respondents reported that neither of these things were required.

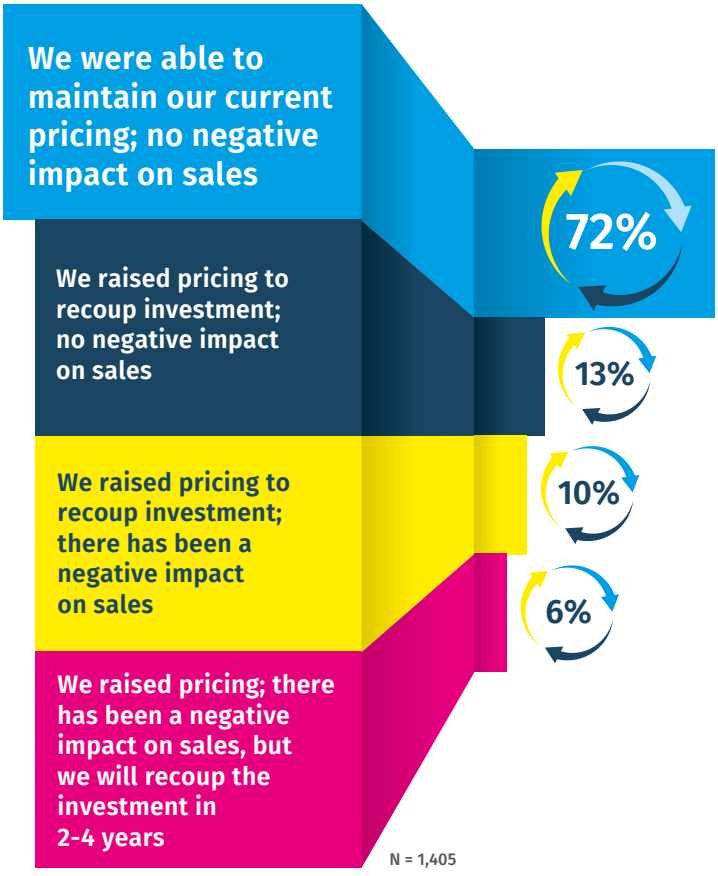
FIGURE 22:
What actions have you taken to make your operation more environmentally friendly?



N = 1,405

Multiple Responses Permitted

FIGURE 23:
What impact has your environmental strategy had on your business?



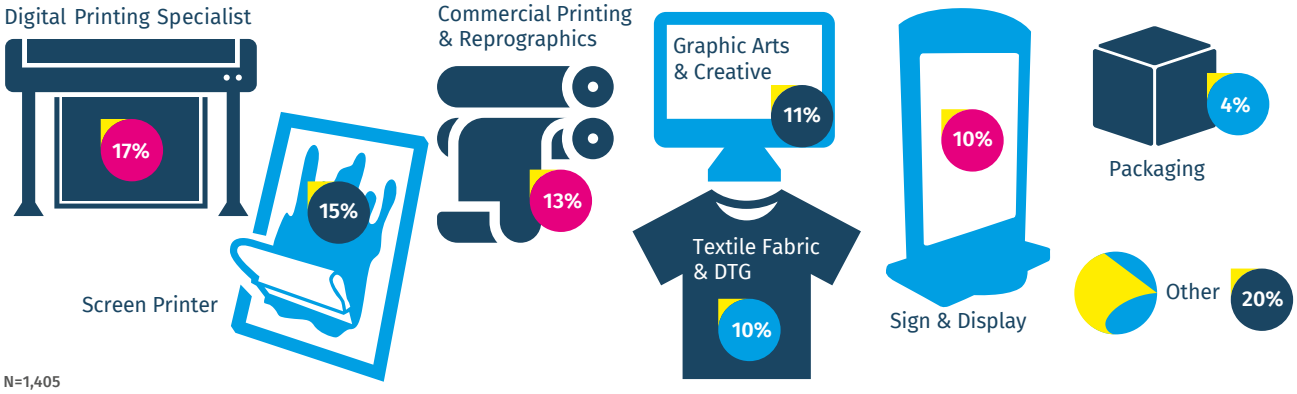
Since the environment is a top priority, we continued to probe our respondents to better understand the specific actions they have taken to improve their environmental friendliness. The top responses included energy efficient/certified equipment, staff training and VOC-free inks.

As we considered the activities that PSPs take to meet environmental standards, we also asked how the investment in more environmentally friendly products affected our respondents' bottom lines. Fortunately, most PSPs reported that the investment had no negative impact on business and that they were able to maintain their pricing. Another 6% needed to raise their prices but soon expected to recoup the expenses from the investment.

Our respondents represent a diverse range of producers from a variety of industries. Despite their differences, they all share a commitment to the environment.

Analysis by Industry Segment

FIGURE 24:
2018 FESPA Print Census Respondents by Industry Segment



N=1,405

Introduction & Methodology

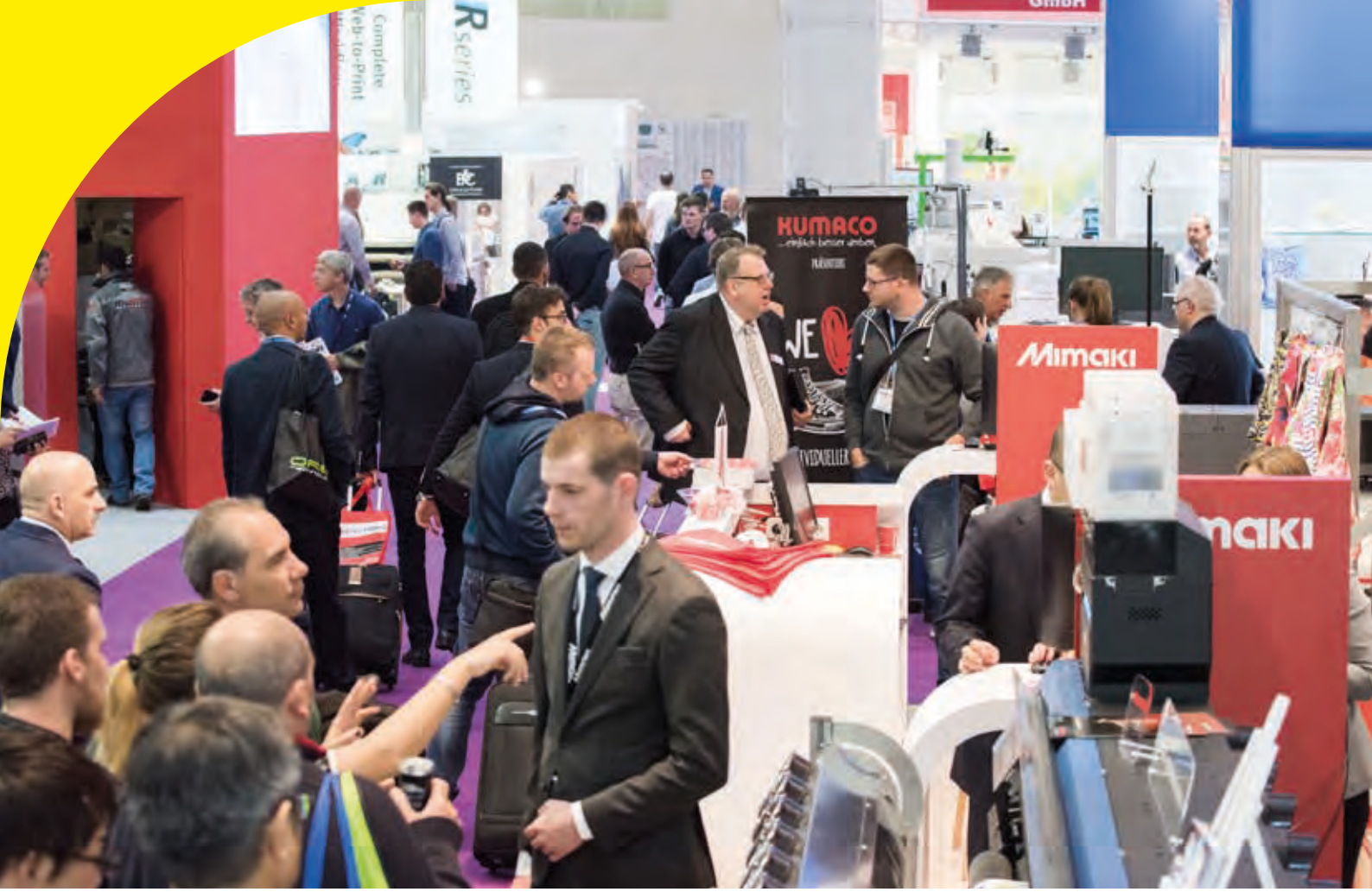
As noted earlier in this document, the FESPA audience is diverse and the survey incorporates results from over 102 countries. Respondents were asked to identify the industry segment that represented most of their revenues. All industry segments were well-represented, but it should be noted that the "Other" category includes a range of respondents who provide ancillary services such as ink and media or other services.

In the 2018 edition of the FESPA Print Census, we asked PSPs a series of questions that reflected their current and future use of technology as well as application and purchasing preferences for equipment and software. The rationale for this split, rather than a set of common questions, is a result of the unique set of considerations that each has regarding the use of technology. For example, Sign & Display PSPs will be quite interested in UV-Curable inkjet printers while Fabric/Textile printers will have no interest — instead, they will be more focused on Pigment or Reactive ink types that are more suited to their unique requirements.

Moving forward, these respondents are divided into the following primary segments based on their responses to our initial survey questions:

- Sign & Display
- Screen Printers
- Graphic Arts & Creative
- Commercial Printing & Reprographics
- Packaging
- Textiles/Fabrics
- Direct-to-Garment (DTG) Printers

Sign & Display

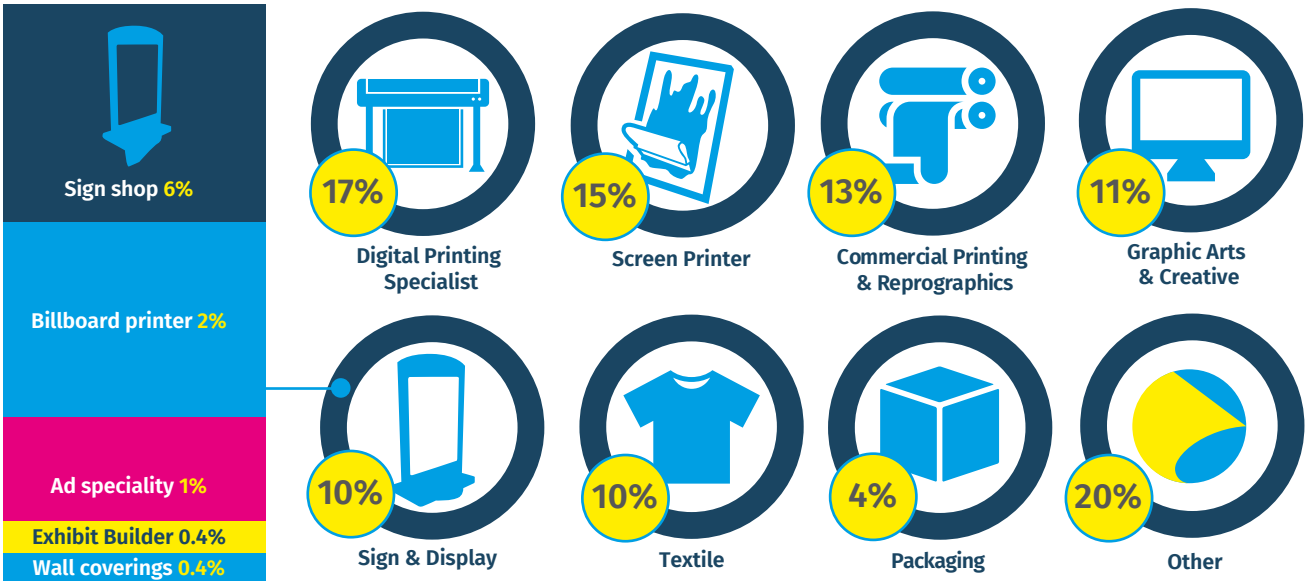


SIGN & DISPLAY

Sign & display printers were well-represented in our 2018 FESPA Print Census. 140 individuals categorised themselves as sign & display printers, representing about 10% of our total respondent base. They were comprised of mostly sign shops, billboard printers and ad speciality printers who produce marketing materials and premiums.

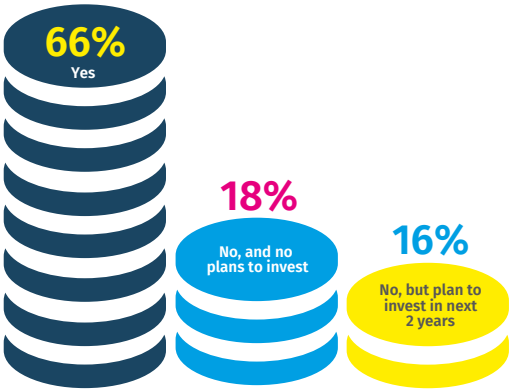
It should be noted that many additional respondents were categorised into the sign & display segment based on their responses to follow-up questions, so the number of sign & display respondents increased to 262 after this reclassification.

FIGURE 25:
Sign & Display Shops by Category



N = 140 respondents whose primary business is Sign & Display

FIGURE 26:
Do you have any wide format printing equipment at your establishment?



N = 262 respondents in Sign & Display

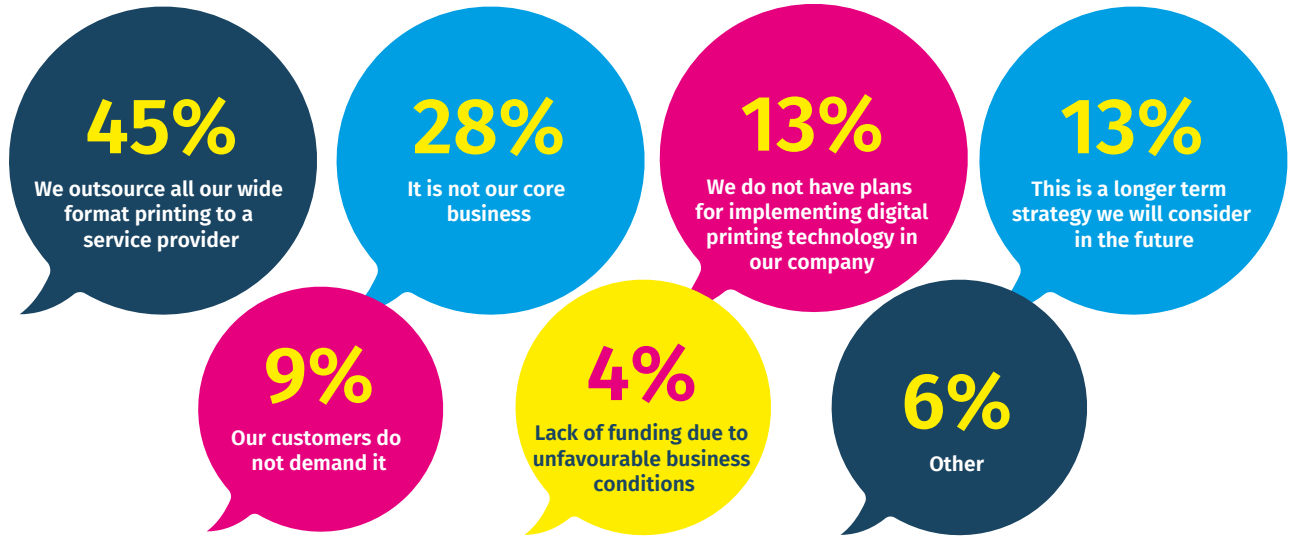
Technology Use: Current & Future

As was the case in earlier FESPA Print Census surveys, the majority of sign & display respondents already owned wide format printers and were experienced with producing a range of applications and providing related services. Another 16% had not yet invested in wide format printing but planned to do so soon. Only 15% of these printers had no investment plans whatsoever.

The broad availability of wide format printing technology has enabled PSPs from all walks of life to use this technology to provide valuable services to clients. Although this is certainly a positive for the industry as a whole, it also means that PSPs from other environments are challenging established businesses with a range of value-added offerings comparable to those of sign & display shops. Meanwhile, sign shops are actively adopting new technologies and expanding their own applications to increase their revenues.

The sign & display respondents who did not own wide format printing equipment and had no plans to purchase it were asked why they had no interest in wide format. 45% reported that they outsourced all of their wide format printing services and 28% reported that wide format was not part of their core business. Another 13% believed that wide format was a longer-term strategy that they might reconsider in the future.

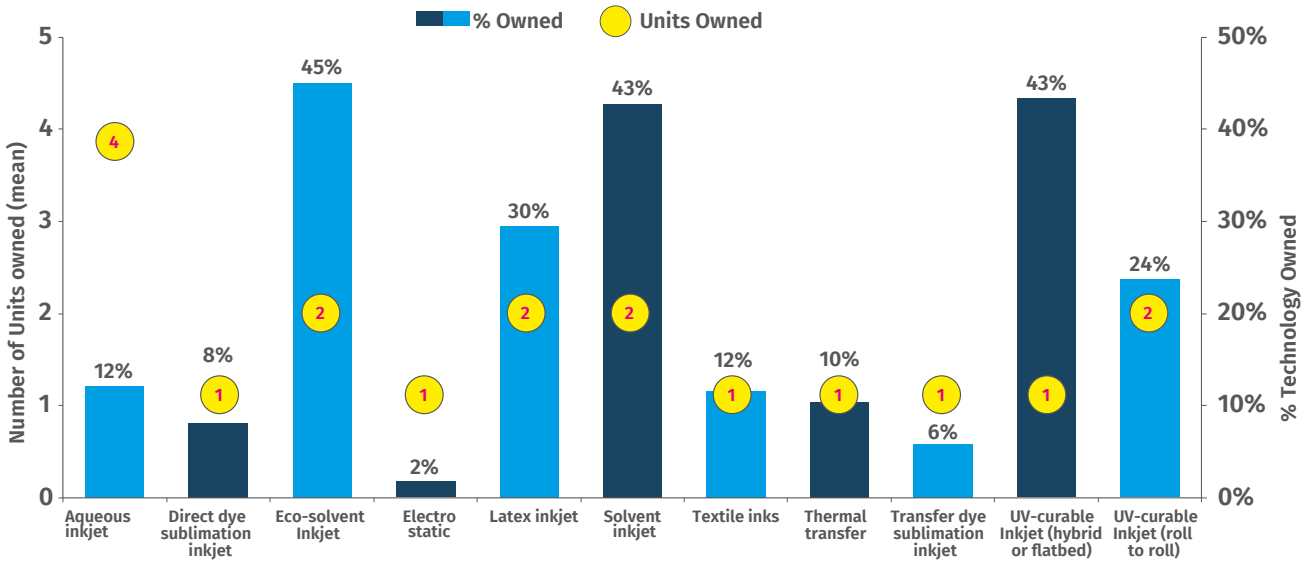
FIGURE 27:
Why are you not interested in acquiring wide format technology?



N = 47 respondents in Sign & Display who do not own/plan to purchase a wide format printer

Multiple Responses Permitted

FIGURE 28:
Wide Format Equipment Ownership – Sign & Display

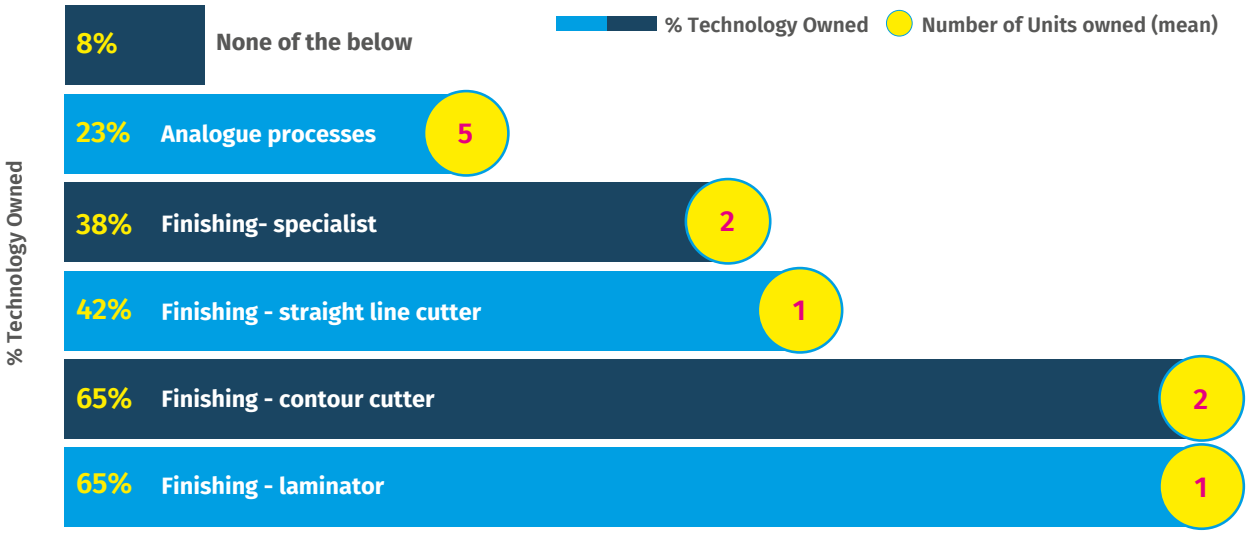


N varies, Base: Respondents in Sign & Display that own wide format printing equipment

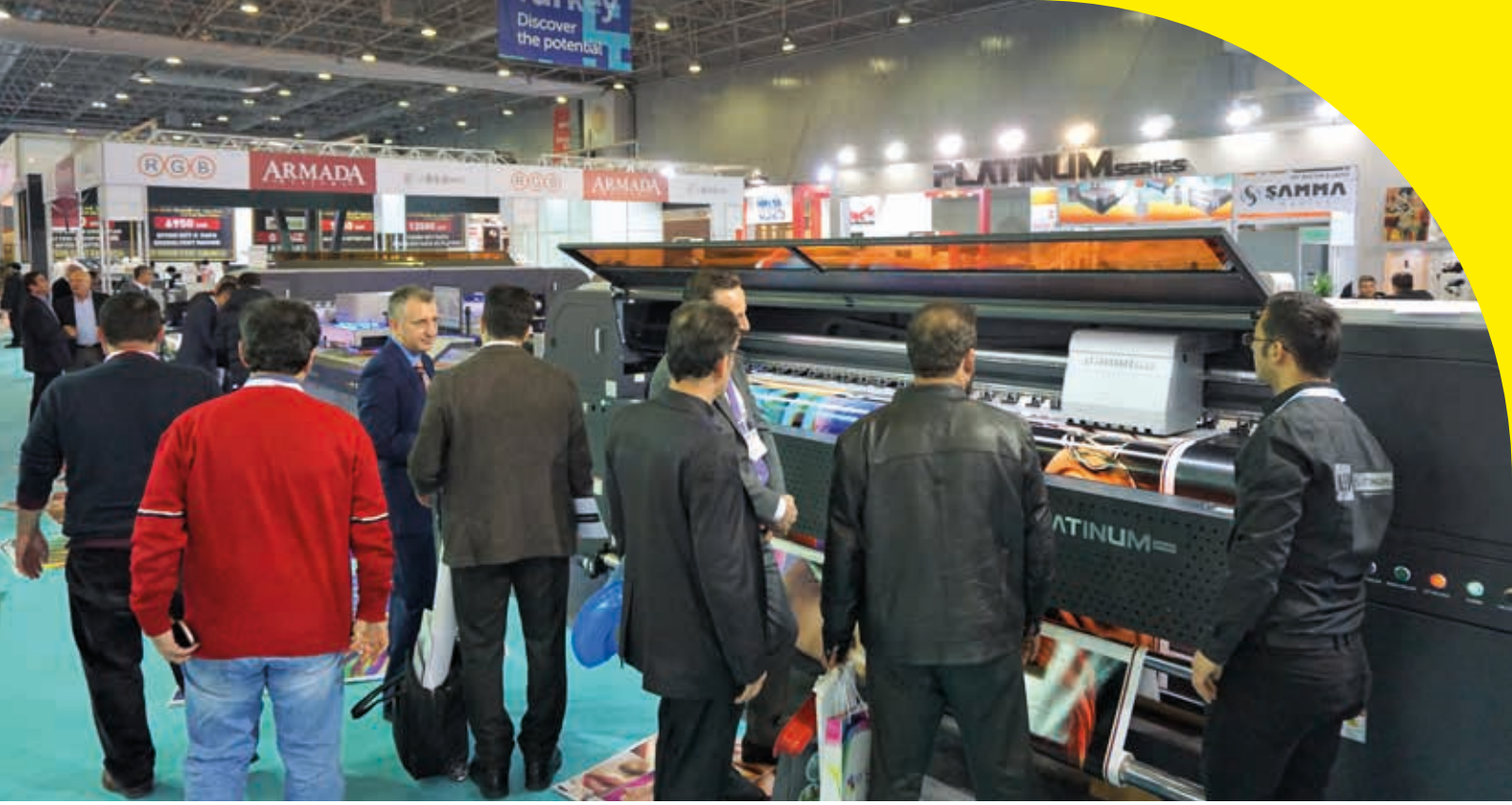
Those respondents who did own wide format printing devices were asked to specify the types of equipment that they owned. Solvent-based technologies remain active among sign & display respondents but improvements to UV printing technologies (for example new ink types, LED curing or more configurations) are making these devices a formidable substitution for Solvent-based technologies. About 43% of respondents are currently using flatbed or hybrid UV systems. A number of sign & display shops are also using roll-fed UV (24%) and Latex inkjet (30%) as a way to produce output that rivals solvent in terms of quality and durability. Although some of these respondents have adopted dye-sub technology for textile printing, they represent a smaller portion of our response pool.

Sign & display respondents are expecting a 9% growth in their wide format printing businesses over the next 2 years. The share of respondents who expect wide format to represent 80% to 100% of their businesses in the next 2 years shows a 12% spike.

FIGURE 29:
Analogue & Finishing Equipment Ownership – Sign & Display



N varies, Base: Respondents in Sign & Display who own wide format printing equipment

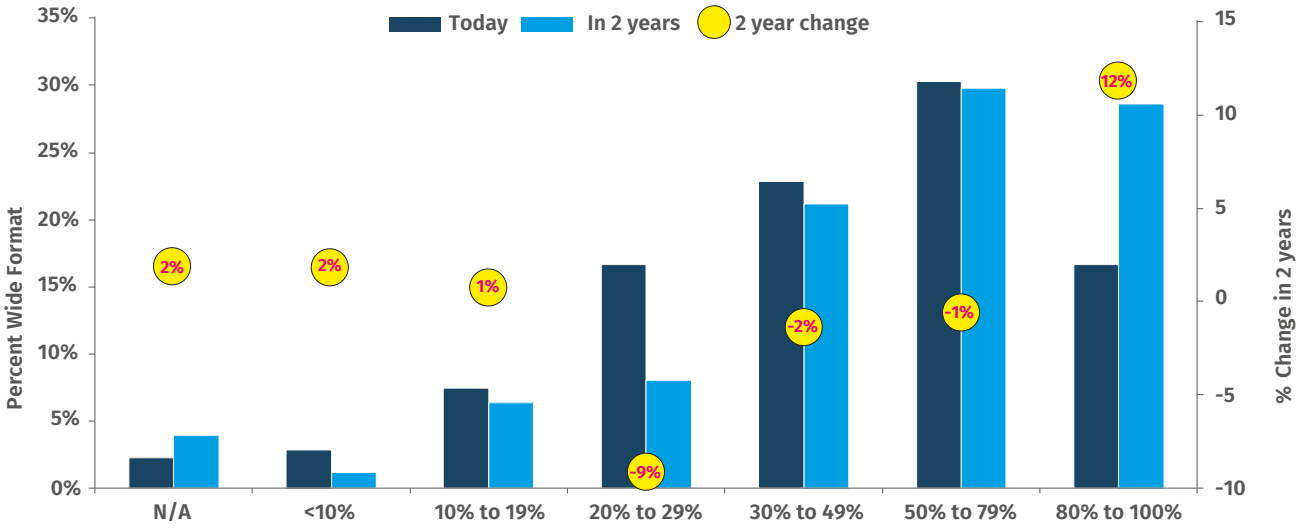


As we look closer at technology ownership, digital printing is the preferred technology, as only a mere 23% of our respondents indicated that they own analogue printers. Although analogue ownership is declining, the average number of devices is quite high (5 per shop). These devices will typically be used to produce cost-effective output for longer print runs, but they might also be used for short runs of repeat jobs where plates already exist.

The majority of respondents (65%) own laminators and contour cutters. Laminators have been a mainstay in many sign shops as they make it possible to protect prints for indoor and outdoor installations. Meanwhile, contour cutters have grown in importance as they offer a range of creative applications that can be achieved using sophisticated laser or knife cutters. These enable a range of cuts that can aid in creating dimensional displays and form-fitting panels precisely cut to meet assembly construction on a range of display applications.

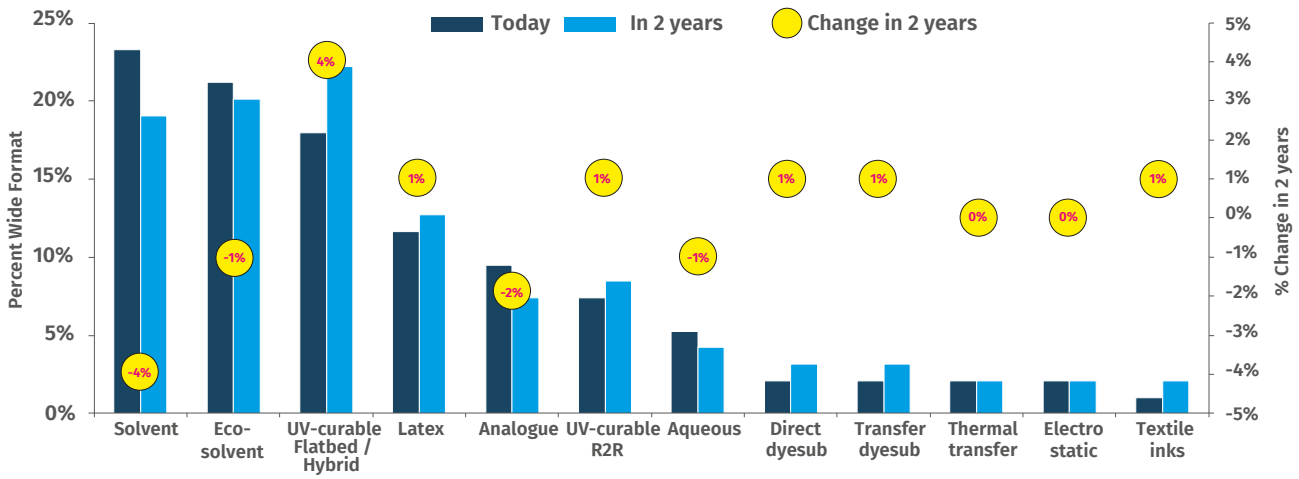
Sign & display respondents are expecting a 9% growth in their wide format printing businesses over the next 2 years. The share of respondents who expect wide format to represent 80% to 100% of their businesses in the next 2 years shows a 12% spike. This indicates that respondents expect to expand services and technological investments to propel their businesses forward.

FIGURE 30:
Change in Digital Wide Format Printing Revenues



N = 173 respondents in Sign & Display who own wide format printing equipment

FIGURE 31:
Change in Digital Wide Format Printing Revenues (By Technology Type)



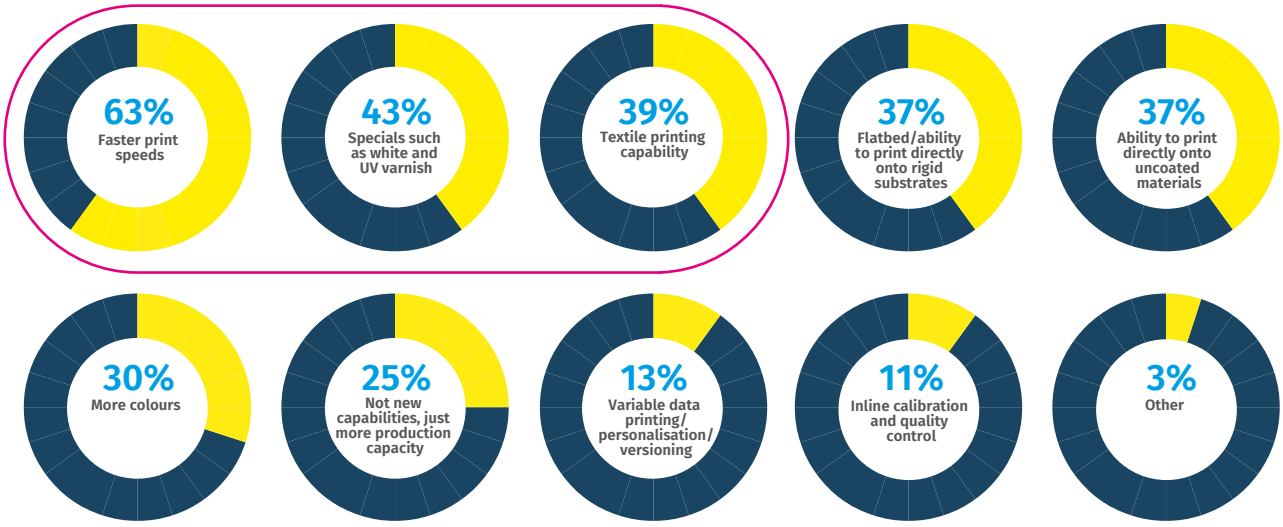
N = 173 respondents in Sign & Display who own wide format printing equipment

As we review the technological landscape, certain trends have been occurring for several years. Many PSPs obtain their revenues from the well-established solvent and eco-solvent technologies. These PSPs effectively use the technology to create eye-catching, durable output for indoor and outdoor use. Nevertheless, solvent-based inks are beginning to take a backseat to other technologies that are considered more environmentally friendly and easier to manage in daily production. As a result, we are seeing a decline in both solvent categories. Meanwhile, other durable ink categories (for example UV curable inkjet or latex inkjet) are growing.

Over the past few years, UV Inkjet has been growing rapidly, aided by new generations of ink with reduced volatile organic compounds (VOCs). Some of these are dispersed in water rather than solvent, offering a high degree of elongation (stretch up to 400%) and LED technology that makes it possible to print on a wide range of substrates without overheating. UV and latex inkjet are now the top choices for PSPs who are seeking durability and flexibility of media and applications.

When PSPs were asked about the most important features in inkjet solutions, 63% cited speed improvements followed by the ability to print with special functional fluids (43%) and onto textiles (39%). Although these features are not always necessary, FESPA believes that they will drive the development and adoption of single-pass printing technology, scanning systems with a large number of printheads and

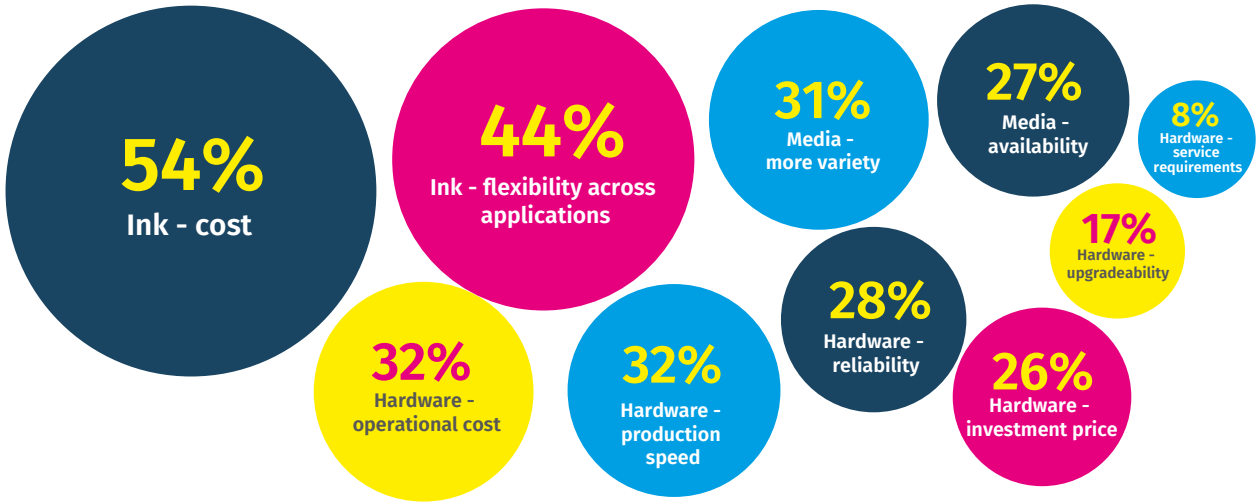
FIGURE 32:
What new wide format equipment attributes/features are most interesting to you?



N = 215 respondents in Sign & Display who own/plan to purchase wide format printing equipment

Multiple Responses Permitted

FIGURE 33:
Where would you like to see more innovations in wide format?



N = 175 respondents in Sign & Display who plan to purchase wide format printing equipment in the next year

Multiple Responses Permitted

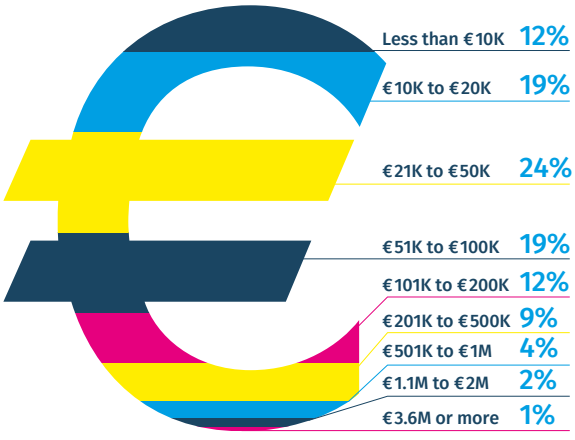
innovative head transport (for example magnetic levitation) to gain a speed advantage.

The core of innovation, however, is expected in material sciences – new inks with special properties for adhesion onto multiple surfaces, providing functionalities such as texture, surface protection and even electrical conductivity.

This theme continues as we probe into the future innovations that PSPs expect to see from their suppliers. Respondents cited a desire for reductions in the cost of ink as well as hardware improvements. Secondarily, PSPs are seeking innovations in imaging supplies that will help them produce a wide range of applications. Additionally, many PSPs specify a desire for serviceability and reliability. This is probably not a top priority because equipment suppliers have been working to ensure that their systems produce cost-effective quality output with better reliability and serviceability by default.

PSPs seem to realise that speed and higher quality comes at a price. Sign & display respondents expect to pay an average of €144,600 for their next wide format printer, which is 43% higher than what was expected during the 2015 FESPA Print Census. This assumes that many of these systems may be integrated with suitable software tools and in some cases, integrated finishing equipment (for example an inline sublimation calendar in sublimation systems, media loading automation or high capacity media capacity).

FIGURE 34:
How much do you expect to pay for the new equipment you are planning to acquire?

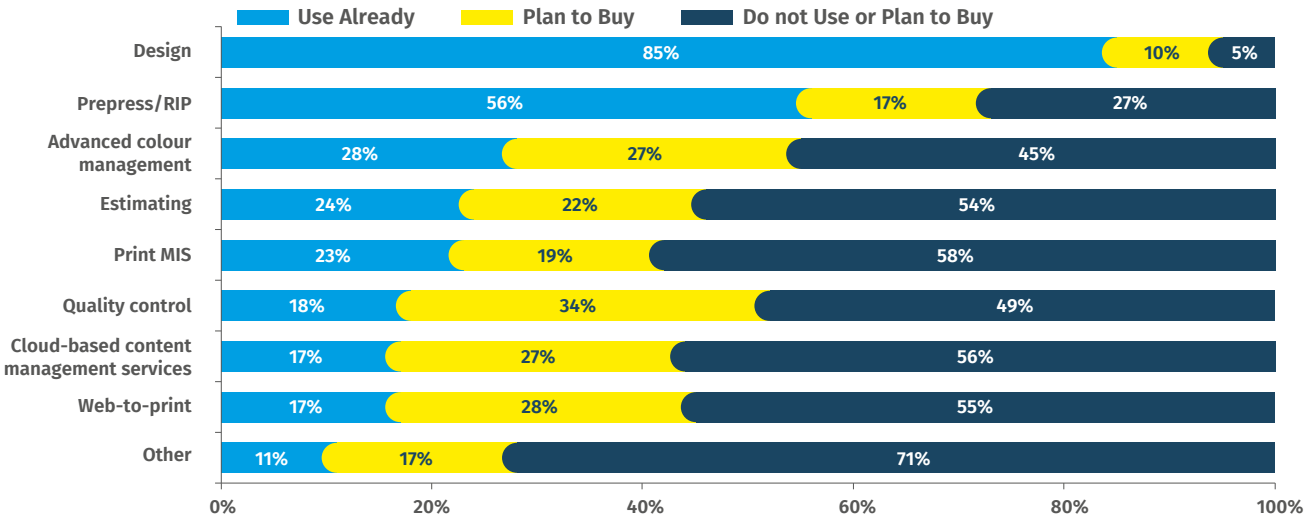


Mean:
2018 €144,600
2015 €88,559

N = 196 respondents in Sign & Display that plan on purchasing or leasing in the next 2 years

FIGURE 35:

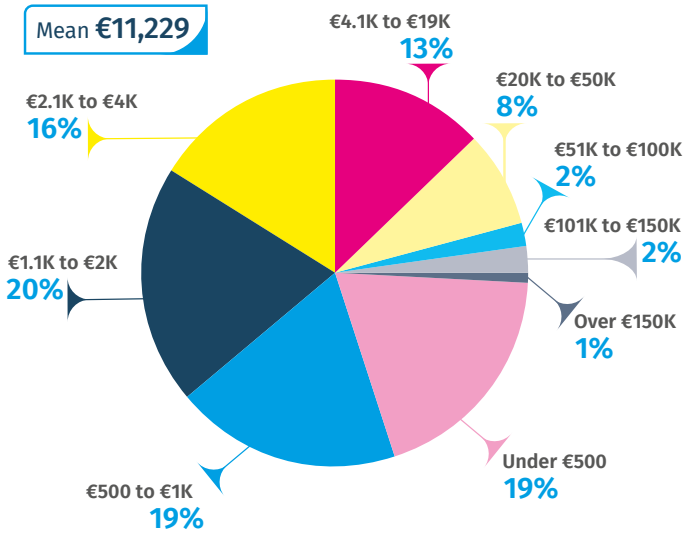
How would you describe your ownership or investment plans for the following types of software?



N = 262 respondents in Sign & Display

FIGURE 36:

How much do you expect to spend on the software that you plan to acquire?



N = 172 respondents in Sign & Display Industry Sector planning to buy software

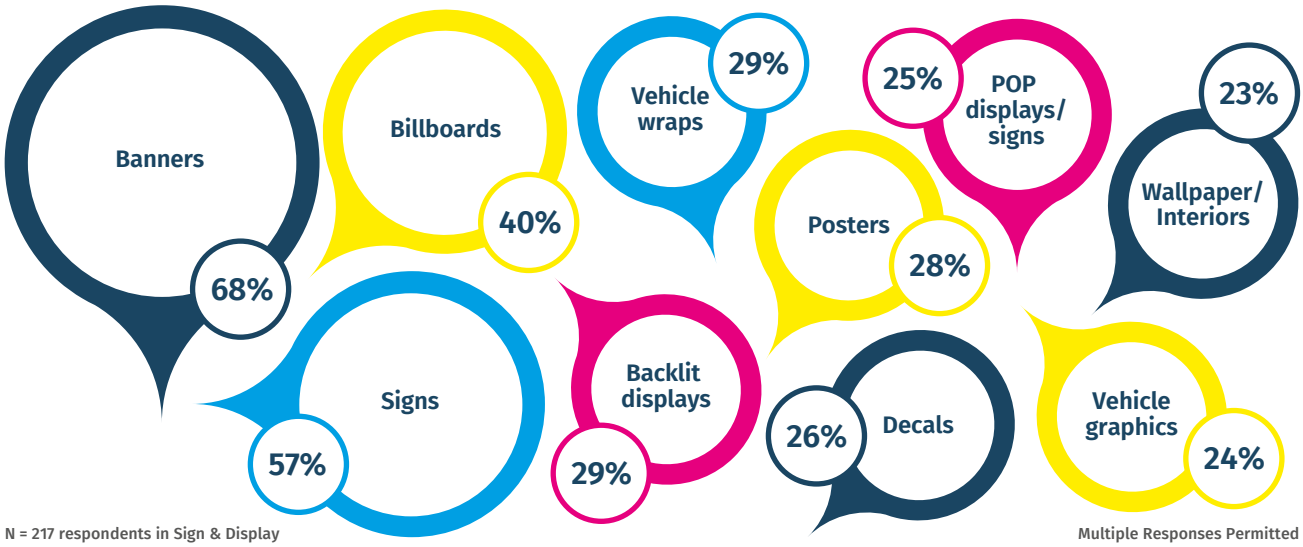
When sign & display respondents were asked about their software purchasing plans, quality control (34%), web-to-print (28%), colour management (27%) and cloud-based content management (27%) topped the list. After many years of investments in design and prepress solutions, PSPs are now focusing on consistent quality output that meets clients' demands for timely delivery.

Respondents to the 2018 FESPA Print Census expect to pay an average of €11,229 for their software investment, which is six times higher than the expected expenditure in 2015.

Software Investments

An integral component to the effective production of a digital product is an efficient workflow set of tools. These have been improving productivity as well as quality of output so they are more important to success than ever before. They are a gateway to connect clients with PSPs, ensure that production is handled efficiently in the shop and track completion to meet service level agreements. Although workflow was once viewed as a necessary evil, it has now become an enabler of profitable operations!

FIGURE 37:
Which of the following applications do you regularly produce?



N = 217 respondents in Sign & Display

Multiple Responses Permitted

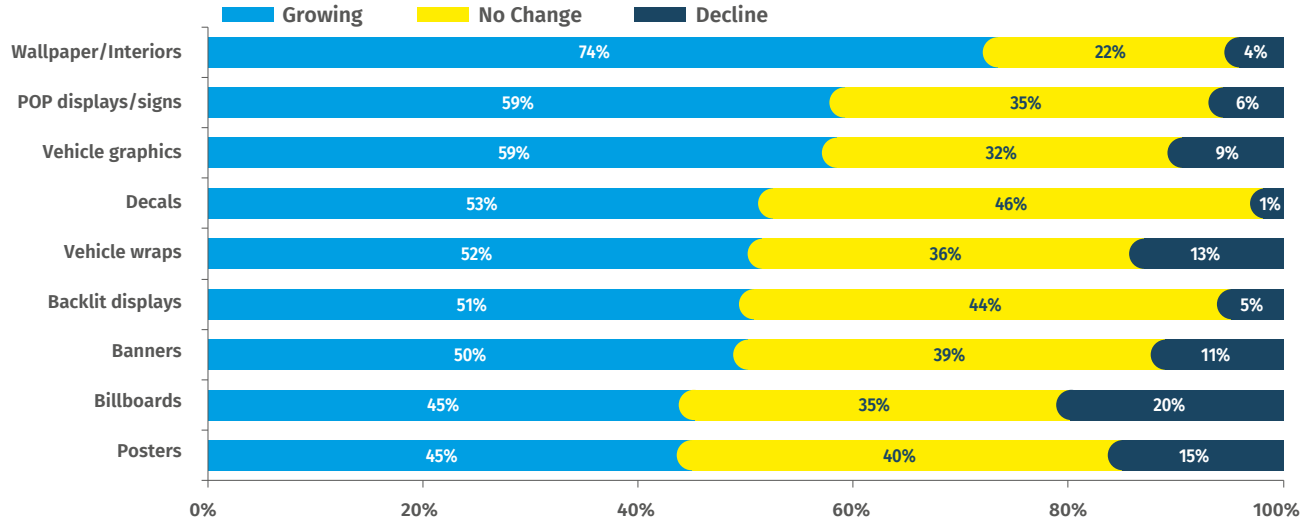
Applications Produced

PSPs in the sign & display sector are a focused group of printers – their top applications track closely with their core business. Our persona-based survey allows us to clearly see which applications these PSPs produce on a regular basis, which drive revenue. Sign & display shops are focused on banners (68%), signs (57%) and billboards (40%). Many of the remaining top 10 applications are all closely related to visual communications such as vehicle wraps, posters, decals and POP displays.

In the sign & display segment, PSPs are focusing on their core applications and reporting that these applications still provide future opportunities. It is interesting to note, however, that wallpaper/interior decor is listed as the top growing application when only 23% of

An integral component to the effective production of a digital product is an efficient workflow set of tools. These have been improving productivity as well as quality of output, so they are more important to success than ever before.

FIGURE 38:
How are each of the following applications changing as a percentage of your wide format printing business?



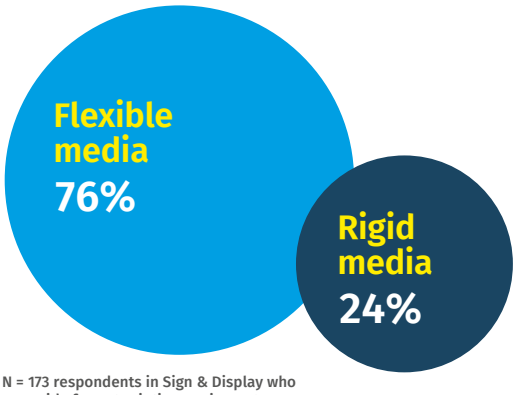
N varies, Base: Respondents that produce sign & display applications

respondents regularly produce it. Decorative applications have been on the rise for some time and the architect and designer (A&D) communities are becoming aware of the capabilities of digital printing. Aided by safe for home and commercial use materials, digital printing is delivering on the promise of mass customisation. Homeowners and commercial developers can customize their surroundings with vivid colours and rich imagery that reflect their lifestyle or brand. Although commercial and home use materials are subjected to strict standards and regulations (for example fire, washability or permanency), many printed products are acceptable to authorities. In many cases it is the responsibility of PSPs to provide safety certificates, however this can be costly. We believe this trend will continue, creating new opportunities for PSPs across all industry segments.

The range of applications will also expand as new technologies enable PSPs to print on more surfaces and accommodate their customers' evolving preferences.

Sign & display respondents were asked when they thought live media and LCD screen advertising systems would have an impact on the wide format printing market. Over half agreed that there would likely be changes in the future and 40% felt that this technology was already impacting the wide format business. Only 32% of respondents currently offered or planned to offer live media or LCD advertising systems.

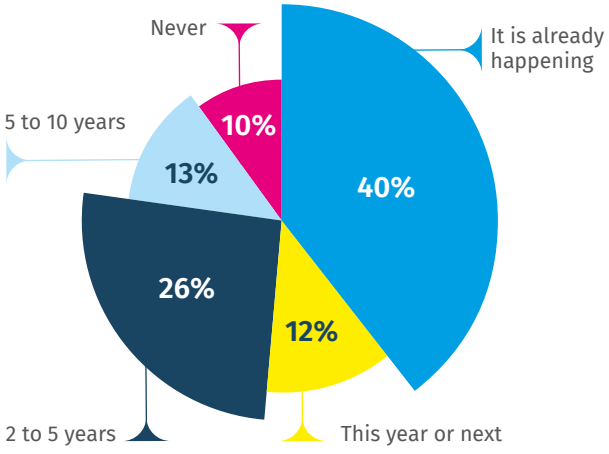
FIGURE 39:
What percentage of your wide format output is produced on the following media?



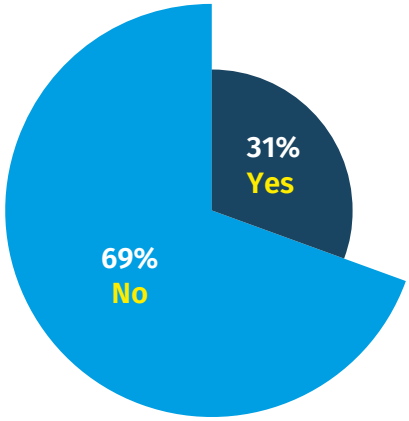
N = 173 respondents in Sign & Display who own wide format printing equipment

FIGURE 40:
The Impact of Digital Displays

Q30: When, if ever, do you think live media & LCD screen advertising systems will have an impact on the wide format printing business?

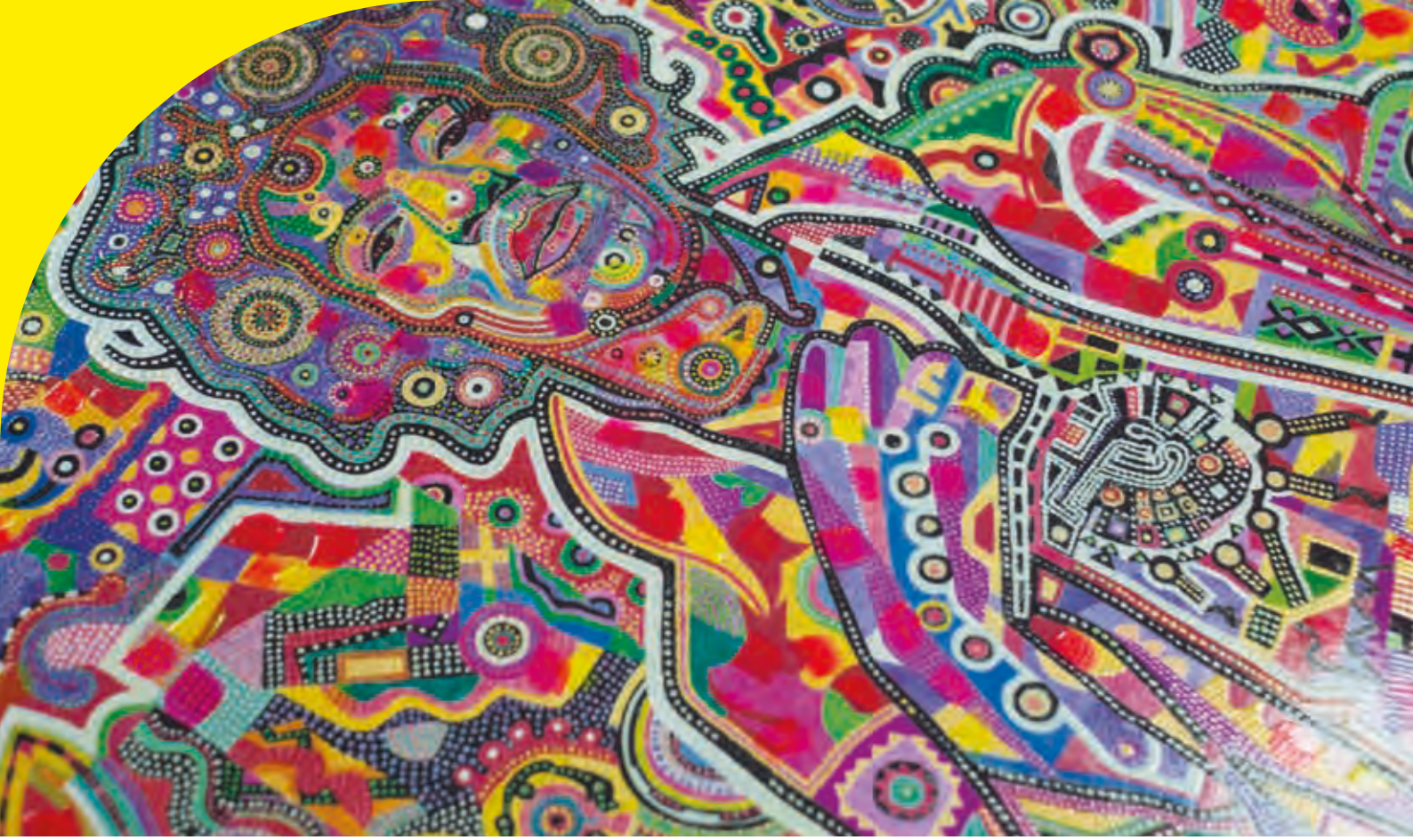


Q31: Do you already, or do you plan to in the next 2 years, offer live media and LCD advertising systems to your customer base?



N = 262 respondents in Sign & Display

Screen Printers



SCREEN PRINTERS

Screen Printers account for one of FESPA's largest communities and are well-represented in our survey. To better understand the trends that are impacting screen printers, respondents were asked to specify their primary revenue stream. We used these primary categories to direct them to the appropriate questionnaire for each industry segment.

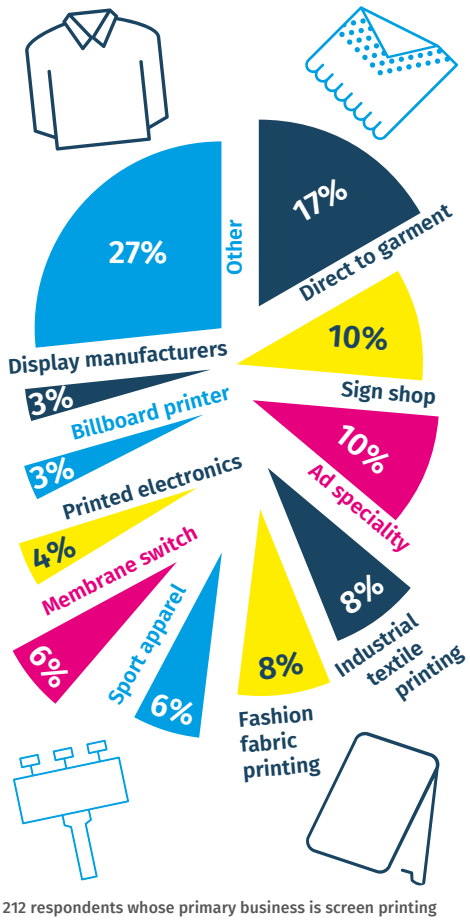
Two main groups dominated the screen printing group – 39% were apparel printers (direct-to-garment, textile, fashion fabric, sports apparel) and another 23% were sign & display respondents (sign shops, ad speciality printers and billboard producers). This section of the report describes some of the trends that impact screen printers as a group while also contracting their responses across the core businesses they represent.

Technology Use: Current & Future

Screen printers' use of wide format digital printing is like most segments that have been entrenched in the technology for many years. 60% of screen printers currently own a digital wide format printer and 23% of respondents plan on purchasing one in the next 2 years.

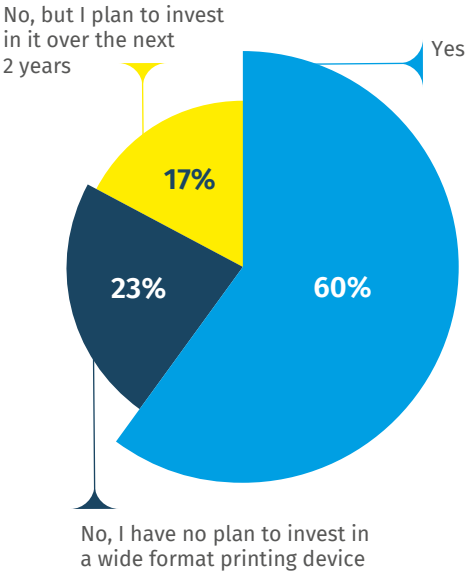
A closer examination of screen printers indicates that sign & display respondents expect wide format printing to grow by 16% in the next 2 years. Meanwhile, their peers who focus on digitally printed textiles and direct-to-garment (DTG) expect a revenue growth of about 12% during the same timeframe. This difference is likely attributed to the continued effectiveness of analogue technology in textile printing for both fabrics and DTG.

FIGURE 41:
Screen Printers by Category



N = 212 respondents whose primary business is screen printing

FIGURE 42:
Do you have any wide format printing equipment at your establishment?

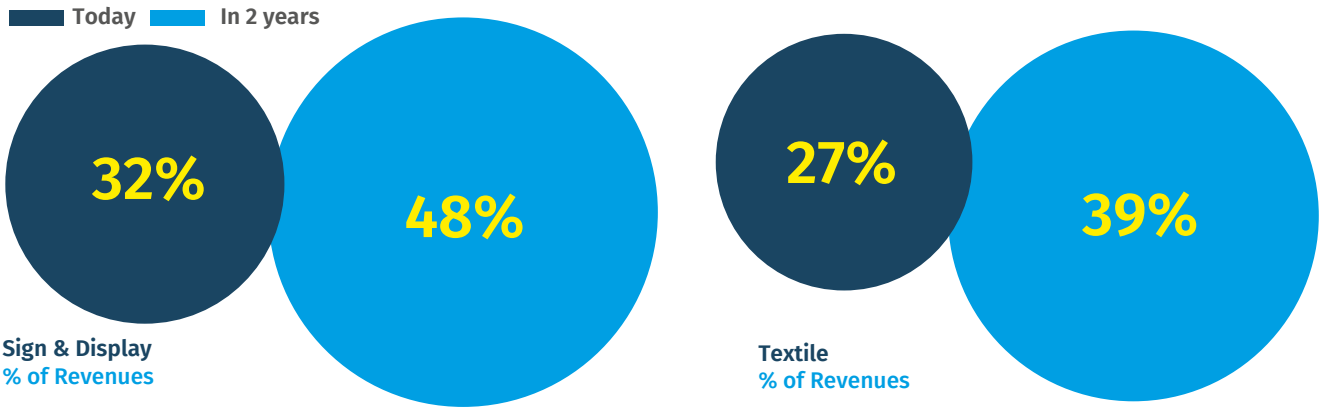


N = 48 respondents in Screen Printing

To properly examine the technologies deployed today and in the future, it is important to consider sign & display producers separately from textile printers. Screen printers who identify as sign & display providers are indicating that their use of analogue technologies will decline by 4%, while their use of durable inks technologies will continue to grow. Although solvent as an ink type is under pressure, our respondents indicated that solvent and eco solvent technologies continue to grow at 1% and 3% respectively. They also report that other durable inks such as UV flatbed, latex and sublimation are growing and being added to the range of solutions they offer.

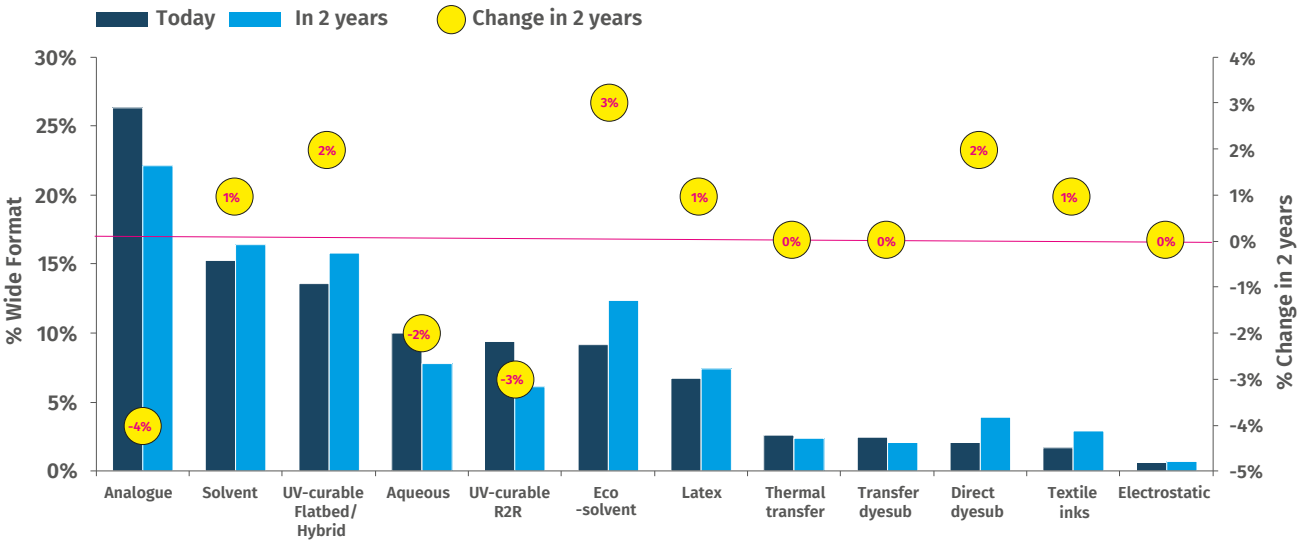
Textile producers are another diverse group, but the revenues they generate from digital printing are different from those in sign and display. Analogue printing still represents about 40% for these producers and it is only expected to decline by 1% over the next 2 years. For these textile producers, there are indications that their growth areas primarily concern synthetic textiles — they indicate growth of 6% in sublimation transfer and 4% in direct disperse printing. These correlate to the continued growth in the use of synthetic fabrics in the fashion and decor segments. A more modest growth is indicated for pigment printing, which has seen many investments in the past few years. Somewhat surprisingly, our screen printers indicated that their investment in reactive ink-based technology will decline by 4% in the next 2 years.

FIGURE 43:
Change in Digital Wide Format Printing Revenues



N = 29 respondents in Screen Printing who own wide format printing equipment

FIGURE 44:
Change in Digital Wide Format Printing Revenues (By Technology Type)



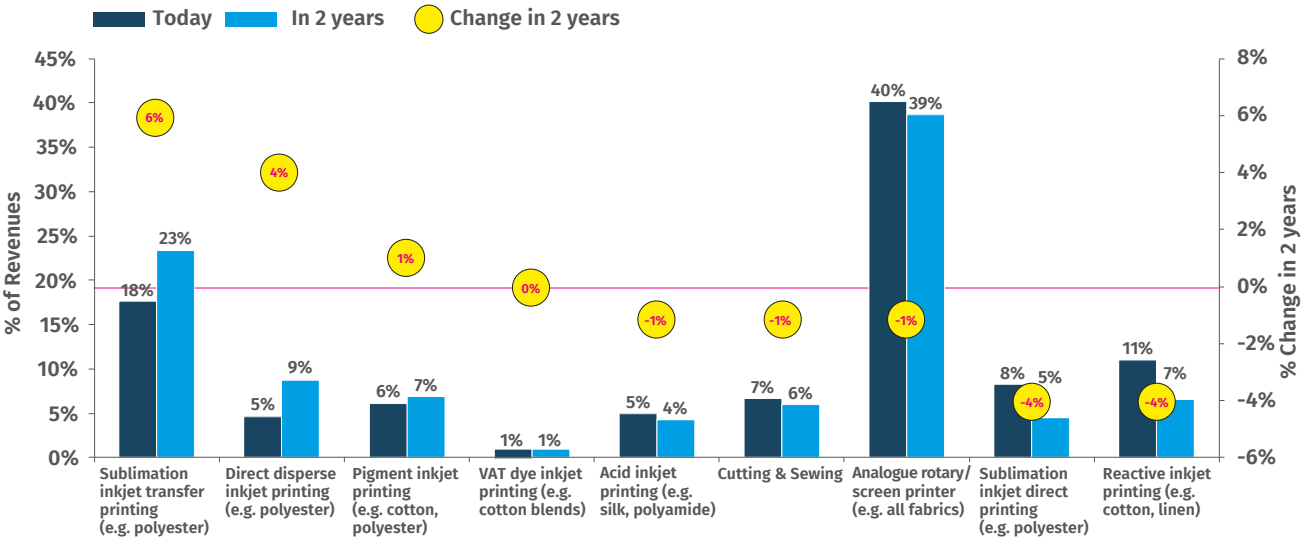
N = 29 respondents in Screen Printing who own wide format printing equipment

It is interesting to note that, when tabulating the combined screen printers with the textile printers' responses, the percentage of reactive inks as part of their revenues remain flat in the next 2 years with reactive ink production representing 12% of revenues.

Similarly, we have reviewed the revenues generated by technology in screen printers that have identified themselves as DTG printers. Although DTG printers are producing 63% of their production using analogue technology, they expect a 2% decline in the next 2 years. As for the digital printing contribution to their revenues, these add up to 28% of total revenues and are mostly attributed to commercial entry-level DTG systems (9%) and sublimation (9%). They do anticipate an increase in industrial mid-range systems as well as hybrid (for example analogue/digital) in the next 2 years. These systems are aimed at providing higher productivity and, in the case of hybrid systems, seamlessly integrated screen printing and digital printing.

On the technology adoption curve, we see tepid plans for acquiring new equipment. Although 69% of PSPs have analogue devices now, only 19% plan to purchase these devices in the next 2

FIGURE 45:
Change in Digital Textile Printing Revenues (By Technology Type)



N = 35 respondents in Screen Printing that have digital textile printing technology

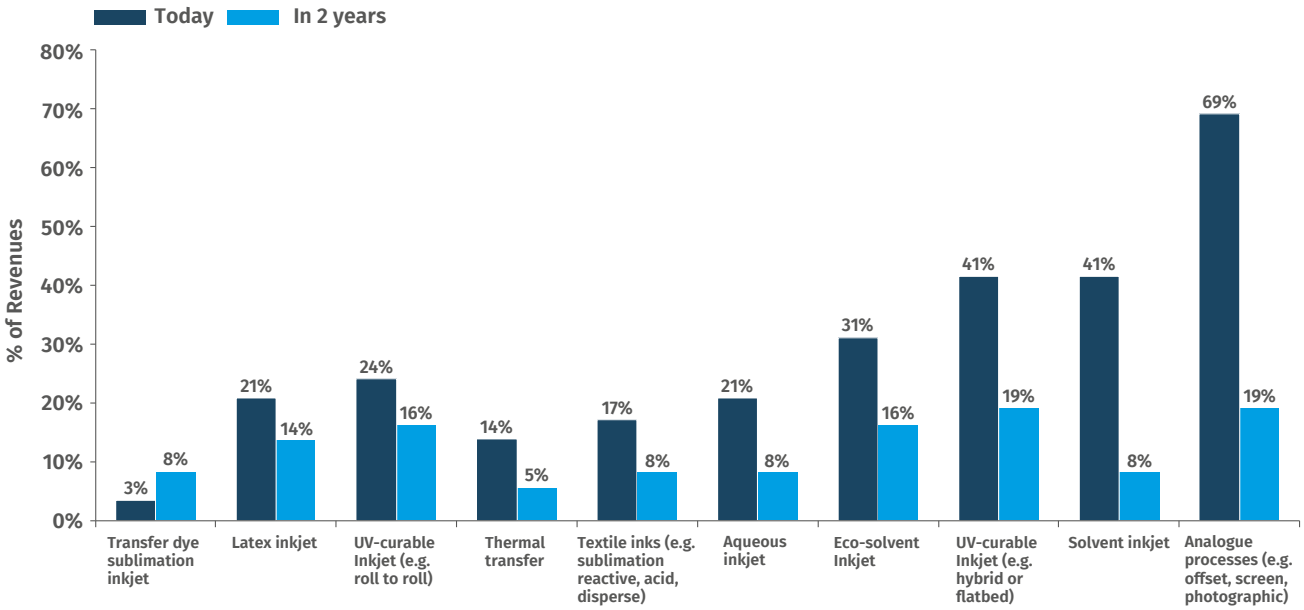
FIGURE 46:
Change in DTG Printing Revenues (By Technology Type)

N = 36 respondents in Screen Printing

years. This indicates that the installed base of systems is satisfying current needs for production capacity. Similarly, 41% of respondents own solvent printing technologies today but only 8% are planning short-term purchases. The two areas where investments remain closer to current ownership include latex and UV inkjet.

Textile printers also have a diverse range of products. 40% own sublimation devices, 23% have reactive ink, 14% have direct disperse and analogue technology is owned by a combined share of 40%. It is interesting to note that 14% of screen printers own pigment devices. Looking ahead, the screen printers who produce textiles are indicating a sharp decline in ownership of analogue printers to a combined total of about 18%.

FIGURE 47:
Sign & Display Equipment Ownership (Current & Planned)

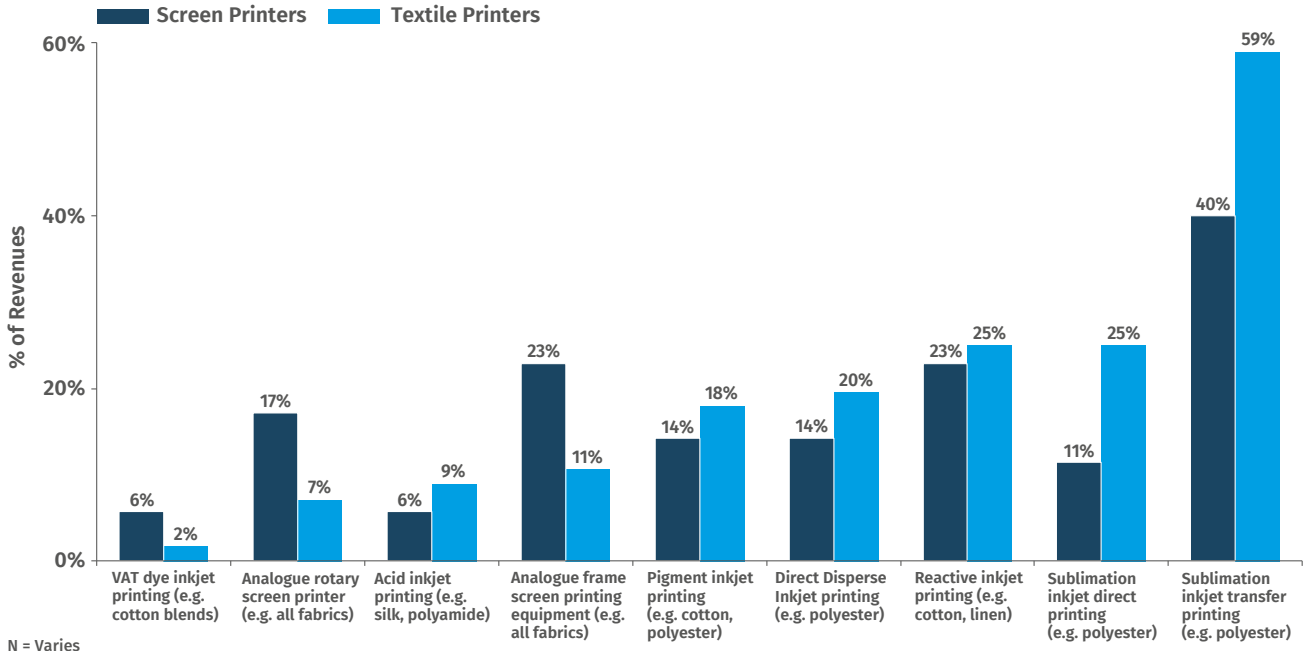


N = Varies

This decline can be attributed to the rapid adoption of sublimation, which is expected to reach 59% in 2 years. All other textile categories for this group (for example direct disperse, pigment and reactive) are expected to grow modestly. Sublimation systems are becoming attractive to an increasing array of print providers; the entry-level products are inexpensive and enable printers to quickly build their digital businesses.

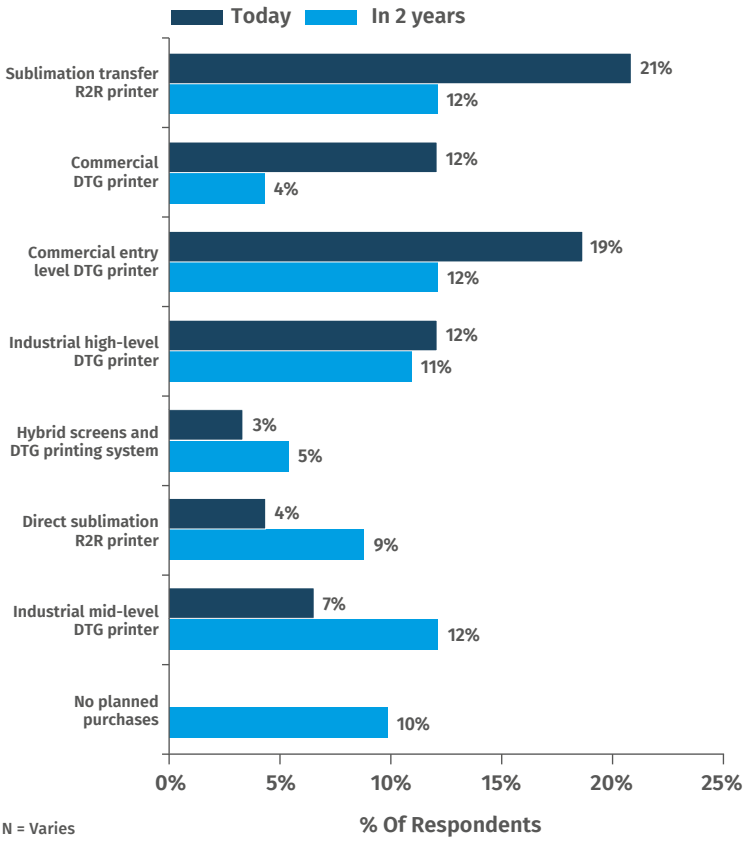
Direct-to-garment printers mirror the changes we see in the industry at large, namely migration to the adaption of faster, more productive digital printing systems. Many respondents currently own entry-level commercial and other commercial devices but these print providers are now opting to upgrade to industrial mid-level units as well as hybrid systems in the next 2 years. It is interesting to note that a number of DTG service providers also own sublimation roll-to-roll machines. These units are used for transfer

FIGURE 48:
Textile Printing Equipment Ownership (Current & Planned)



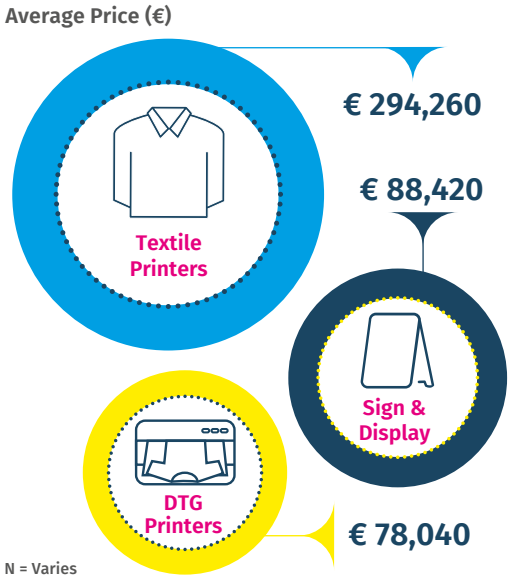
N = Varies

FIGURE 49:
DTG Equipment Ownership (Current & Planned)



N = Varies

FIGURE 50:
How much do you expect to pay for the new equipment you are planning to acquire?



N = Varies

printing on a range of substrates that DTG printers produce. In the next 2 years, the decline in transfer sublimation roll-to-roll will be supplemented by direct sublimation solutions that are becoming available in a variety of configurations and price ranges.

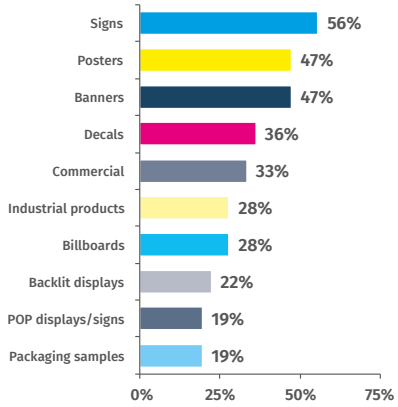
As noted earlier, screen printers are a diverse group. This diversity is also reflected in how much they expect to spend on new devices. Textile printers plan to spend an average of €294,260. At this price point, the device they may acquire will be one with high throughput that can produce high-quality output at production speeds of over 80m² an hour. Screen printers, meanwhile, only plan to spend an average of €88,420, which would enable them to enter fabric or DTG printing with a mid-range device. DTG providers are planning to spend €78,040, indicating that they are eyeing the emerging category of entry-level industrial printers. This shift has been evolving as higher speed multi-plate systems become available from a growing number of vendors.

When looking at the range of applications screen printers produce, we can see the vast differences between our respondents. Sign &

FIGURE 51:
Top Screen Printing Applications by Segment

Sign & Display

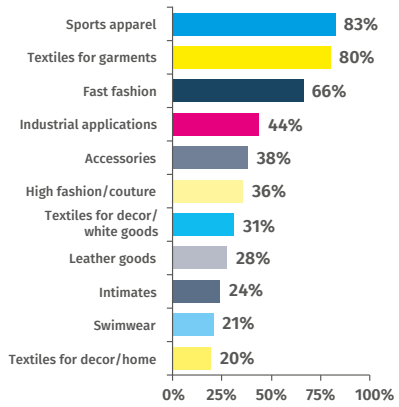
Q23: Which of the following applications do you regularly produce?



N = 36 respondents in Screen Printing

Textile

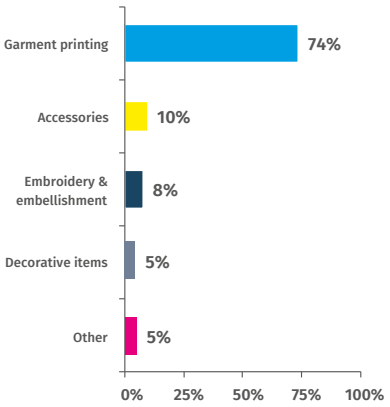
Q97: Which of the following segments do you regularly produce textiles for?



N = 86 respondents in Screen Printing

DTG

Q72: Approximately what percentage is attributed to the following items?



N = 36 respondents in Screen Printing

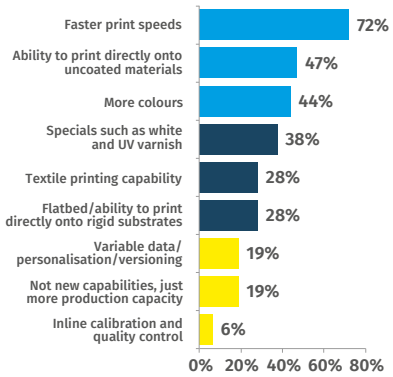
display screen printers report that their top three applications are signs (56%), posters (47%) and banners (47%). Although some sign & display screen printers produce textiles, these were not part of the top 10. Textile printers are focusing their production of fashion applications on sports apparel (83%), fabrics for garments (80%) and fast fashion (66%). On the DTG side, garment printing is the key application.

Screen printers are like-minded where technology features are considered. Naturally, sign & display printers are like textile printers, as some of the technologies used in one segment can be utilised in the other. This is reflected in their desire for similar features as demonstrated by their technology choices, with print speed in first place, followed by printing on a broad range of substrates and increased range of colours. DTG printers are somewhat different, with preferences for white inks to print on dark substrates as well as faster printing speeds. Next for DTG printers are priorities that are unique to their businesses, including printing using hybrid analogue and digital and more automation for loading/ off-loading garments from the machines.

FIGURE 52:
Top Digital Printing Features for Screen Printers

Sign & Display

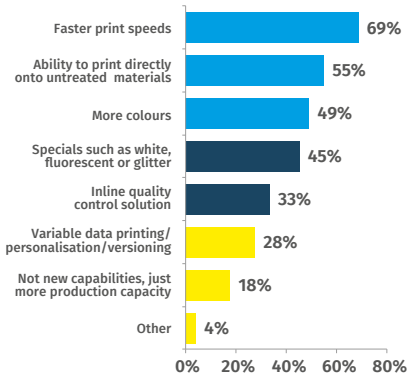
Q21: Which new wide format equipment attributes or features are of most interest to you?



N = 32 respondents in Screen Printing

Textile

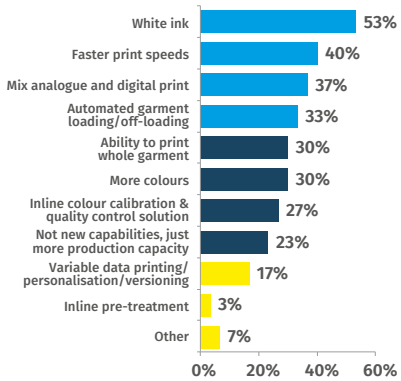
Q95: Which new fabric printing attributes or features are of most interest to you?



N = 51 respondents in Screen Printing

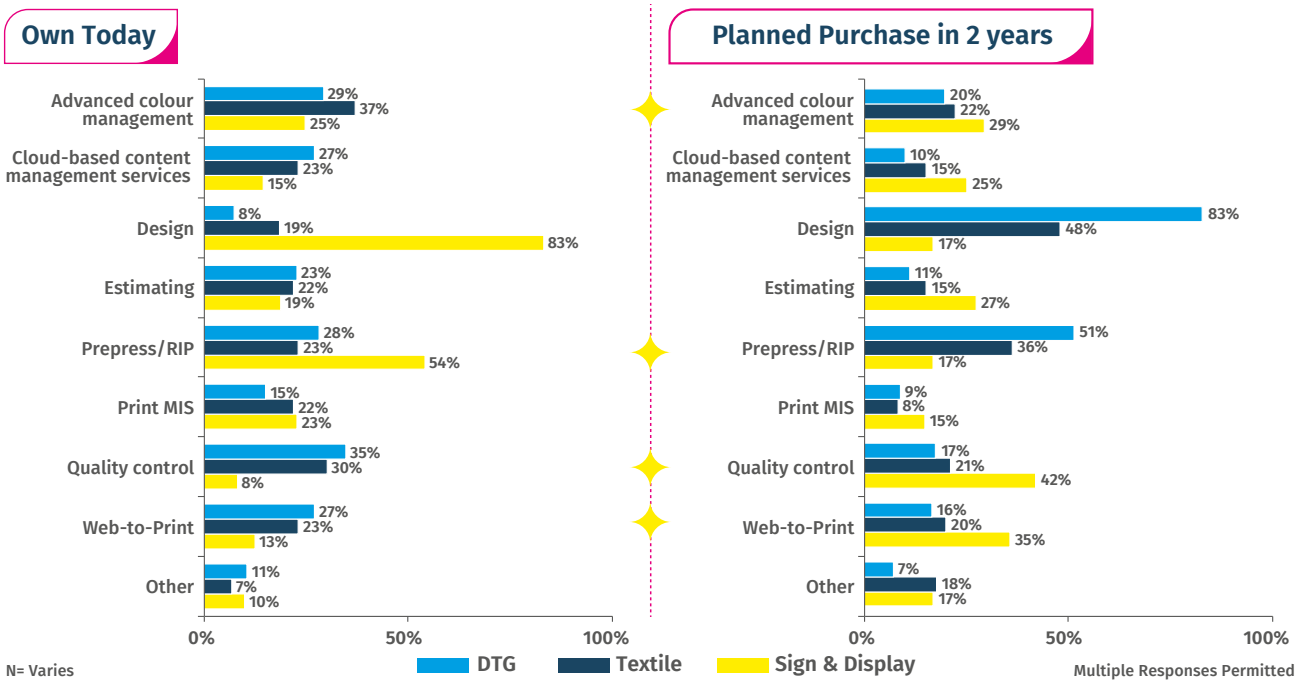
DTG

Q80: Which new direct to garment printer attributes or features are the most interesting to you?



N = 30 respondents in Screen Printing

FIGURE 53:
Screen Printing Software Investment Plans



Software Investments

Printing technology is anchored in the use of software that enables production efficiencies and customer engagement. The side-by-side charts above provide a snapshot of the software products that printers own today and what they plan to purchase in the next 2 years. Our analysis is focused on the differences between screen printers who produce sign & display, textile and DTG applications. The areas of focus for our review are indicated by the stars on the chart.

- **Advanced colour management**: Colour management matching and consistency are key for every producer. Sign & display producers are planning investments in the next 2 years that are slightly higher than that of textile and DTG producers who already made investments in this space. Design software, which is already prominent in the sign & display segment (83%), is gaining attention in the textile and DTG segments with 48% of textile printers and 83% of DTG printers planning to purchase.
- **Prepress / RIP:** Although most digital printing devices are equipped with printer drivers and some are integrated with a Raster Image Processor (RIP), an efficient prepress production workflow is critical for success. These solutions enable print shops to efficiently process jobs, provide automated imposition, enable colour management and ensure that the printer system runs at optimal throughput. 54% of sign & display providers already own prepress solutions and a few more will add prepress solutions in the future. The growth, however, is in segments that have been somewhat slow to adopt these solutions. 31% of textile printers and 51% of DTG printers are planning to add prepress/DFE solutions in the next 2 years.

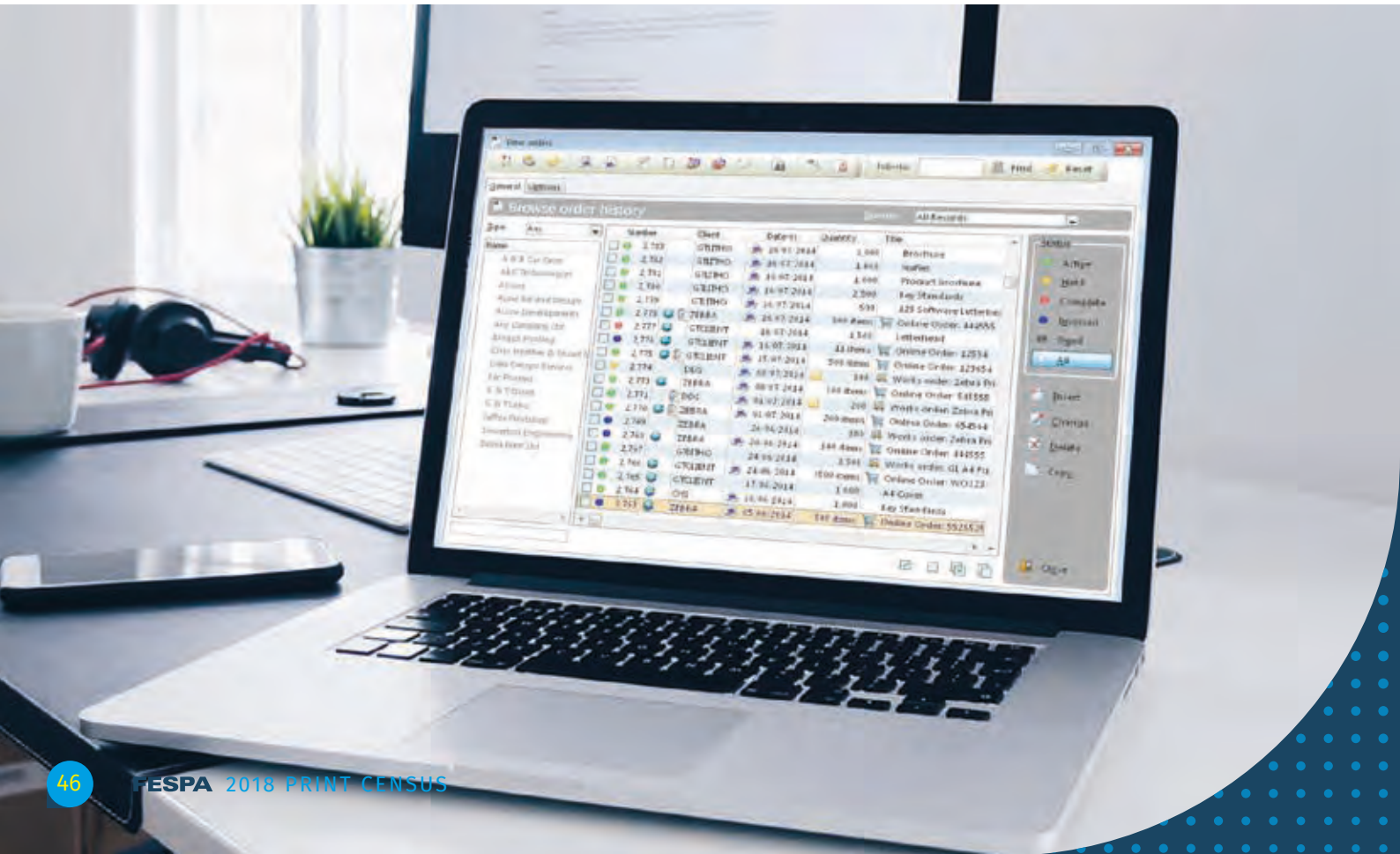
- **Quality control:** With demands for shorter deadlines, faster turnaround and more customisation, it is clear that our print providers are seeking productive prepress tools, colour management and fast RIPs. Our screen printers' respondents represent industrial markets such as textile and DTG as well as sign & display, which is rooted in the graphic arts segment. Respondents with roots in industrial manufacturing are reporting significant current use of quality control solutions deployed in their operation with 30% of textile and 35% of DTG producers already invested in quality control solutions. Nevertheless, sign & display printers are planning massive investments in quality control with 42% of respondents indicating that they will be investing in this technology in the next 2 years.
- **Web-to-Print (W2P):** This tool for direct contact with clients is critical for enabling smooth interactions. Although our sign & display respondents have indicated a low adoption to date (13%), 35% of them intend to invest in W2P in the next 2 years. Textile and DTG producers also intend to continue their investments in W2P.

When it comes to how much printers are willing to pay for their future software investments, textile printers expected to invest €19,690, compared to €10,842 for sign & display and €4,715 for DTG printers. The low average investment for the DTG group can likely be attributed to a greater share of respondents from smaller companies with fewer than 20 employees.

FIGURE 54:
How much do you expect to spend on the software that you plan to acquire?

N = Varies

With demands for shorter deadlines, faster turnaround and more customisation, it is clear that our print providers are seeking productive prepress tools, colour management and fast RIPs.



Graphic Arts & Creative

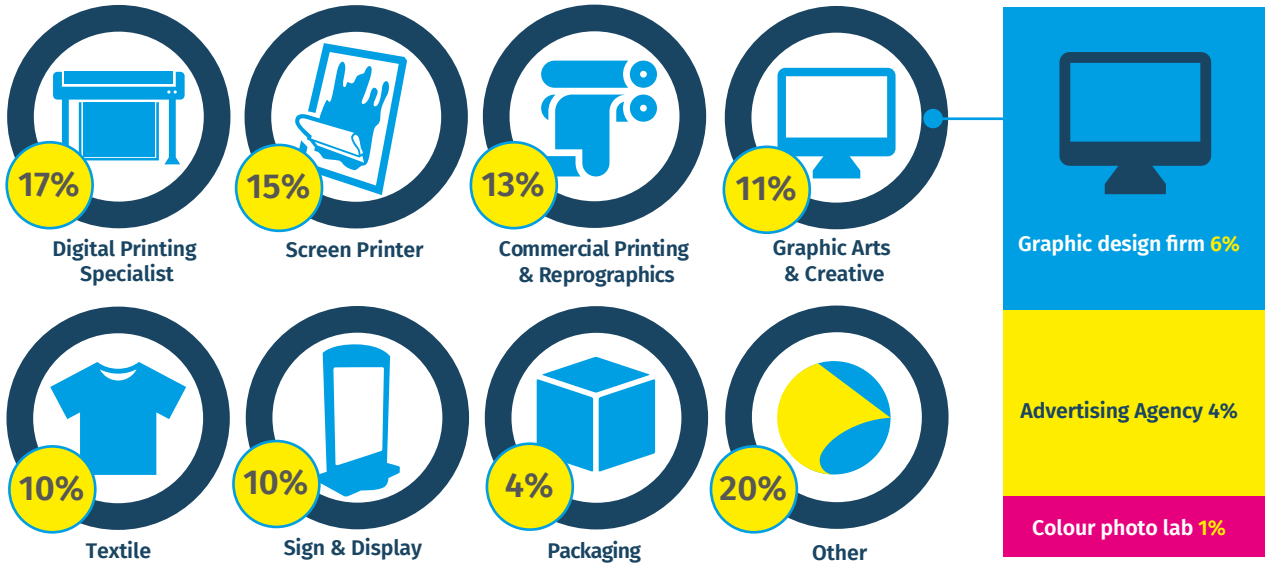
GRAPHIC ARTS & CREATIVE

A total of 152 individuals categorised themselves as Graphic Arts & Creative respondents, representing about 11% of our total FESPA survey participant base. Graphic arts and creative businesses included graphic design firms (6%), ad agencies (4%) and colour photo labs (1%).

Technology Use: Current & Future

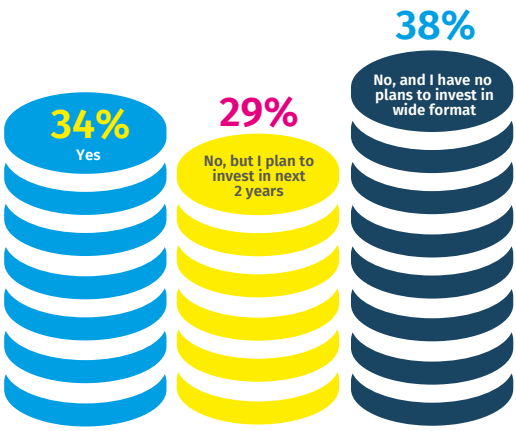
At this time, only 34% of graphic arts and creative respondents own wide format printing equipment. Another 29% of these businesses plan to invest in wide format equipment within the next 2 years. If these expectations prove true, then

FIGURE 55:
Graphic Arts & Creative Respondents by Category



N = 152 respondents whose primary business is Graphic Arts and Creative

FIGURE 56:
Do you have any wide format printing equipment at your establishment?



N = 152 respondents in Graphic Arts & Creative

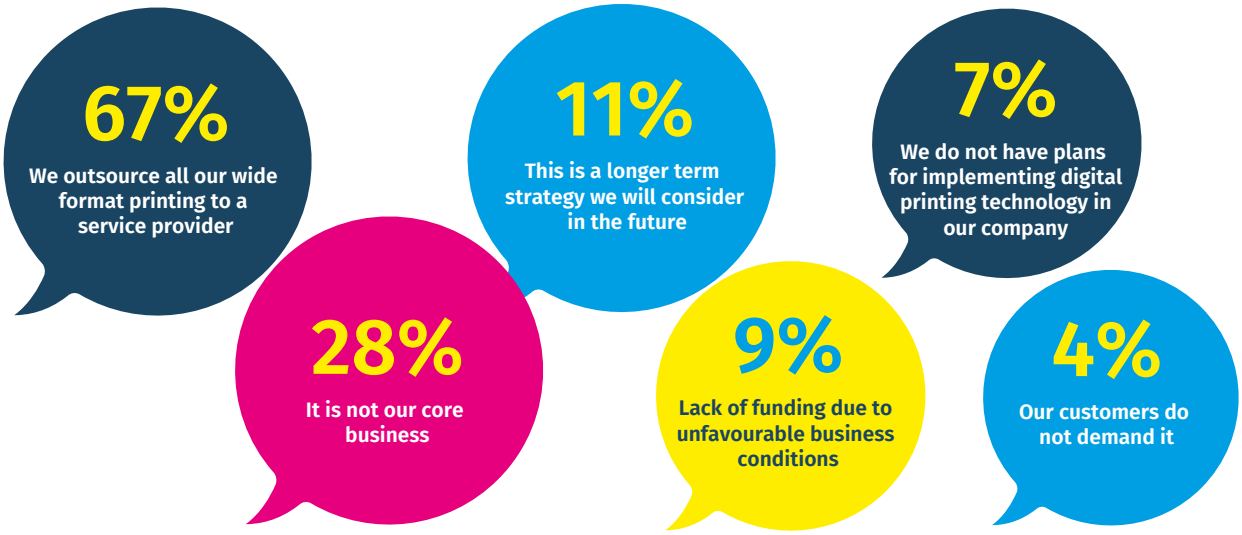
about 62% of graphic arts and creative firms will be using wide format devices in 2 years. Meanwhile, a sizeable minority of respondents (38%) have no plans to invest in wide format. This is likely because they are capable of producing their offerings on other types of equipment, but it is possible that acquiring wide format devices will enable graphic arts firms to expand their range of offerings and better compete in this constantly evolving industry.

The graphic arts & creative respondents who did not own wide format printing equipment and had no plans to purchase it were asked why they had no interest in this area. 67% reported that they outsourced all of their wide format printing services and 28% reported that wide format was not part of their core business. Another 11% believed that wide format was a longer-term strategy that they might reconsider in the future.

Those respondents who did own wide format printing devices were asked to specify the primary use of their printer. The highest percentage (45%) reported providing fee-based production services.

Survey participants indicate that the large installed base of solvent-based technologies remains active; 35% own solvent inkjet devices and

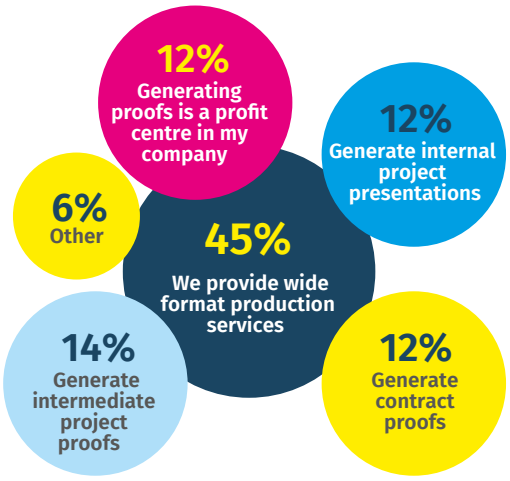
FIGURE 57:
Why are you not interested in acquiring wide format technology?



N = 57 respondents in Graphic Arts & Creative who do not own/plan to purchase wide format printing equipment

Multiple Responses Permitted

FIGURE 58:
What is the primary use of your wide format printer?



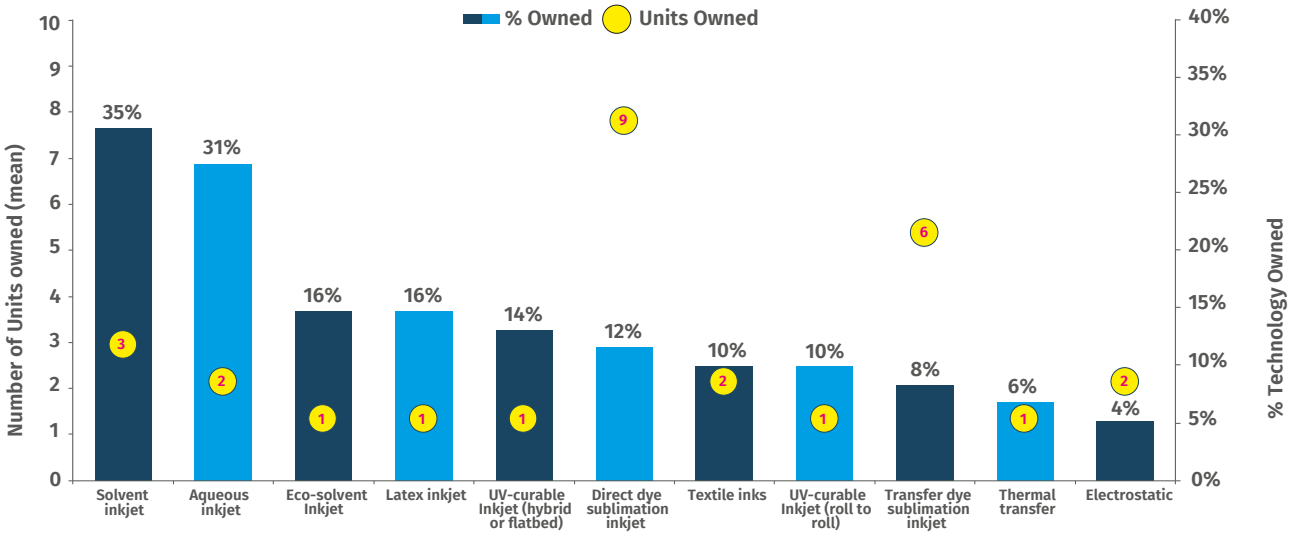
N = 152 respondents in Graphic Arts & Creative

another 16% own eco-solvent inkjet machines. In the past few years, however, roll-fed/hybrid UV (14%) and latex inkjet (16%) devices can now produce output that rivals solvent in terms of quality and durability. Aqueous inkjet devices (31%) were also quite popular.

In terms of technology ownership, the greatest share of graphic arts/creative respondents (37%) reported owning analogue printing technologies. Those respondents who did own analogue devices had an average of 7 in their shops. These devices will generally be fully amortized to produce cost-effective output for longer print runs but they might also be used for short runs of repeat jobs if the plates already exist.

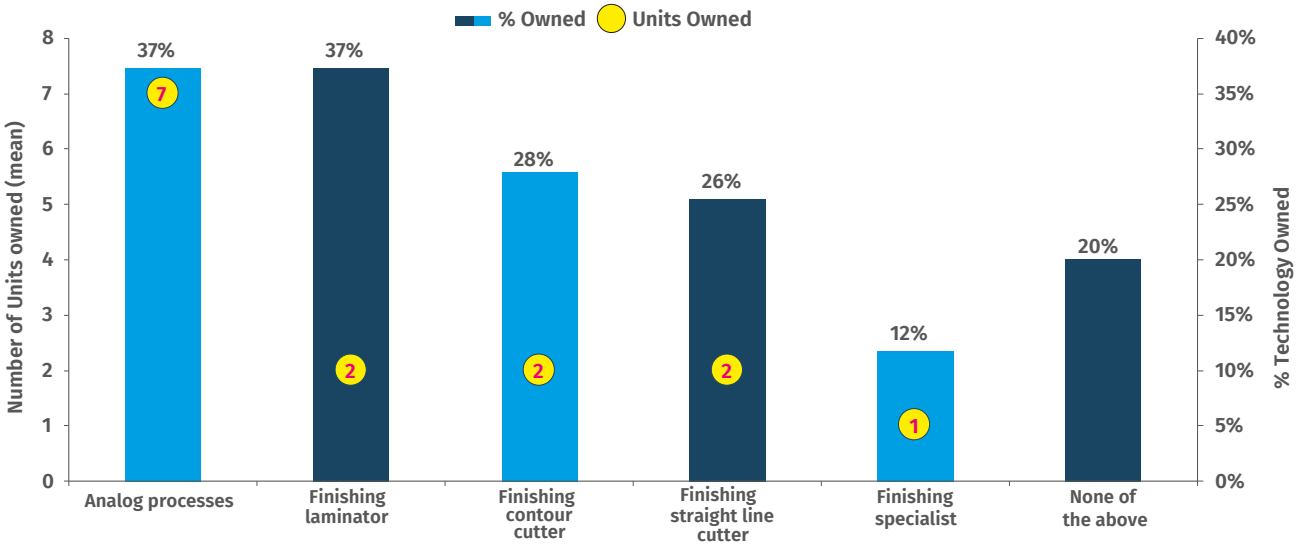
Laminators and contour cutters were also common. Laminators are useful for certain graphic arts/creative applications because they enable protection indoors as well as outdoors. Meanwhile, contour cutters are gaining popularity since they can accommodate a range of creative applications with sophisticated laser and knife cutters. These allow for a range of precise cuts on dimensional displays and form-fitting panels to accommodate assembly requirements.

FIGURE 59:
Wide Format Equipment Ownership – Graphic Arts & Creative



N = Varies / 51 respondents in Graphic Arts & Creative who own wide format printing equipment

FIGURE 60:
Analogue & Finishing Equipment Ownership – Graphic Arts & Creative

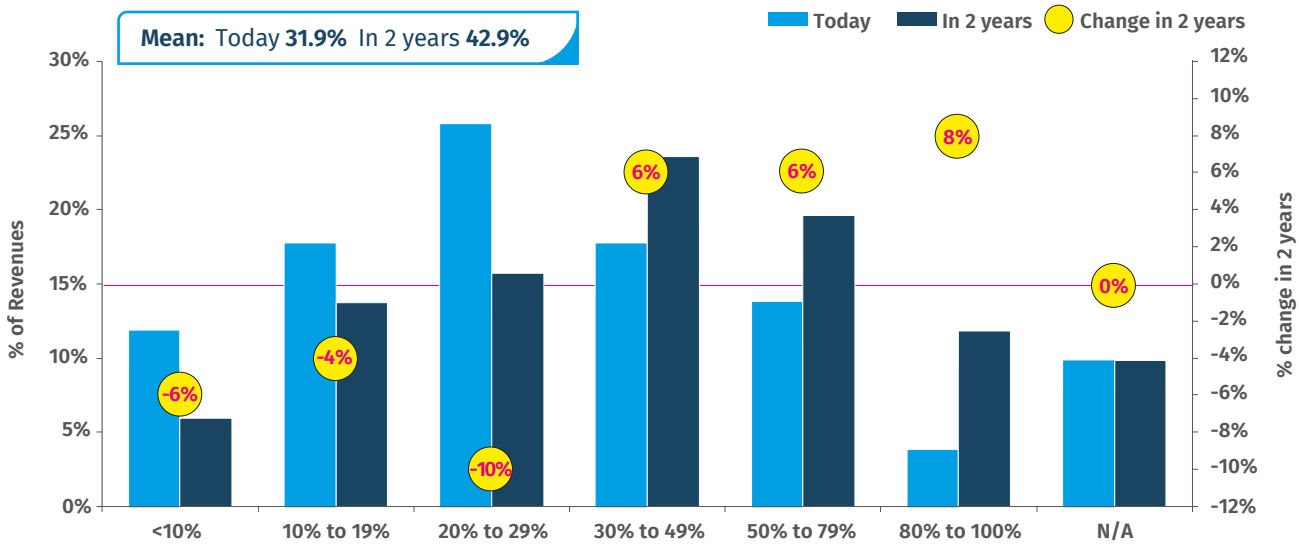


N = Varies / 51 respondents in Graphic Arts & Creative who own wide format printing equipment

The FESPA Print Census community believes that the wide format printing business will experience a 9% growth rate in the next 2 years. The Figure below highlights the share of overall business revenue that graphic arts and creative respondents attribute to wide format printing today and their expectations for the next 2 years. On average, those respondents who own wide format printers estimate that 32% of their revenue is attributable to this technology. This share is expected to reach nearly 43% in the next 2 years. Overall, nearly 55% of the graphic arts and creative respondents who own wide format devices expect their wide format revenues to increase by at least 30% over the next 2 years.

These same respondents were also asked about the types of technologies they currently owned and those they planned to purchase in the near term as well as how they expected their revenues to shift in the next 2 years in terms of type of technology. Although many respondents already own solvent devices and use them to create durable indoor/outdoor

FIGURE 61:
Change in Digital Wide Format Printing Revenues



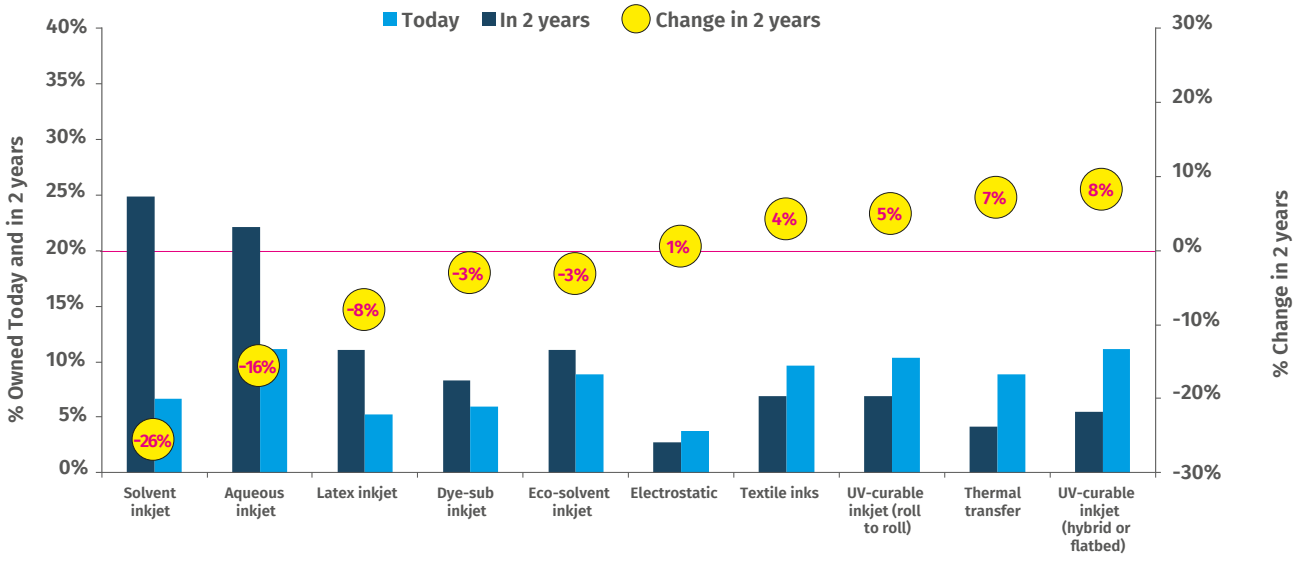
N = 51 respondents in Graphic Arts & Creative who own wide format printing equipment

applications, solvent-based inks are beginning to fall out of favour due to environmental concerns and manageability. In the next 2 years, UV-curable devices are expected to see some uptick in acquisition rates. These devices are becoming increasingly popular due to a new generation of inks with reduced VOCs and a high degree of elongation. Some UV-curable machines also use water-based rather than solvent-based ink.

For analogue and finishing devices, purchasing rates are low in relation to current ownership. This simply means that, although several graphic arts & creative establishments already own analogue devices and finishing equipment, most do not plan to purchase any new devices in the near term.

The respondents who currently own or plan to acquire wide format devices were asked to specify the product features that would be most important to them. The top criteria included the ability to print directly onto uncoated materials and faster print speeds at 45% each. Speciality inks, textile printing capabilities and a greater range of colours rounded out the top five. The core of innovation is expected to occur in material sciences. Inks that adhere to multiple surfaces, offer textures or surface protection, or even conduct electricity will likely become increasingly important as time goes on.

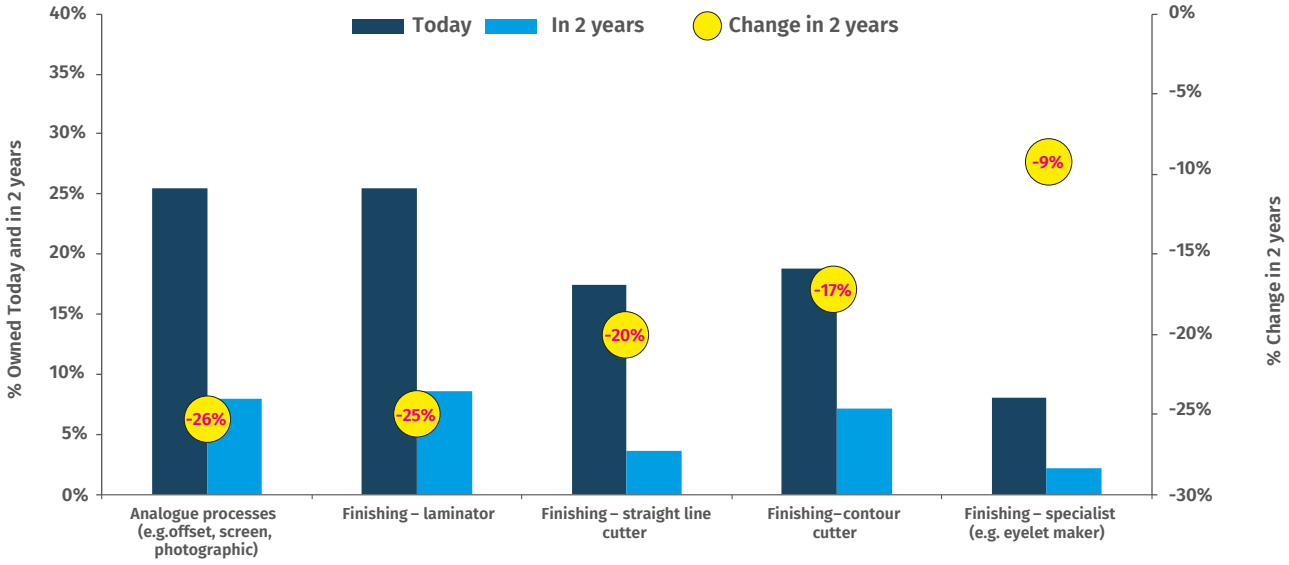
FIGURE 62:
Change in Digital Wide Format Printing Revenues (By Technology Type)



N = 95 respondents in Graphic Arts & Creative who own/plan to purchase wide format printing equipment

Multiple Responses Permitted

FIGURE 63:
Change in Analogue/Finishing Revenues (By Technology Type)

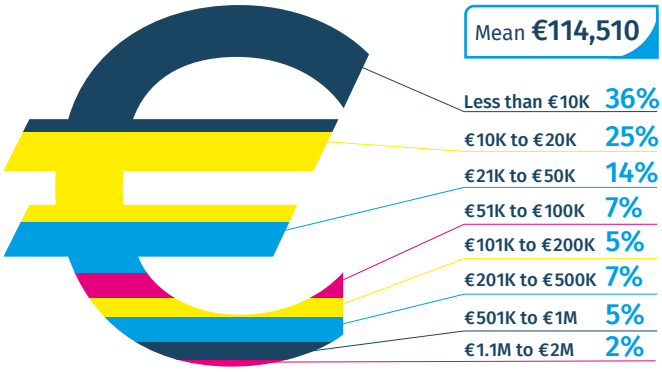


N = 95 respondents in Graphic Arts & Creative who own/plan to purchase wide format printing equipment

Multiple Responses Permitted

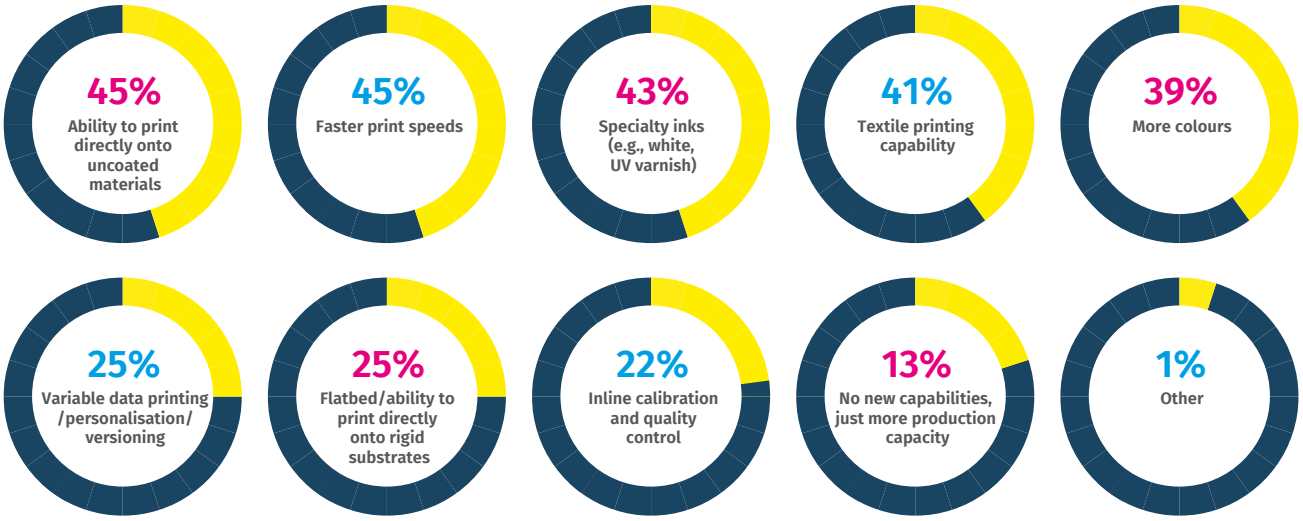
The PSPs who plan to purchase their first wide format device in the next 2 years seem to understand that better, faster higher quality devices come at a price. Graphic arts and creative respondents planning to acquire wide format printing equipment expect to pay an average of €114,510. The assumption is that many of these systems will be integrated with suitable software tools and in some cases integrated finishing equipment (for example an inline sublimation calendar in sublimation systems, media loading automation or high media capacity).

FIGURE 65:
How much do you expect to pay for the new equipment you are planning to acquire?



N = 44 respondents in Graphic Arts & Creative who plan to purchase wide format printing equipment

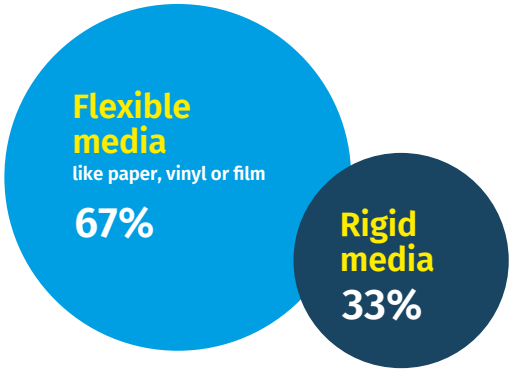
FIGURE 64:
What new wide format equipment attributes/features are most interesting to you?



N = 95 respondents in Graphic Arts & Creative who own/plan to purchase wide format printing equipment

Multiple Responses Permitted

FIGURE 67:
What percentage of your wide format output is produced on the following media?



N = 95 respondents in Graphic Arts & Creative who own/ plan to purchase wide format printing equipment

Applications Produced

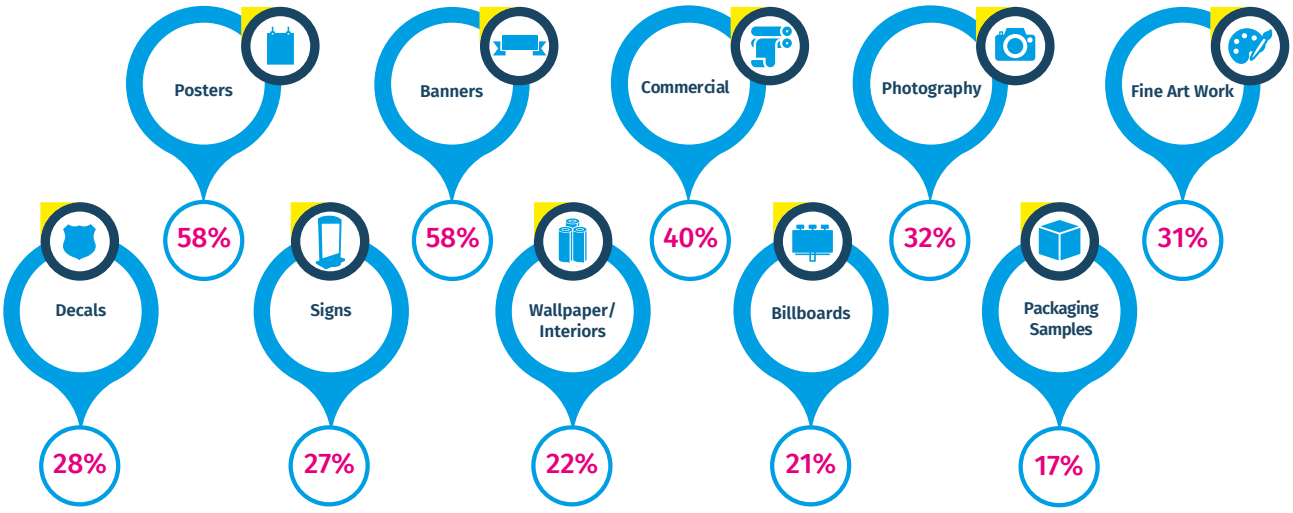
As is the case for many areas of the wide format market, graphic arts & creative respondents are focused and their top applications will align with their core business areas. Respondents who own wide format equipment or outsource their wide format services are primarily producing posters and banners at 58%, followed by commercial applications (40%).

Graphic arts & creative respondents report producing about two-thirds of their output on flexible media, with the remaining third on rigid media. The applications range will continue to shift as PSPs strive to meet their customers' substrate demands.

As is the case in other areas of the wide format market, graphic arts & creative respondents are continuing to focus on their core applications and most indicate that these applications are still experiencing growth or at least remaining stable.

It is interesting to note that, although only 28% of these respondents are regularly producing decals, this is the area with the highest share of users reporting growth (62%).

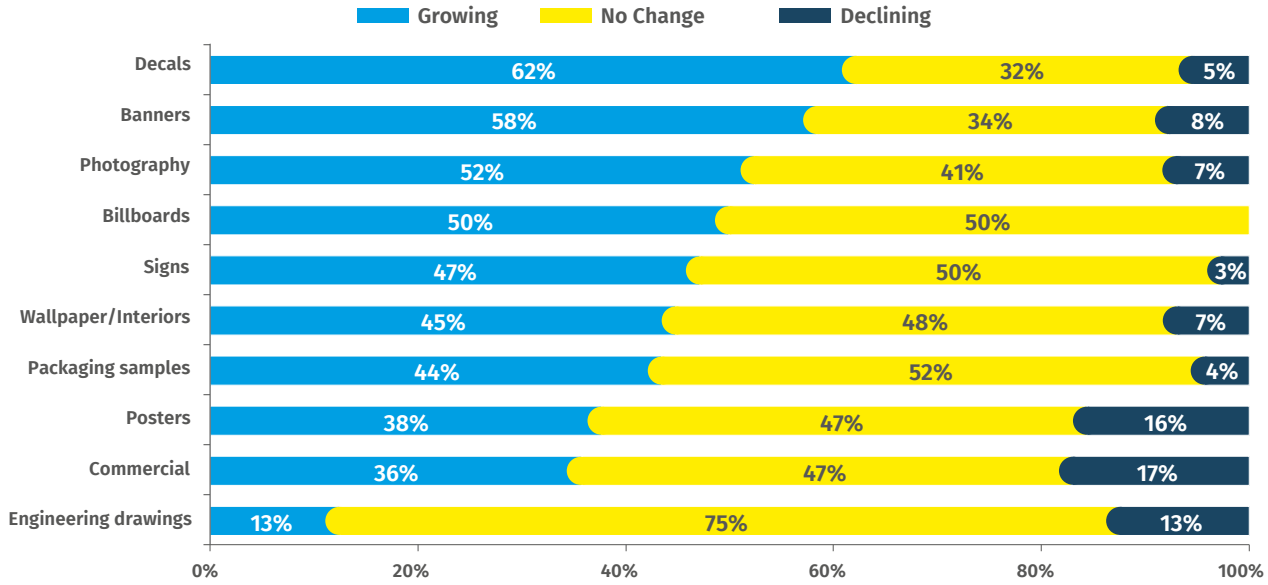
FIGURE 66:
Which of the following applications do you regularly produce?



N = 133 respondents in Graphic Arts & Creative who own wide format printing equipment or outsource wide format printing

Multiple Responses Permitted

FIGURE 68:
How are each of the following applications changing as a percentage of your wide format printing business?

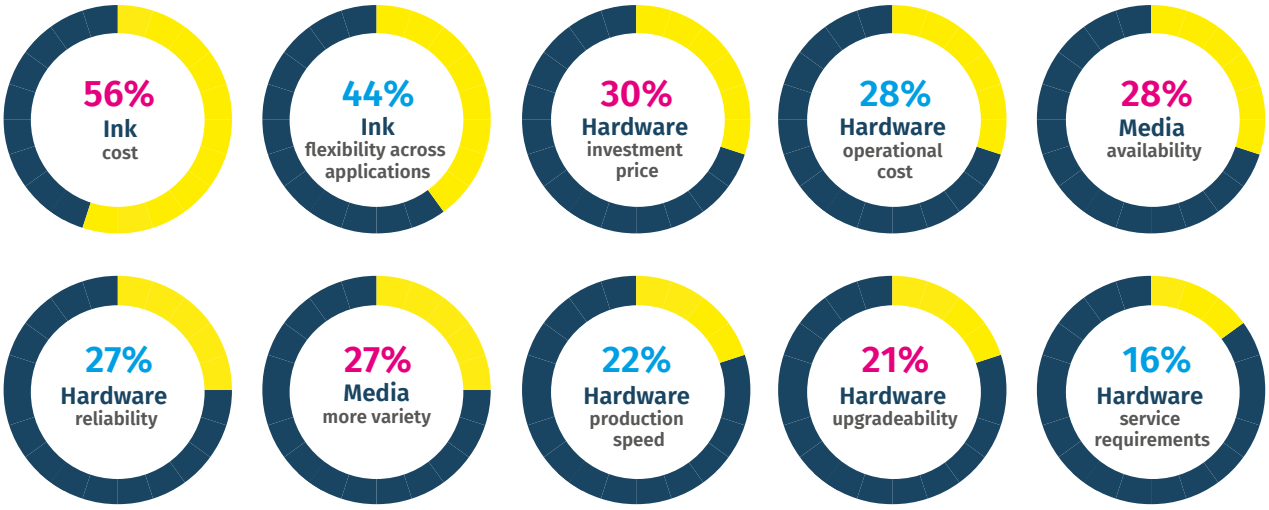


N varies, Base: Respondents that produce Graphic Arts & Creative applications

Looking to the future, graphic arts and creative respondents who own or plan to purchase wide format printing equipment were asked to specify the innovations they'd like to see in the wide format arena. Ink innovations (cost and flexibility across applications) captured the top two spots and the investment cost of hardware completed the top three. Although quality of output will always be important, these respondents want to ensure that they're receiving good value from their investments.

Graphic arts & creative respondents report producing about two-thirds of their output on flexible media, with the remaining third on rigid media.

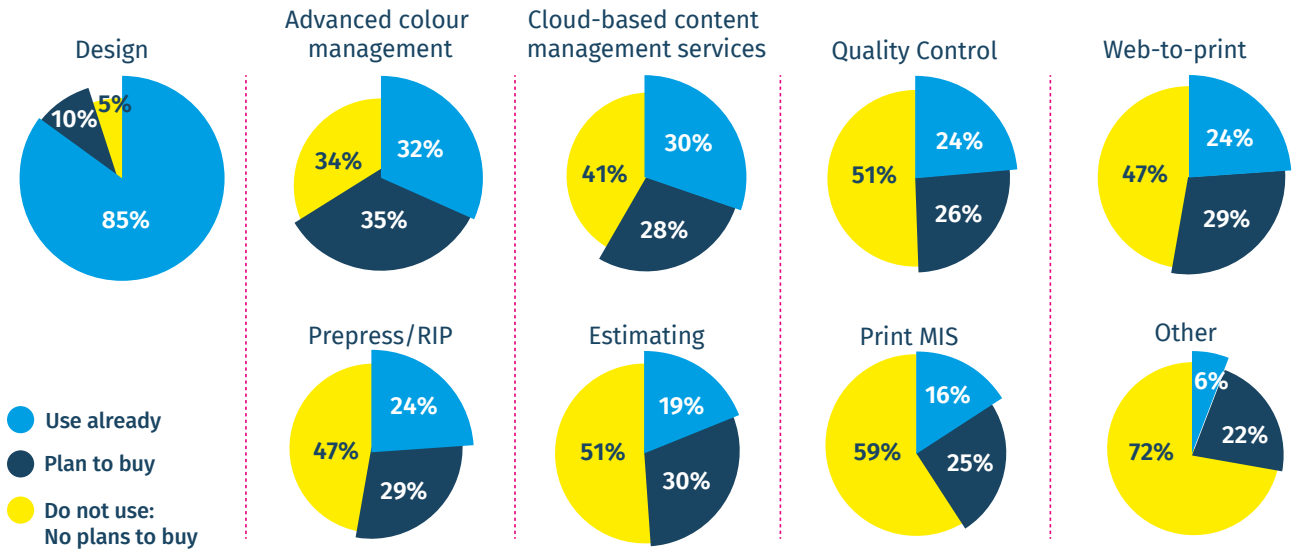
FIGURE 69:
Where would you like to see more innovations in wide format?



N = 95 respondents in Graphic Arts & Creative who own/plan to purchase wide format printing equipment

Multiple Responses Permitted

FIGURE 70:
How would you describe your ownership or investment plans for the following types of software?



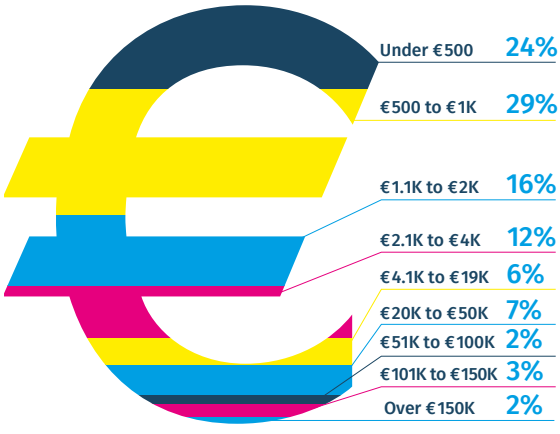
N = 152 respondents in Graphic Arts & Creative

Software Investments

An efficient workflow is integral to the production of any application. Workflow tools are vital to improving productivity, increasing quality of output and experiencing success. An efficient workflow creates a gateway that connects clients with PSPs. It streamlines production within the shop while also tracking completion to meet service-level agreements. Most graphic arts & creative respondents already use design software (85%) but use drops sharply for the other types of workflow. Many of these respondents have yet to invest in operational tools like web-to-print, prepress/RIP, estimating or print MIS. The most common tools for near-term investment include advanced colour management (35%), estimating (30%), web-to-print (29%) and prepress/RIP (29%).

Graphic arts & creative respondents who plan to purchase software in the near term expect to spend over €12,000 on their investment. It should be noted that this value is considerably higher than what was seen during our 2015 FESPA Print Census. These respondents clearly understand the value of software solutions in today's market.

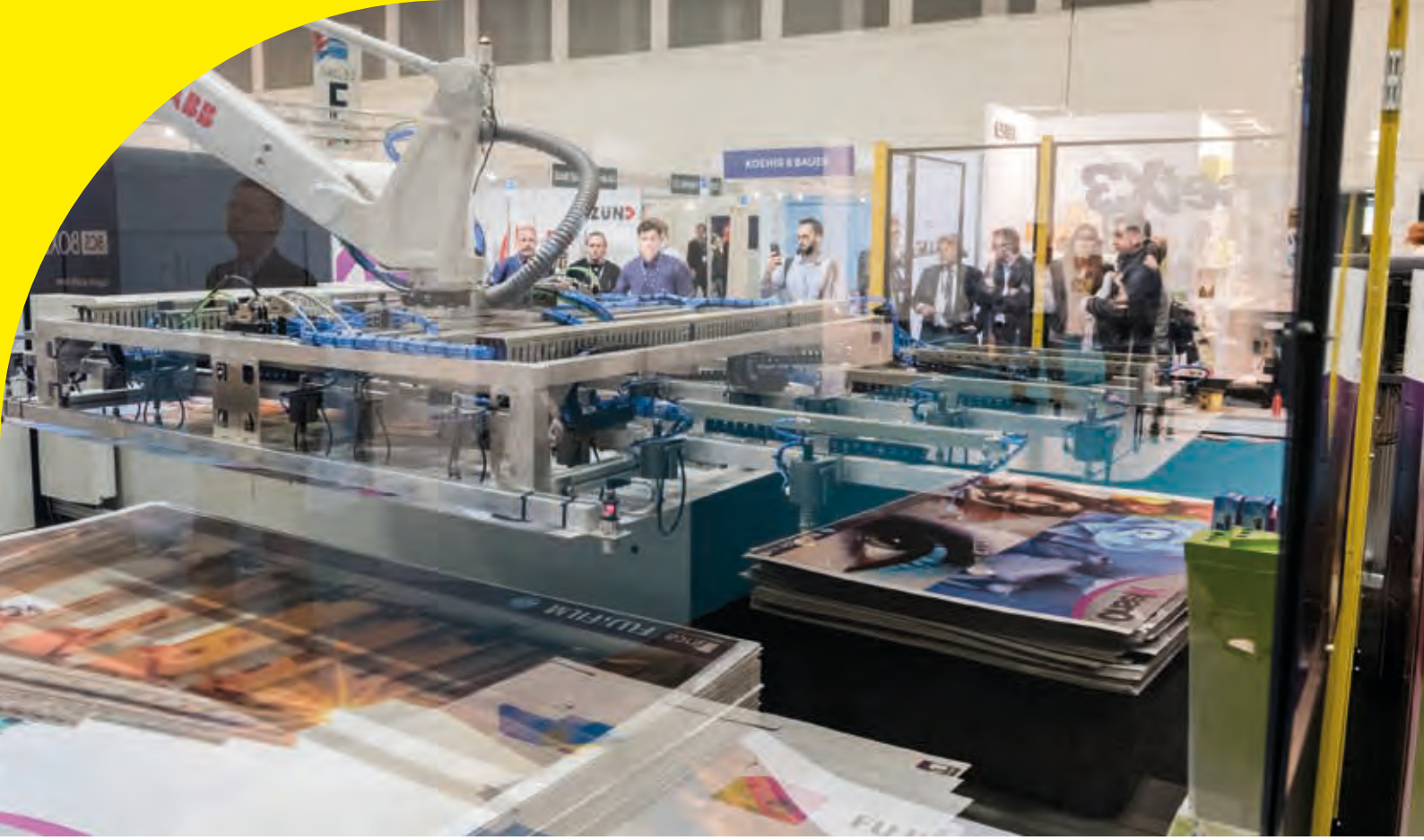
FIGURE 71*: How much do you expect to spend on the software that you plan to acquire?*



N = 103 respondents in Graphic Arts & Creative who plan on purchasing software

Mean: €12,252

Commercial Printing & Reprographics

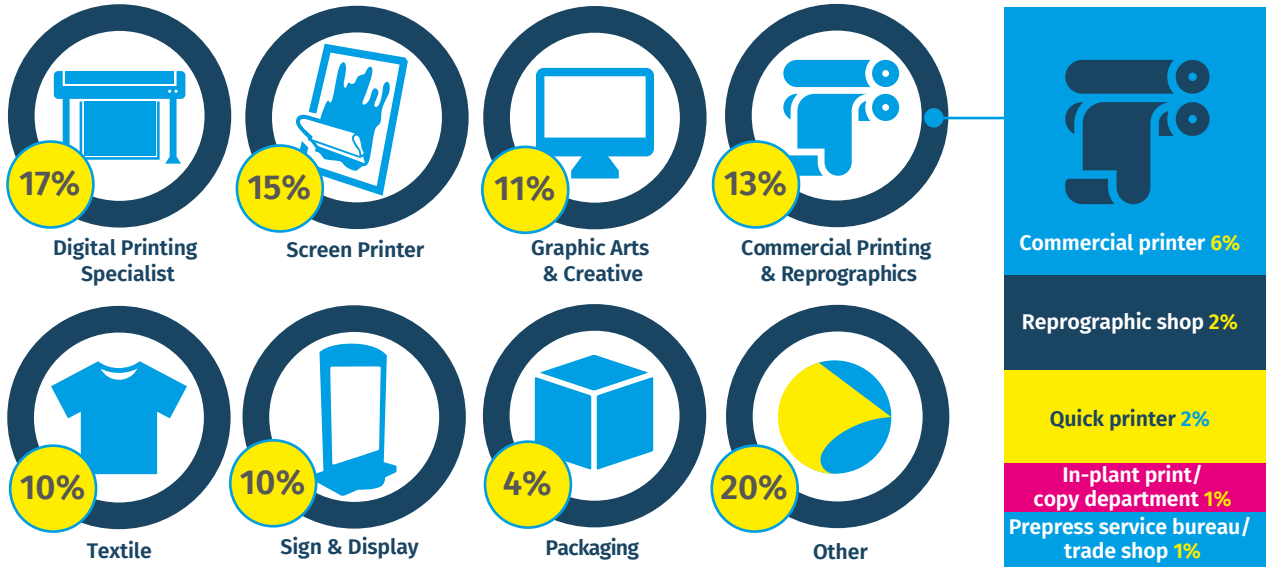


COMMERCIAL PRINTING & REPROGRAPHICS

185 of our respondents, or 13% of the total, indicated that their primary business was commercial printing and reprographics. Almost half of these respondents were commercial printers (6% of overall total), with quick printers, reprographic shops, in-plant printers and prepress shops accounting for the rest.

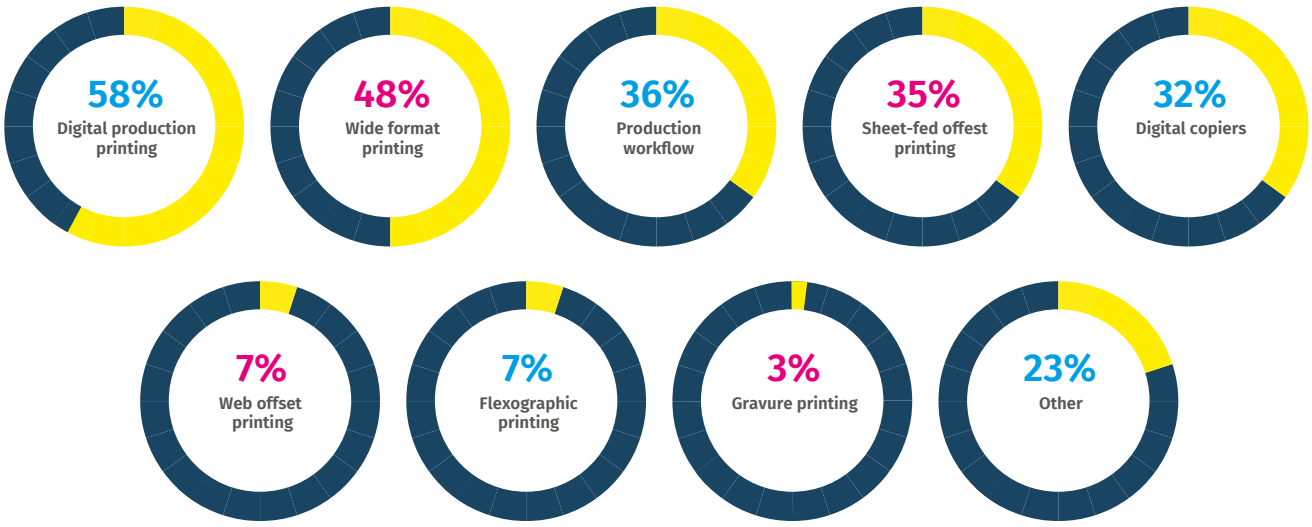
Commercial printers are typically engaged in a wide range of printing applications to meet their clients' needs. To that end, many of them have been expanding their offerings to include page printing as well as a growing range of wide format applications. They typically strengthen their relationships with clients by developing an understanding of production workflow and business acumen to expand their business offerings.

FIGURE 72:
Commercial Print & Reprographics Shops by Category



N = 185 respondents in Commercial Printing & Reprographics

FIGURE 73:
Which of the following types of page printing technologies do you own?



N = 311 respondents in Commercial Print & Reprographics

Multiple Responses Permitted

Technology Use: Current & Future

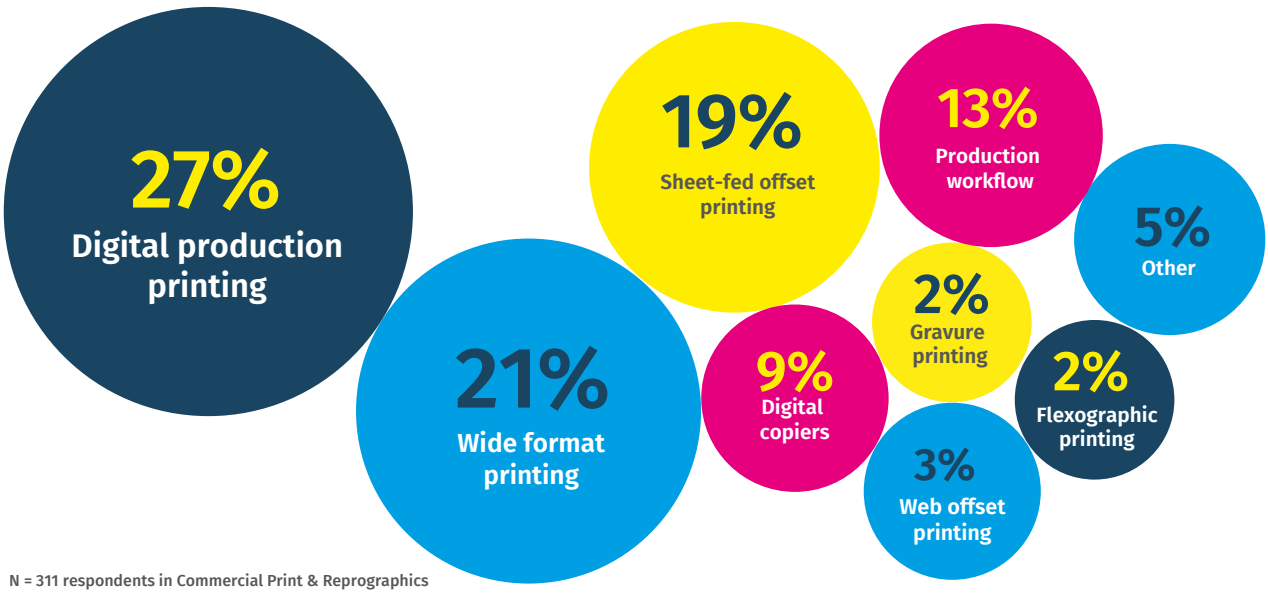
In total, 311 respondents reported that their primary business was commercial printing & reprographics or digital printing. Of these, 58% currently own digital production printing equipment. This, of course, can be mostly attributed to the 68% of digital printing specialists who own production printers. Commercial printers, however, also show a high percentage of ownership at 51%.

Wide format printing equipment also ranked as one of the most common printing technologies currently owned by these survey respondents. 56% of digital printers said they owned wide format equipment, compared to 43% of commercial printers. Meanwhile, 40% of digital printers and 27% of commercial printers owned digital copiers.

Naturally, commercial printers showed a higher ownership of sheet-fed offset printing equipment than digital printers (48% versus only 16%). Also, commercial printers (41%) were more likely to own production workflow technology than digital printers (29%).

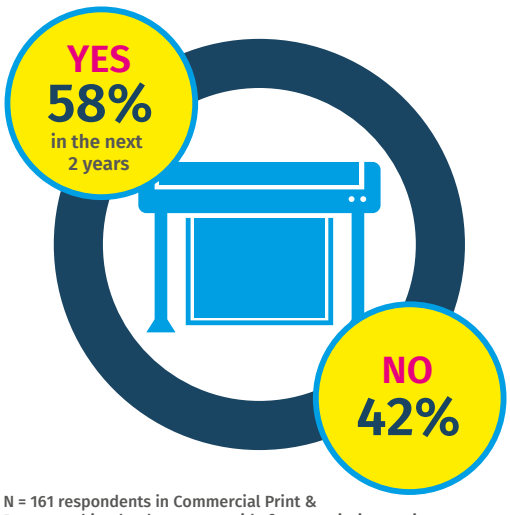
Digital production printing is the most used printing technology for the 311 commercial

FIGURE 74:
Roughly what percentage of your business/revenue is from the following printing technologies today?



N = 311 respondents in Commercial Print & Reprographics

FIGURE 75:
Do you plan to invest in wide format printing equipment?



N = 161 respondents in Commercial Print & Reprographic who do not own wide format printing equipment

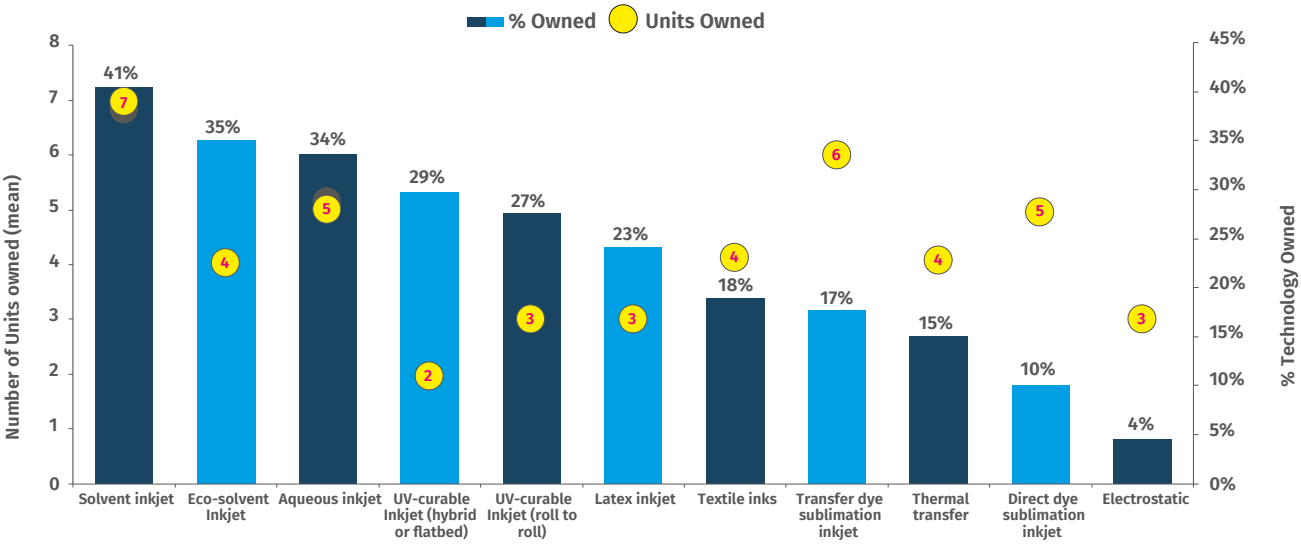
printers and digital printers surveyed, accounting for 27% of their total revenues. As expected, digital print specialists (38%) derived more of their revenue from production digital printing technology than commercial printers (19%).

Not far behind was wide format printing, with 21% of commercial and digital printers' revenue coming from this technology. Once again, digital print specialists reported a higher percentage of their revenue coming from wide format sales than that of commercial printers (29% versus 16%).

Sheet-fed offset printing technology also accounts for a large portion of commercial and digital printers' revenue. Overall, 19% of these printers' sales came from this technology, but this is almost entirely from commercial print and reprographic shops. Sheet-fed offset printing accounted for 28% of commercial printers' revenue, compared to just 6% of digital printers' revenue.

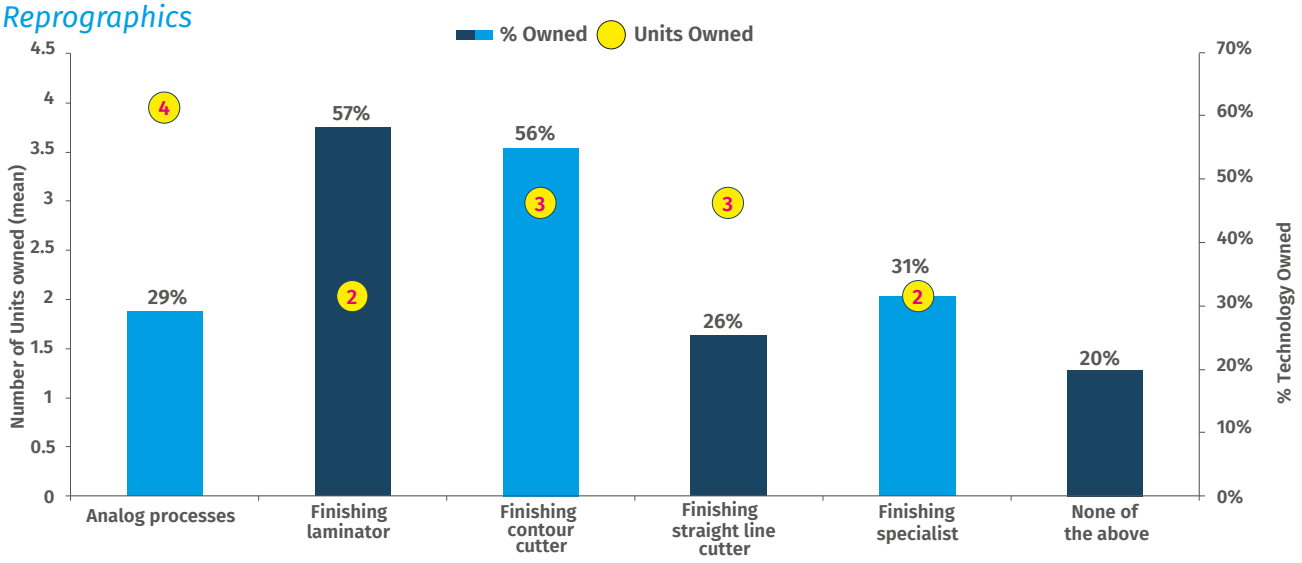
The market for wide format printing continues to grow and many printers that do not currently own wide format equipment are making plans to invest in the technology. Of the 161 commercial and

FIGURE 76:
Wide Format Equipment Ownership – Commercial Print & Reprographics



N = Varies/150 respondents in Commercial Print & Reprographic that own wide format equipment

FIGURE 77:
Analogue & Finishing Equipment Ownership – Commercial Print & Reprographics



N = Varies / 150 respondents in Commercial Print & Reprogrphic who own wide format printing equipment

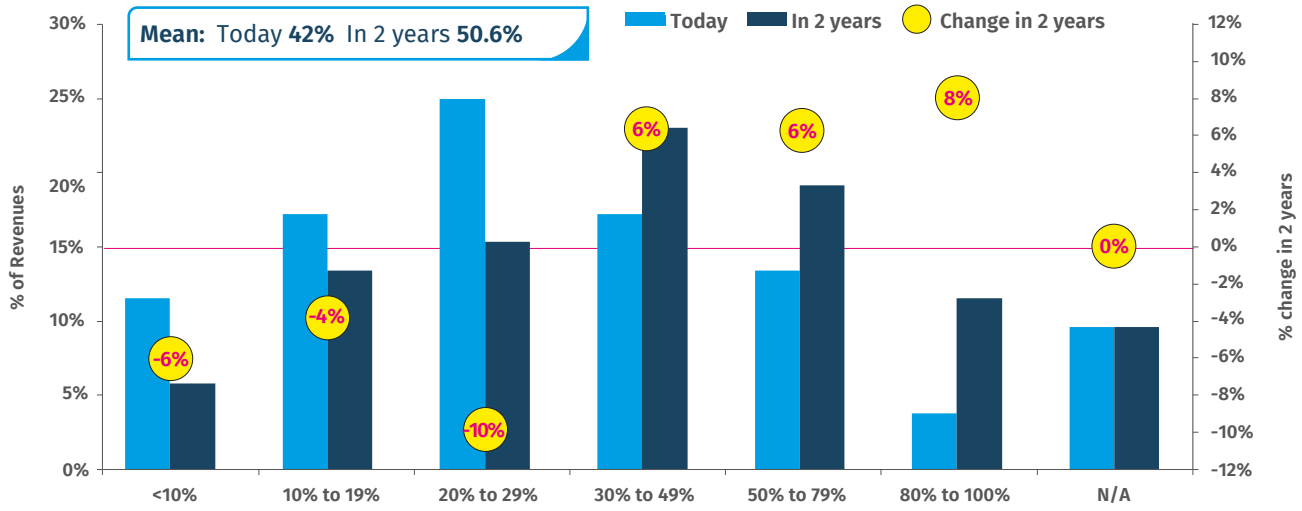
digital printers surveyed, 58% were planning on making a purchase within the next 2 years. The remaining 42% of commercial and digital printers stated that they did not have any immediate plans to invest in wide format printing technology.

150 commercial printers and digital print specialists indicated that they currently own wide format printing technology. Solvent-based inkjet devices were the most common type of printer, accounting for 41% of the total and an average of 7 devices per respondent. Eco-solvent inkjet was also dominant, owned by 35% of respondents with each having an average of 4 devices.

Aqueous inkjet followed closely, owned by 34% of respondents with an average of 5 devices per respondent. Digital print specialists (39%) were more likely to own these devices than commercial printers (29%).

UV inkjet is also a popular technology, both in hybrid/flatbed and roll-to-roll formats. Commercial printers were more likely to own roll-to-roll UV inkjet devices than digital print specialists (32% versus 21%).

FIGURE 78:
Change in Digital Wide Format Printing Revenues



N = 150 respondents in Commercial Print & Reprographics who own wide format printing equipment

The same 150 current owners of wide format technology were also asked what types of analogue and finishing equipment they owned. The two most common items owned for both commercial printers and digital print specialists were laminators and contour cutters. 57% of the total respondents indicated that they owned at least one laminator with an average of 2 devices per respondent and 56% currently possessed a contour cutter with an average of 3 devices per respondent. Specialist finishing devices (31%), other analogue processes (29%) and straight-line cutters (26%) were also common.

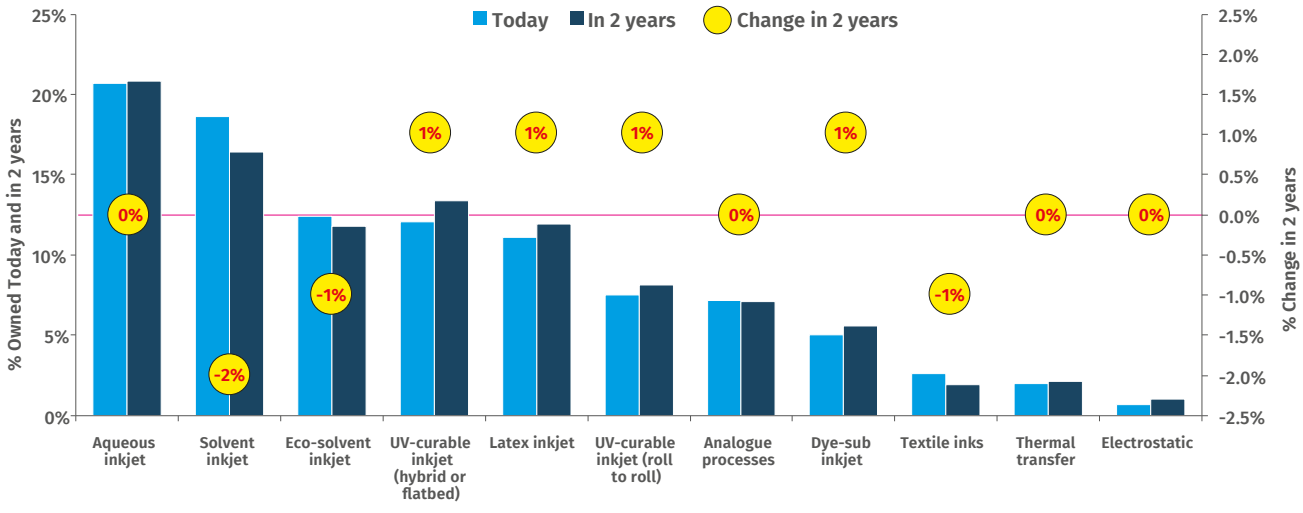
20% of respondents do not currently own any of these technologies, suggesting that they either outsource or do not provide these services.

Current owners of wide format technology were asked to share the percentage of their revenue that is attributed to wide format printing and to estimate what the percentage would be in 2 years. On average, 42% of the respondents' current revenue is derived from wide format printing and this is expected to exceed 50% in the next 2 years.

Owners of wide format technology were also asked to indicate the percentage of their overall business that was attributed to a specific wide format technology and indicate where that percentage would be in 2 years. Respondents reported that 20% of their revenue came from aqueous inkjet and this percentage is expected to remain unchanged over the next 2 years. Owners of solvent inkjet said that about 18% of their revenue currently comes from this technology, though they do expect to see a 2% decline in this area over the next 2 years. Eco-solvent is also expected to decrease by about 1% in favour of other technologies.

Flatbed UV-curable inkjet and latex inkjet are growing; each technology accounts for about 12%

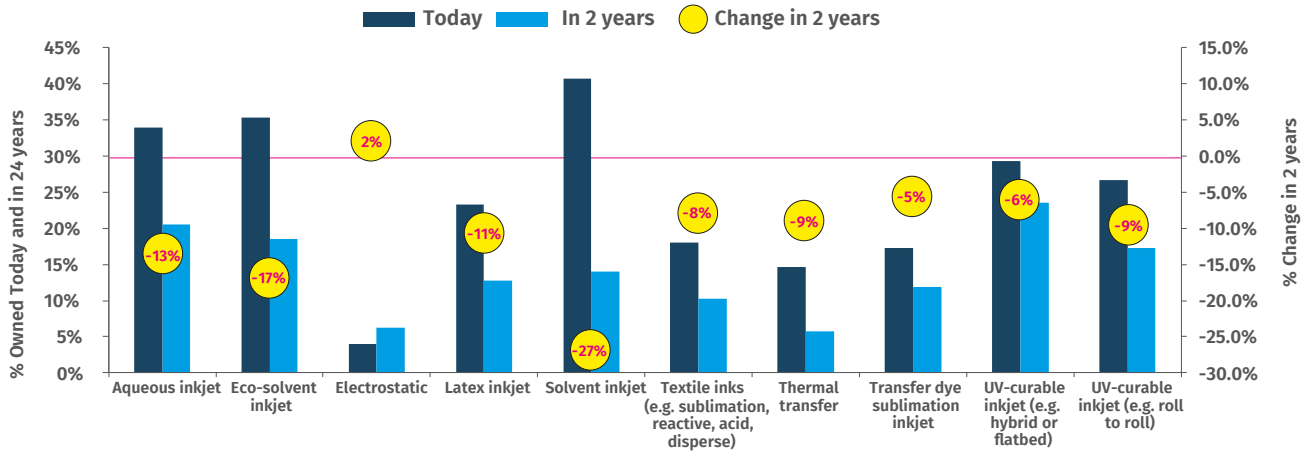
FIGURE 79:
Change in Digital Wide Format Printing Revenues (By Technology Type)



N = 150 respondents in Commercial Print & Reprographic that own wide format equipment

Multiple Responses Permitted

FIGURE 80:
Wide Format Equipment Ownership – Current & Future



N = 150 respondents in Commercial Print & Reprographics who own wide format printing equipment

Multiple Responses Permitted

of respondents' current revenue and they are estimated to increase incrementally over time. UV-curable roll-to-roll inkjet and dye-sub inkjet technologoies are also expected to go up slightly.

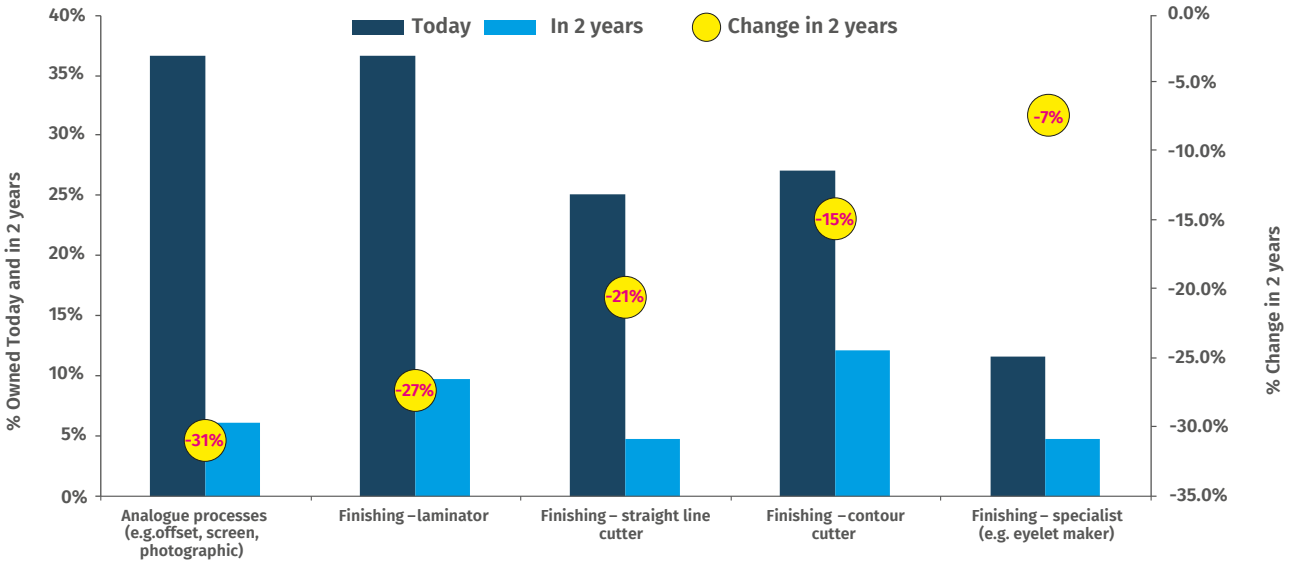
Although not as pronounced with commercial print & reprographics respondents as it was with the sign & display segment, the ongoing decline in solvent printing and subsequent growth in UV printing is a noteworthy trend.

Survey respondents were also asked if they were planning on purchasing digital wide format printing equipment in the next 2 years. Many respondents were planning on purchasing UV inkjet equipment in the next 2 years. 24% indicated interest in hybrid or flatbed UV inkjet and 17% said they were planning on investing in roll-to-roll UV inkjet. Some also expressed interest in aqueous inkjet (21%) and eco-solvent (19%). Other technologies were not as popular.

Although purchasing plans for the next 2 years seem to be waning, this is likely because the existing installed bases are adequate for respondents' needs at this time. As noted above, however, investments in solvent printing are declining overall in favour of UV and latex technologies.

The purchasing outlook for analogue and finishing equipment is also diminished. Most respondents indicated that they were not likely

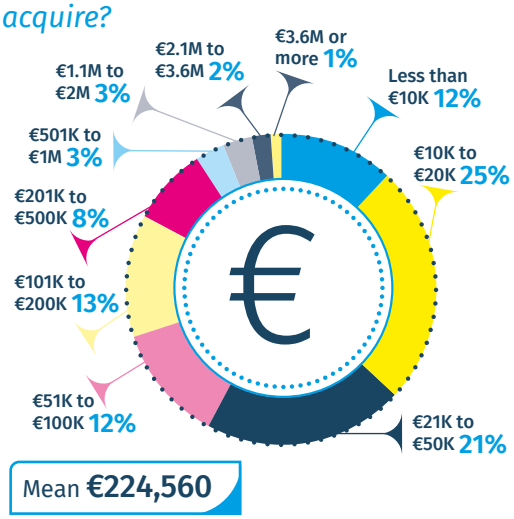
FIGURE 81:
Analogue & Finishing Equipment Ownership – Current & Future



N = 150 respondents in Commercial Print & Reprographics who own wide format printing equipment

Multiple Responses Permitted

FIGURE 82:
How much do you expect to pay for the new equipment you are planning to acquire?



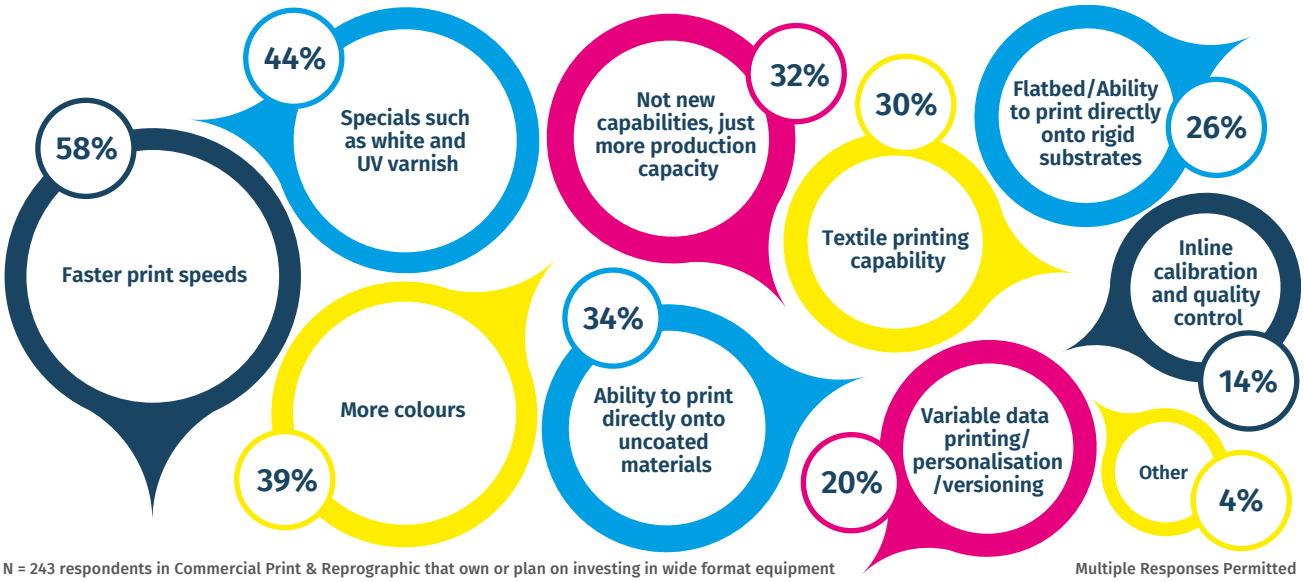
N = 194 respondents in Commercial Print & Reprographic who plan to purchase digital wide format equipment/accessories

to purchase analogue processes, laminators, straight line cutters, contour cutters, or other specialised equipment in the next 2 years. Some, however, are planning to purchase additional equipment. Wide format printers looking to expand their finishing capabilities are most likely to purchase contour cutters, with 12% of respondents indicating interest in this equipment. Some respondents also indicated interest in laminators (10%), analogue processes (6%), straight line cutters (5%) and specialist finishing devices (5%).

The 194 commercial and digital printers who plan to invest in new wide format technology expect to pay an average of €224,560 for their next device. This is a considerable sum for a wide format printing device, so many of these respondents are likely planning on purchasing high-volume production devices that support a wide range of media in production size rolls or boards.

Commercial & Reprographics printers who currently own or plan to purchase wide format equipment were asked which features most interested them. Of the 243 total respondents, 58% cited faster print speeds as an important consideration. Speciality inks such as white and UV varnish were also desirable for 44% of

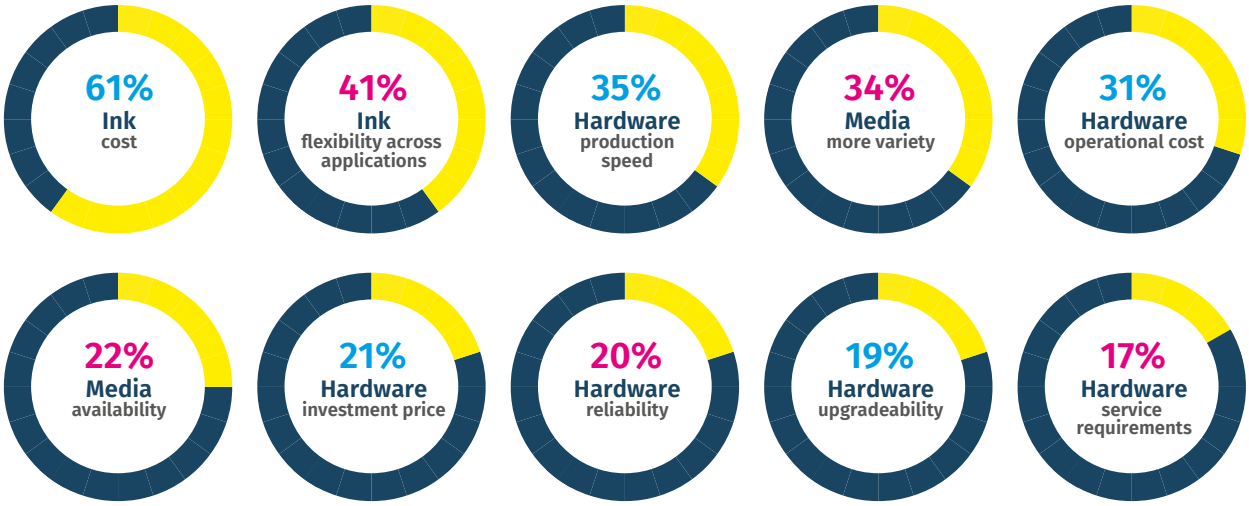
FIGURE 83:
What new wide format equipment attributes/features are most interesting to you?



N = 243 respondents in Commercial Print & Reprographic that own or plan on investing in wide format equipment

Multiple Responses Permitted

FIGURE 84:
Where would you like to see more innovations in wide format?



N = 243 respondents in Commercial Print & Reprographic that own or plan on investing in wide format

Multiple Responses Permitted

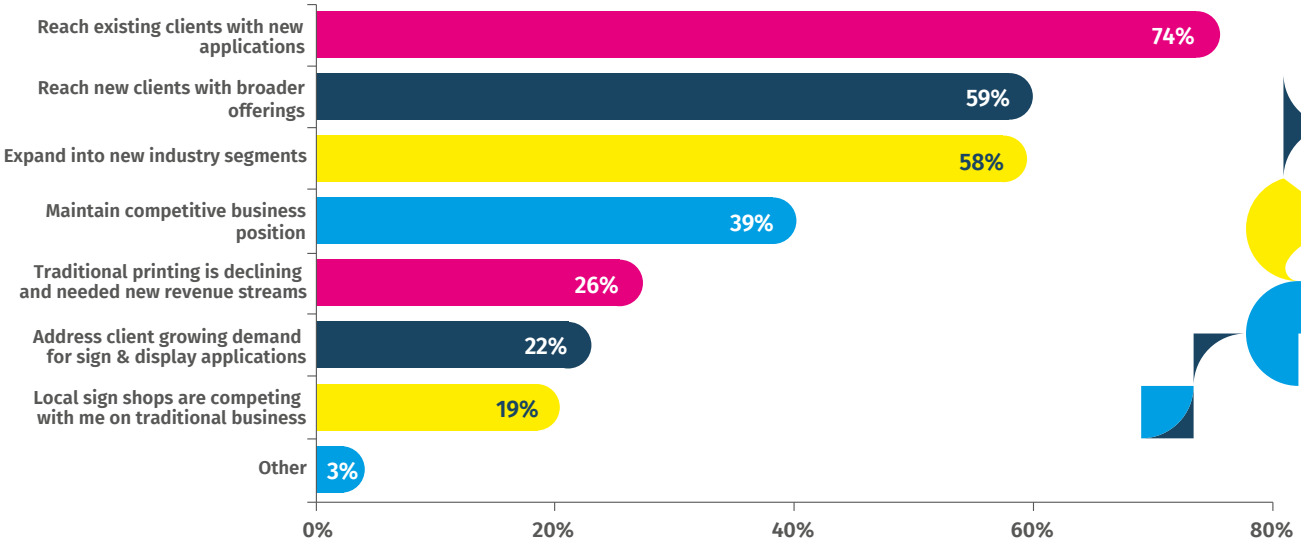
respondents. Printers that can handle additional colours and an increased substrate range were also desirable.

Interestingly, 32% of respondents said they would rather have increased production capacity than new features, suggesting that many wide format printers value increased print volume over adding new functionality.

Current and prospective wide format customers were also asked about the innovations they would like in wide format printing technology. 61% said they would like to see innovation in the cost of ink, showing that many printers are concerned about the high cost of consumables for wide format printing. 41% of respondents also noted that ink flexibility across applications was important to them. Production speed continues to be key for wide format printers with 35% of respondents hoping for innovations in print speeds.

Respondents who do not currently have wide format printers but were interested in acquiring the equipment were asked about their rationale for adding this to their product offerings. Most of the 93 respondents (74%) said they hoped to reach existing clients with new applications,

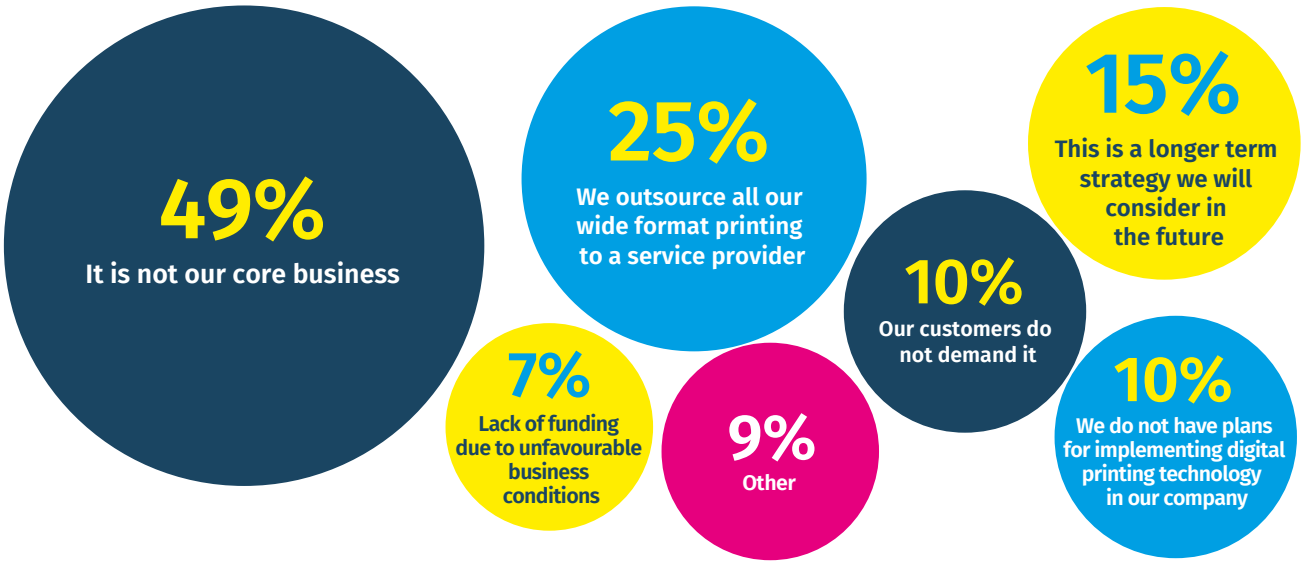
FIGURE 85:
What is the rationale for adding wide format printing to your mix of product offerings?



N = 93 respondents in Commercial Print & Reprographic with plans to purchase wide format printing technology

Multiple Responses Permitted

FIGURE 86:
Why are you not interested in acquiring wide format technology?



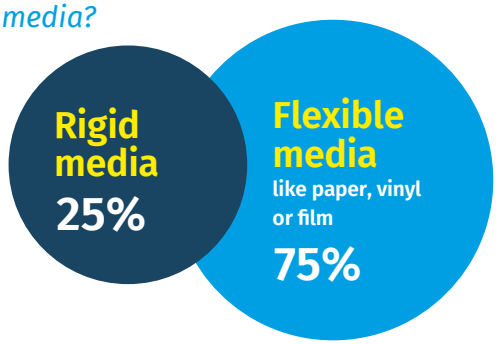
N = 68 respondents in Commercial Print & Reprographic with no wide format printing technology and no purchase plans

Multiple Responses Permitted

illustrating their desire to grow their relationships with current customers. Meanwhile, 59% wanted to reach new clients with broader offerings and 58% wanted to expand into new industry segments. Another 39% felt they needed to expand their printing capabilities to stay competitive.

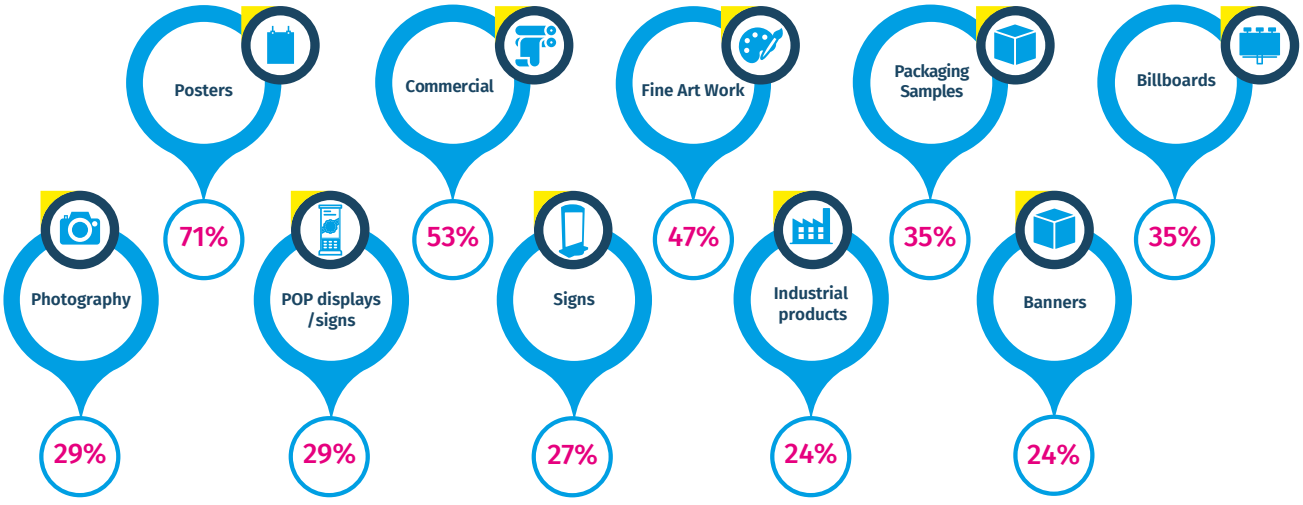
While many commercial and digital printers either currently operate wide format equipment or are planning to make a purchase, there are some printers with no wide format capabilities and no plans to expand into this area. When asked what their reasoning was, 49% of these respondents said that wide format printing was not their core business, 25% said they currently outsourced their wide format work and 15% said that expanding into wide format was a longer-term strategy.

FIGURE 88:
What percentage of your wide format output is produced on the following media?



N = 150 respondents in Commercial Print & Reprographic that own wide format equipment

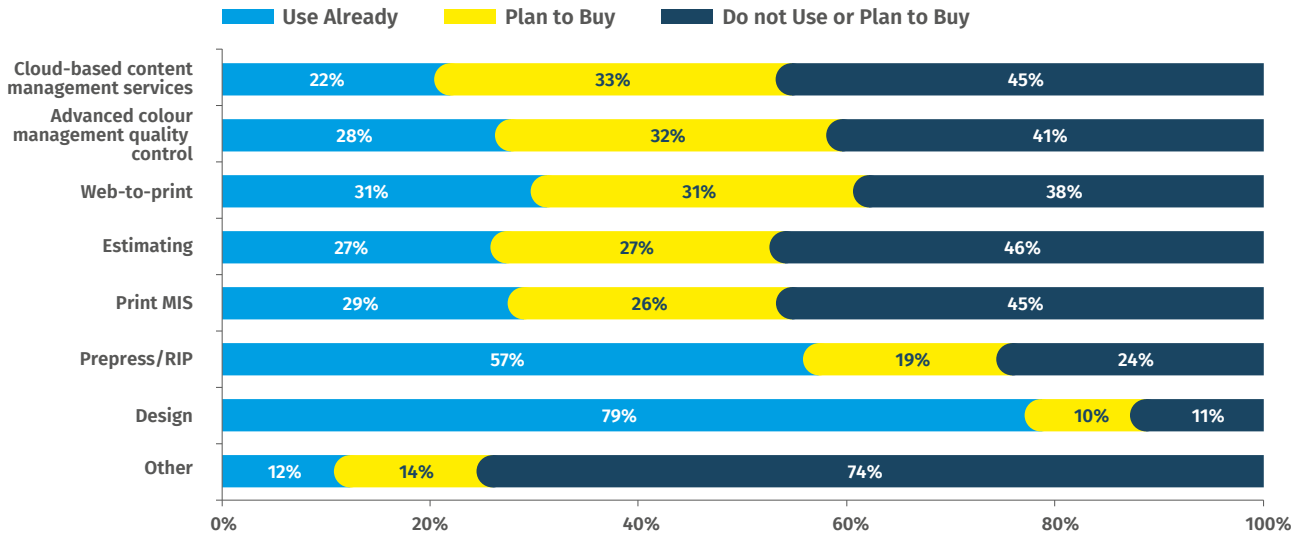
FIGURE 87:
Which of the following applications do you regularly produce?



N = 17 respondents in Commercial Print & Reprographic who own or plan to own wide format printing equipment or outsource wide format printing

Multiple Responses Permitted

FIGURE 89:
How would you describe your ownership or investment plans for the following types of software?



N = 311 respondents in Commercial Print & Reprographic

Applications Produced

Respondents who offer wide format services (either internally or via outsourcing) were asked which applications they regularly produced. Posters were the most common by far, cited by 71% of respondents. Other applications like commercial work (53%) and fine art work (47%) were also common.

Current owners of wide format printing equipment were asked what types of media they printed on. Not surprisingly, most wide format printing is done on flexible media like paper, vinyl or film.

Software Investments

Commercial and Reprographics printers were also asked about their software investments. The most common types of software currently in use were design software (79%) and prepress/RIP software (57%).

Many respondents also have plans to purchase software that will complement their current operations. 33% of respondents

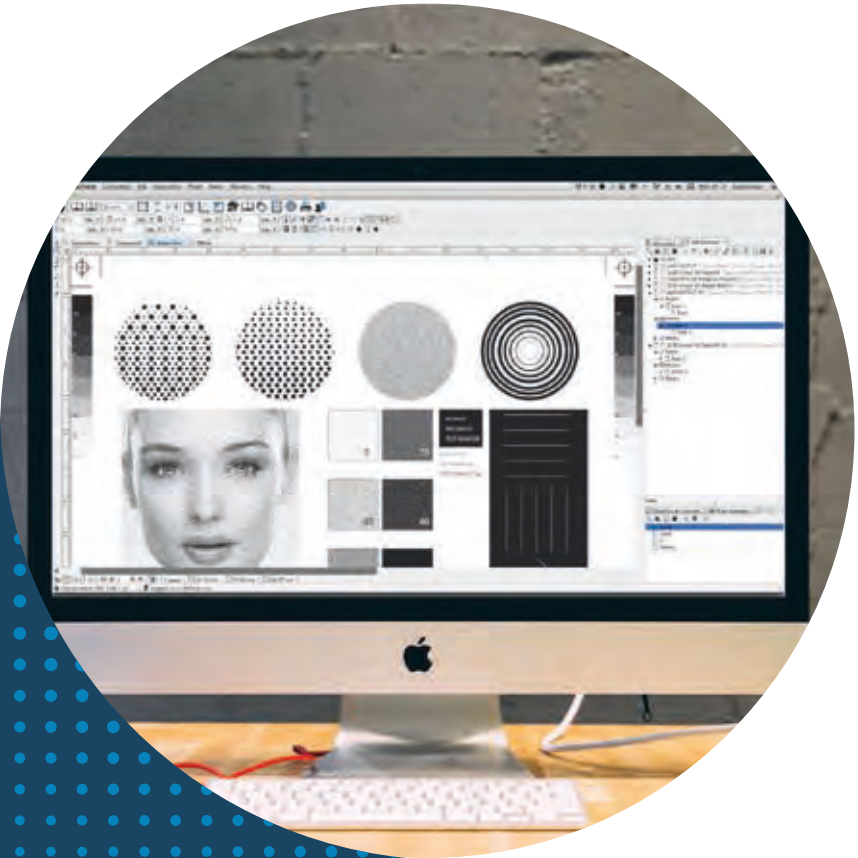
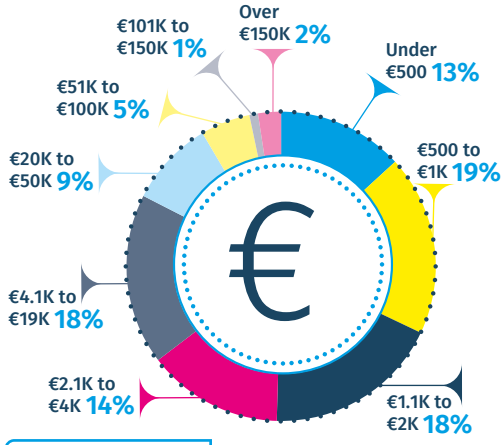


FIGURE 90:
How much do you expect to spend on the software that you plan to acquire?



Mean €15,091

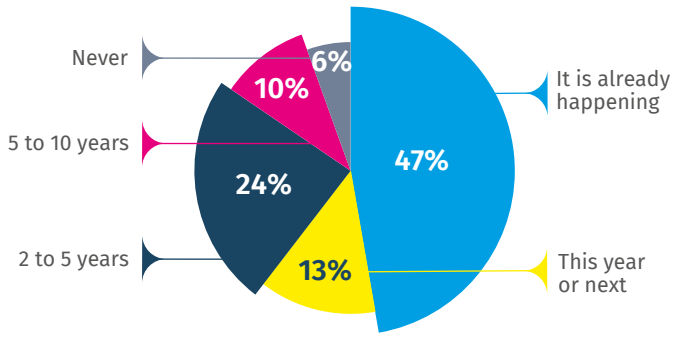
N = 212 respondents in Commercial Print & Reprographic planning to buy software

expected to purchase cloud-based content management services and 32% were planning to buy advanced colour management and quality control software. Estimating and print MIS software are also common choices.

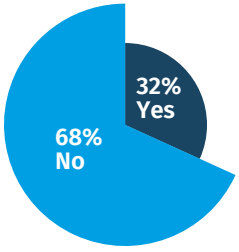
At the same time, a significant share of respondents had no plans to buy estimating software (46%), cloud-based services (45%), advanced colour management (41%), web-to-print software (38%), or print MIS software (45%).

FIGURE 91:
The Impact of Digital Displays

Q69: When, if ever, do you think live media & LCD screen advertising systems will have an impact on the wide format printing business?



Q70: Do you already offer live media and LCD advertising systems to your customer base, or do you plan to start in the next 2 years?



N = 311 respondents in Commercial Print & Reprographics

Respondents who planned on purchasing software were asked how much they expected to spend. Most planned to pay less than €20,000, with the mean expected price being €15,091.

To close out this line of questioning, Commercial & Reprographics printers were asked when they thought live media and LCD screen advertising systems would have an impact on the wide format printing market. The majority agreed that there would likely be changes in the future, with 47% of respondents saying that the impact of live media and LCD technology was on the horizon. Another 47% of respondents believed that this technology was already impacting the wide format business.

When respondents were asked if they currently offered or planned to offer live media or LCD advertising systems, the majority said they did not, however, 32% already did offer these services or planned to soon.


Benadryl
Allergy
FAST, REACTIVE RELIEF
when allergies strike
Benadryl
TAKE CONTROL
Benadryl
Allergy
TAKE CONTROL
of your allergies
Hula Hoops Variety
Snack Bus
HULA HOOPS
Get Onboard
GRAB A BAG!

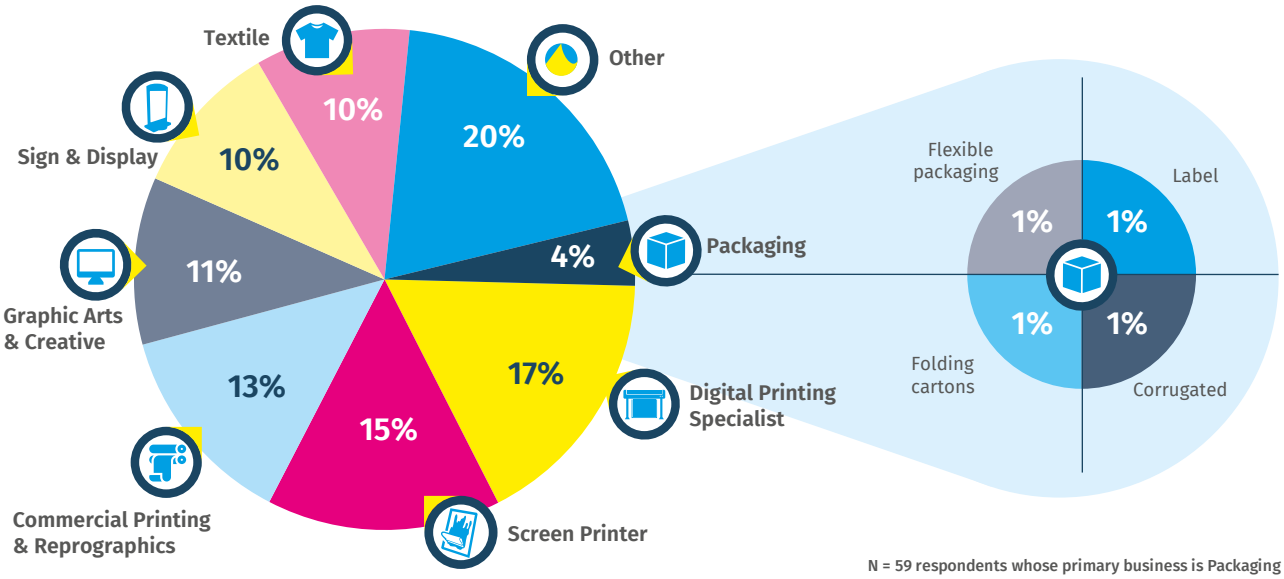
Packaging

PACKAGING

Of the 1,405 total respondents to FESPA's 2018 Print Census, 59 respondents worked at companies whose main revenues came from packaging of some type. These respondents are the focus of this section of our report.

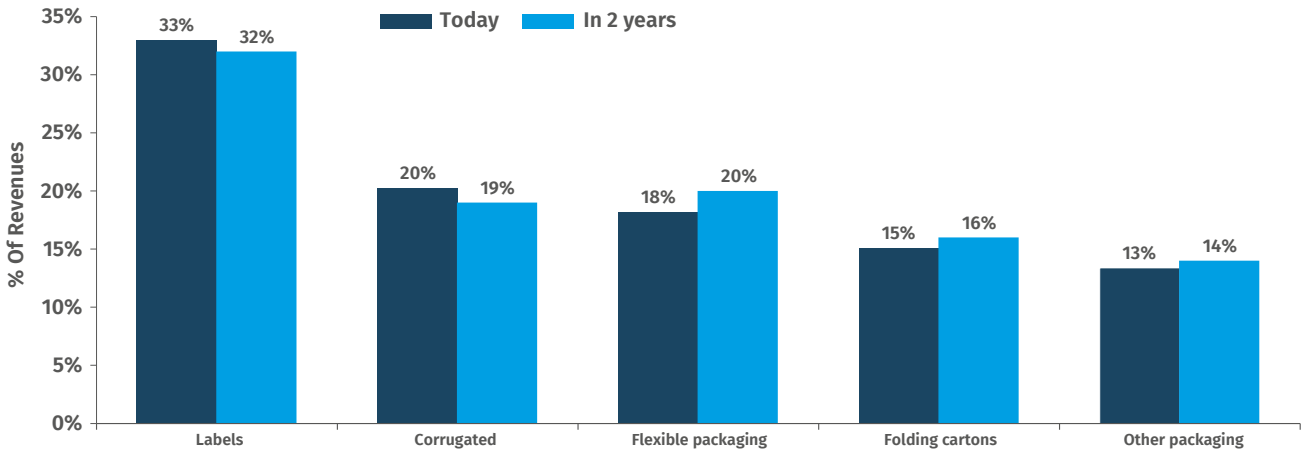
As was the case in a number of other sections, there are others in the Print Census whose opinions about packaging will also figure in this section of our report. As noted earlier, the total survey includes 75 respondents that are "digital print specialists," and of these, 16 use print packaging of some type as part of their businesses. The survey results also isolate owners of wide format printers who use them to print packaging to some extent. The rest of this section will cover the global respondents who responded to our main questions about packaging in the FESPA Print Census.

FIGURE 92:
Packaging Respondents by Category



N = 59 respondents whose primary business is Packaging

FIGURE 93:
Current and Future Packaging Revenues



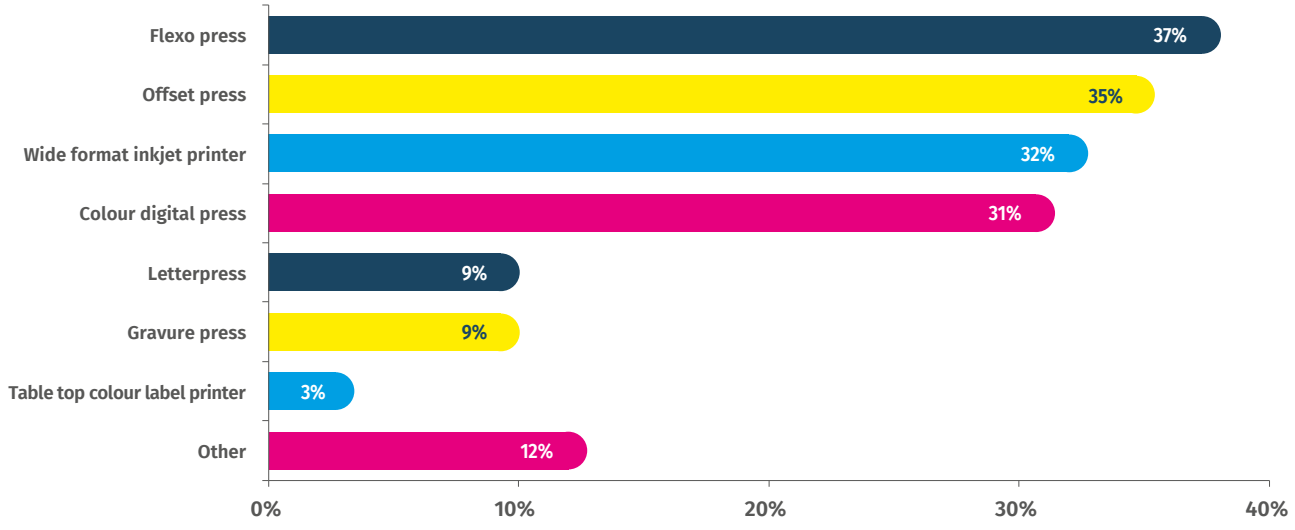
N = 75 respondents in Packaging

Technology Use: Current & Future

The Figure above outlines the average share of revenues attributable to labels, corrugated, flexible packaging, folding carton applications and other packaging. For the total group of 75 packaging respondents, labels account for the most revenues at 33%. This is not surprising since labels are the simplest packaging application to print and the most broadly based in terms of converters and other print suppliers. Corrugated printing (20%) is more specialized, but it was also quite popular. Moving forward, packaging respondents do not expect their revenues for any of these applications to shift very dramatically.

Respondents who print packaging use various technologies to do so and an individual company will often use a combination of analogue and digital devices. Note that wide format inkjet printers (32%) were one of the top choices — most companies that convert or print packaging must print proofs and wide format inkjet printers are commonly chosen for that work. Wide format inkjet technology is also sometimes used to print small production runs of packaging and displays. The analogue technologies cited by the survey respondents are often associated with specific packaging applications. Flexo (37%) is the top means of printing labels and it also serves in flexible packaging and corrugated. Offset (35%) is the top means of printing folding cartons and it also helps in corrugated by

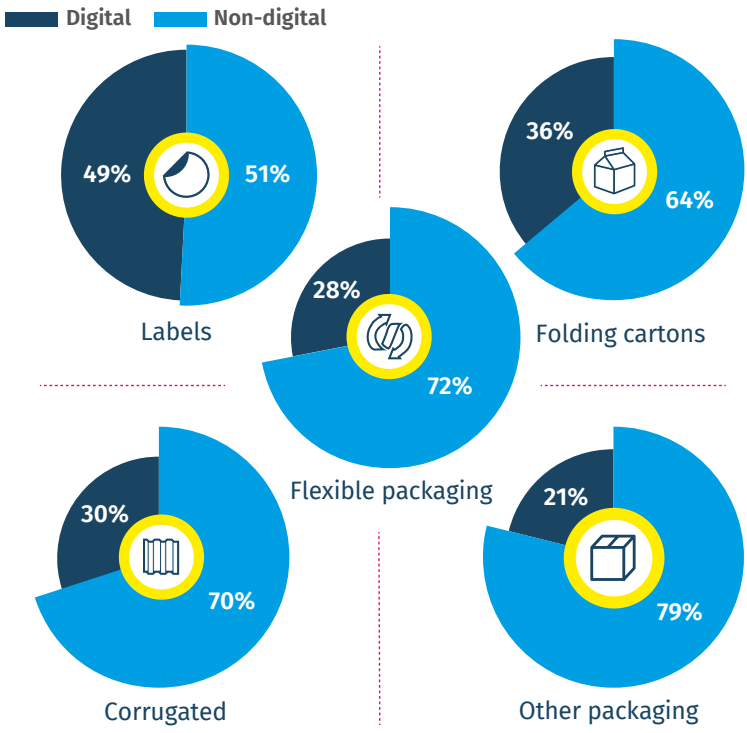
FIGURE 94:
Which of the following print technologies do you use for packaging or labels?



N = 75 respondents in Packaging

Multiple Responses Permitted

FIGURE 95:
Roughly what percentage of revenues from the following packaging/label applications can be attributed to digital versus non-digital printing?

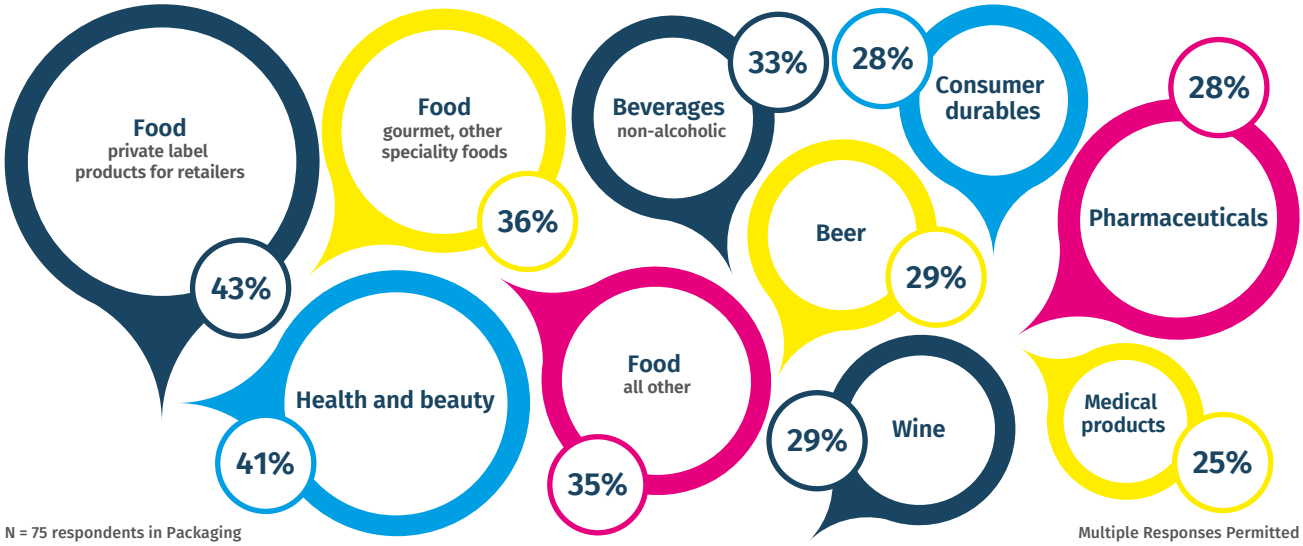


N varies, Base: Respondents in Packaging who produce packaging applications today

pre-printing sheets that are laminated to board stock ("litho-lam"). Gravure (9%) is used to print long runs of flexible packaging and, like letterpress (9%), it is sometimes used to print labels. Colour digital press (31%) can apply to equipment that prints all the main packaging applications, from EP label webs to automated wide format inkjet printers for corrugated.

The Print Census asks the respondents who print various packaging applications to estimate the share of revenues from that printing that is attributable to digital printing. As seen in the Figure left, the share claimed for digital is substantial in each case, from 31% for corrugated to 49% for labels. Those tallies are too high, though, to reflect the overall market, because the majority of packaging printing is still analogue in each case. That said, in terms of print methods, the Print Census respondents report that print packaging are likely more digitally oriented than average because they have a high use of wide format inkjet and because many in the group of packaging respondents claim to have production level digital printers ("presses") as well as tabletop label printers.

FIGURE 96:
For which of the following vertical industries do you print packaging or labels?



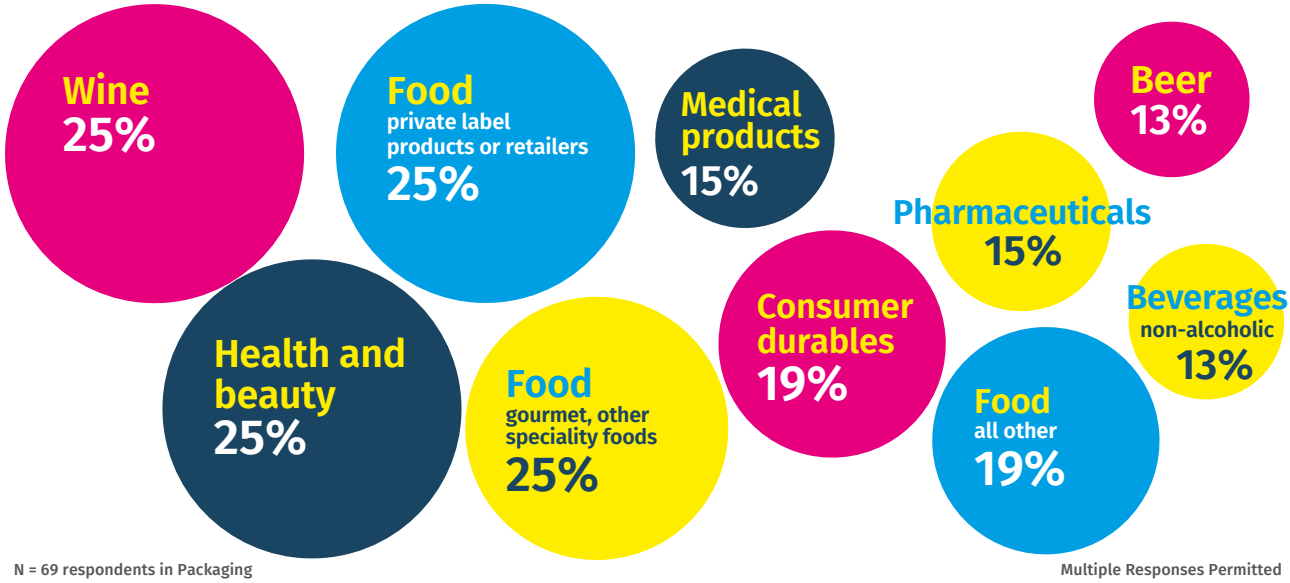
N = 75 respondents in Packaging

Multiple Responses Permitted

Many vertical industries buy the packaging applications that are printed by these responding companies. Food products, specifically private label products for retailers (43%) and gourmet and other speciality foods (36%) were among the top purchasers. In general, fast-moving consumer products like health and beauty, food and non-alcoholic beverages tend to dominate the list. Note that the responses here are for all types of packaging, regardless of the print technology used to produce it.

The 2018 Print Census asked another question about vertical industries, to determine which account for the most orders for short print runs of labels or packaging. Food again lead the list, but wine and personal care goods are equally popular. The topic of where short-run orders for packaging come from is an important one because the growth of short-run printing in packaging is strong in all regions and because digital printers are increasingly recognised for their ability to print short runs. In contrast, short runs can be difficult to print on offset and other analogue presses.

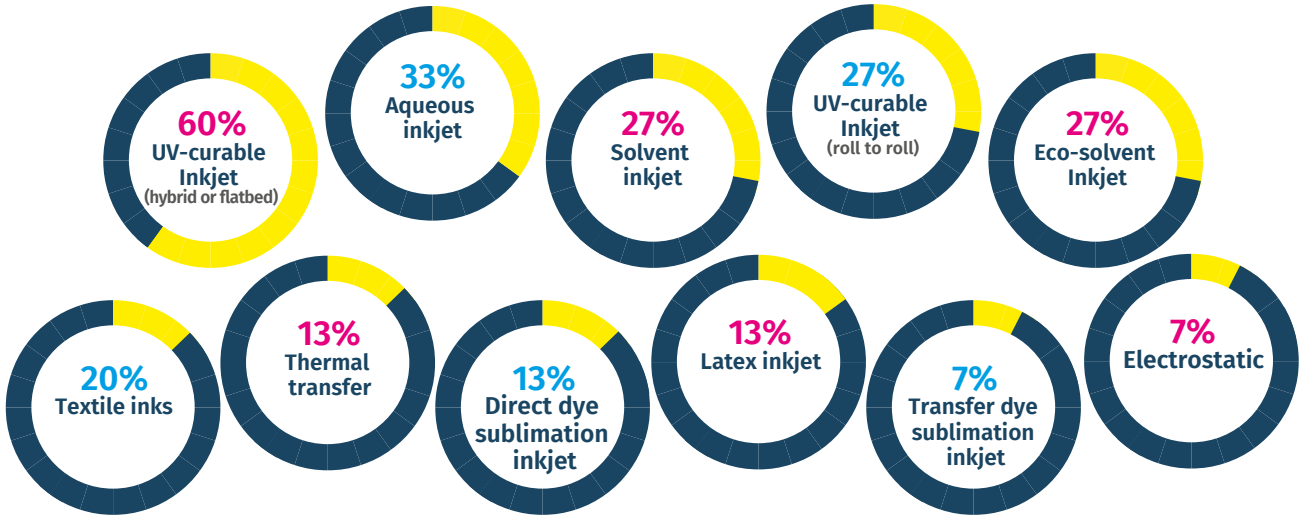
FIGURE 97:
Of the vertical industries that you cited, which ones are the most likely to order short runs of labels or packaging?



N = 69 respondents in Packaging

Multiple Responses Permitted

FIGURE 98:
Which of the following types of wide format and related equipment does your company currently own?



N = 243 respondents in Packaging that own or plan on investing in wide format

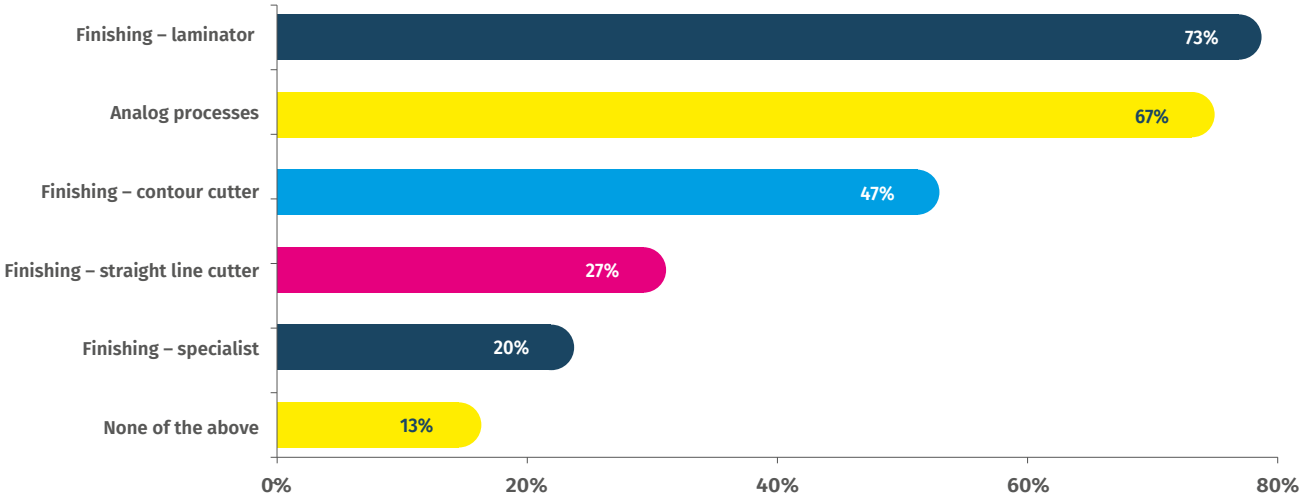
Multiple Responses Permitted

Looking just at the Print Census' 59 packaging converter respondents (in this case, we are excluding the digital print specialists that also print packaging), there are 15 respondents that operate wide format inkjet and related equipment. Although 15 is too small a number to be statistically significant, it is large enough to be indicative of general issues. When these respondents were asked about the types of wide format equipment that they owned, UV-curable inkjet (60%) topped the list. This finding is believable given the prevalence of UV-curing wide format printers in the corrugated industry. Aqueous inkjet (33%) is also popular, which is again not surprising given the widespread use of that technology for proofing.

A second question asks the same packaging converters with wide format about other equipment, including some important finishing options. Again, the total number of respondents is small but indicative. Laminators are the leading choice (73%), which makes sense given the use of this equipment in the label industry and in flexible packaging. Other analogue processes (67%) include foiling, varnishing and other embellishments and are also credible, given the requirement for such processes in most packaging converting. Various cutters are also common, specifically contour cutters (47%) and straight line cutters (27%).

The 15 packaging converters that use wide format printers also responded to a question

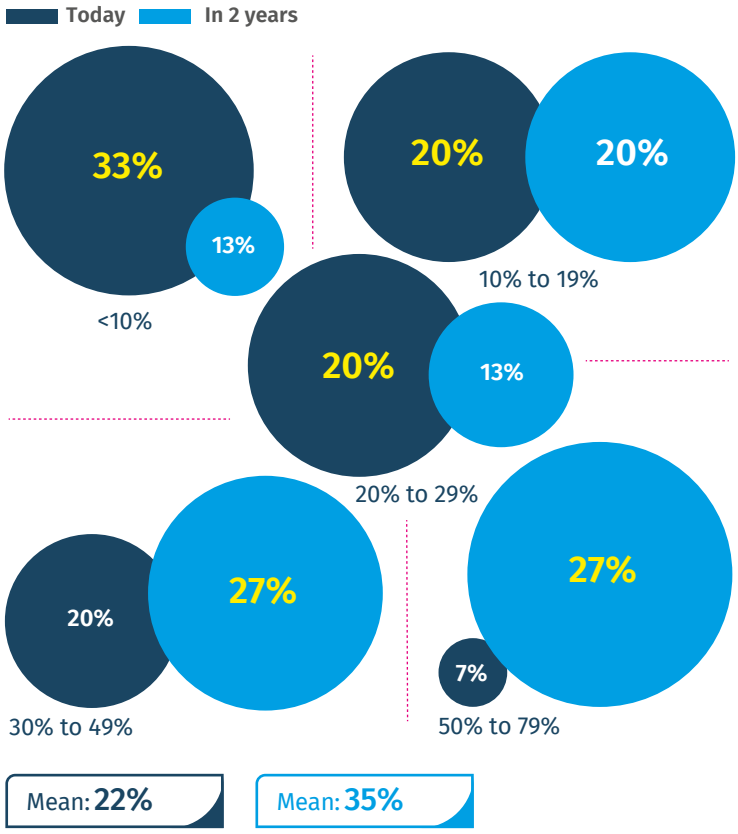
FIGURE 99:
Which of the following types of wide format and related equipment does your company currently own?



N = 15 respondents in Packaging who use a wide format inkjet printer for packaging or labels

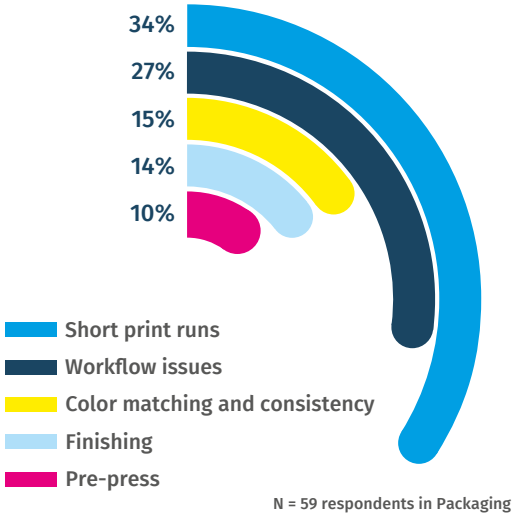
Multiple Responses Permitted

FIGURE 100:
Wide Format Share of Package Printing – Current & Future



N = 15 respondents in Packaging who use a wide format inkjet printer

FIGURE 101:
When it comes to printing packaging or label-related applications at your company, what is your biggest concern?



N = 59 respondents in Packaging

about the share of their packaging revenues that they attribute to that type of equipment. Based on all responses for all applications, the average growth is expected to move from 28% to 39%. As seen in Figure 100, only one out of 15 respondents reported that wide format accounts for 50% to 79% of revenue, but this single converter appears to be a corrugated specialist. Meanwhile, four converters (27%) expect their wide format share of revenues to reach that level in 2 years, but they again could be corrugated converters. Overall, the general indication is that wide format printing for packaging will grow in terms of revenue contribution. Of the four packaging types that are the focus of the FESPA Print Census, corrugated is the one with the greatest use of wide format inkjet. Inkjet flatbeds have been used for prototyping of corrugated for at least 20 years and, in the past 10 years, several highly automated wide format models such as HP Scitex 15500 and Inca Onset X3 have come to serve corrugated packaging converters by printing short production runs of fine colour graphics for packaging and displays.

Looking once again at all 59 packaging converters, their greatest concern in terms of packaging printing is dealing with short print runs (34%), followed by workflow issues (27%).

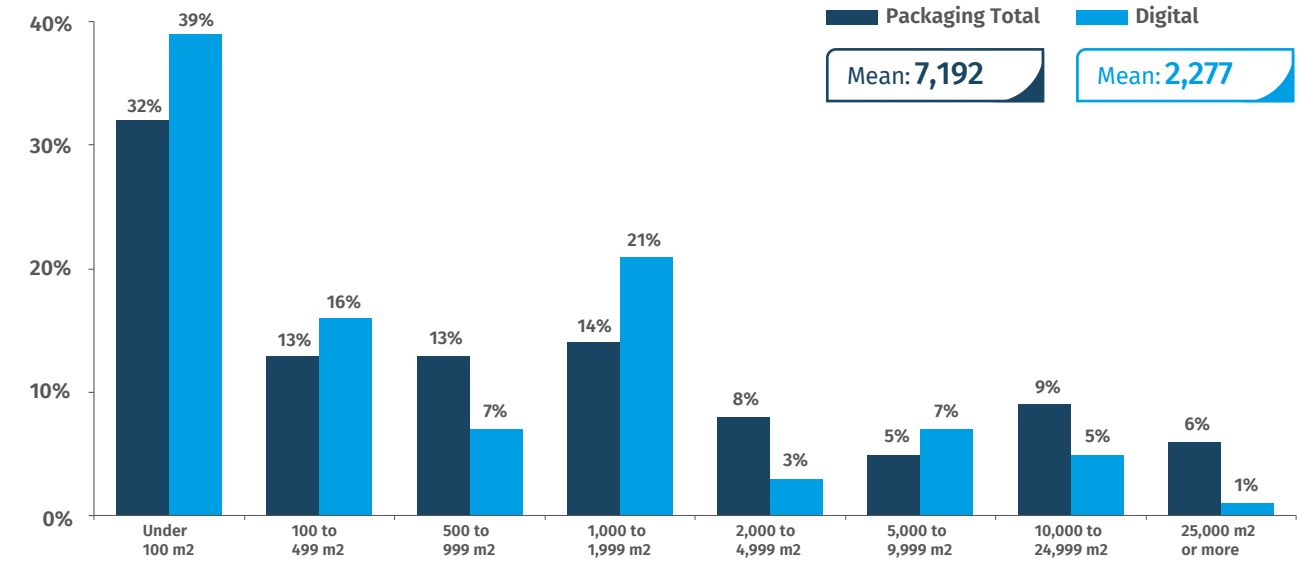
Note that both these concerns easily outrank three others that all require great time and attention, namely colour matching and consistency, finishing and prepress. As for short print runs, they are in fact increasing for packaging converters worldwide, because brands now aim for "mass customisation" and target the market accordingly, consistently developing new versions and formats for packaging, as well as ordering print more frequently and in smaller amounts. Brands also want their supply chains to be lean and to minimise waste and this is another reason to order print in short runs.

As for workflow, increases in short-run printing mean more jobs to record, schedule, make ready, print, finish, ship and invoice. As a result, workflow challenges mount accordingly.

In another response to two questions in the 2018 FESPA Print Census, packaging converters describe their packaging printing in terms of run length, first for all packaging, then for all packaging that they print with some type of digital printer. The census asks converters to estimate the shares of their print jobs attributable to volume categories ranging from under 100m² to 25,000m² or more. In response, 27% of all jobs (analogue and digital) are less than 100m² and a full 37% are less than 500m². Given that most packaging printing in the world is produced by offset, flexo and other conventional presses, this finding confirms that analogue presses for packaging now accommodate a significant incidence of short print runs. It should be noted that the top producers of analogue presses for packaging (for example Bobst, Gallus, Heidelberg, KBA, Man Roland, Omet, Nilpeter, Nuova Gidue, Uteco) have greatly improved their presses' ability to print short runs.

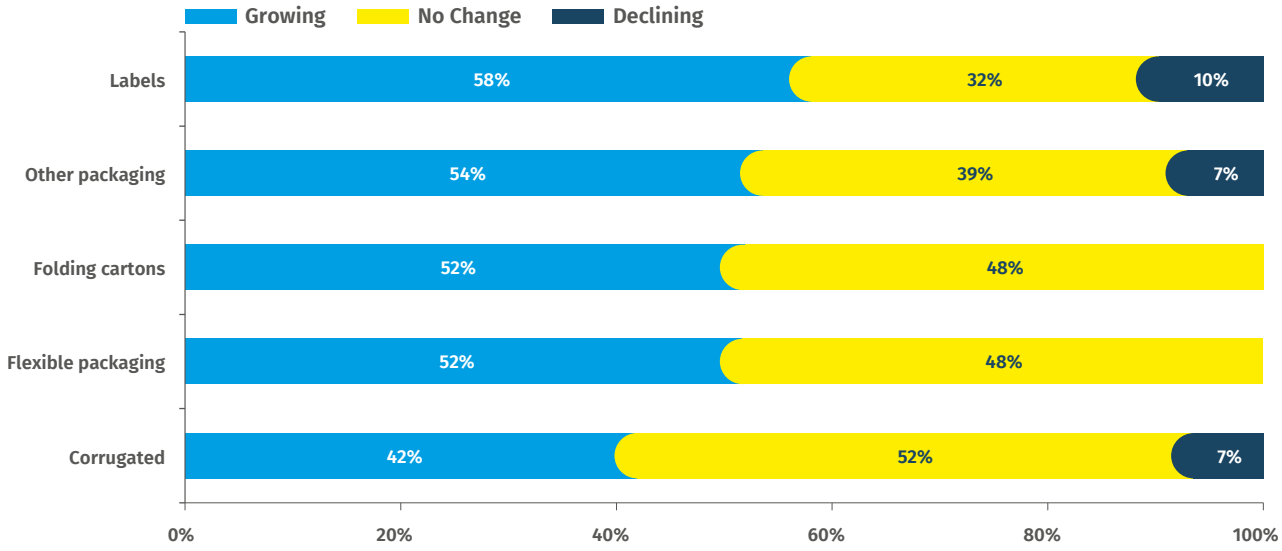
Not surprisingly, the Print Census results regarding run lengths for digital printers are somewhat different. Digital printing is used to print short runs even more than for all packaging print technology. Converters as a group say that

FIGURE 102:
Current Packaging Run Lengths – Total Packaging versus Digital



N = 75 respondents in Packaging - N=41 - Packaging respondents with digital printing

FIGURE 103:
How are each of the following applications changing as a percentage of your wide format printing business?



N varies, Base: Respondents that produce packaging applications

39% of their digitally printed packaging jobs are less than 100m² and a full 55% are less than 500m². Printing short runs really is what digital printers do best and they are most often placed side by side with analogue presses to complement them by taking on short print runs that can be tedious or costly to print in analogue. Note, though, that a total of 13% of digital print runs are over 5,000m². Just as analogue printer suppliers have improved the ability of their presses to print long runs, makers of digital print technology have improved the ability of their digital printers to print long runs of packaging. A good example of such long digital runs is the printing in one job of 50 or more package or label versions. This type of job is increasingly common, due to brand owners' needs for mass customisations and it is often very difficult to print on analogue presses.

A final note on this view of package printing is the mean and median findings for analogue and digital. In each case, the average result on run length is affected by the small number of very long print runs. A fairer rendering of all the data is the median estimate, the level at which half of the responses are higher and half are lower. The median for total packaging is 150m², while the median for digital is 300m².

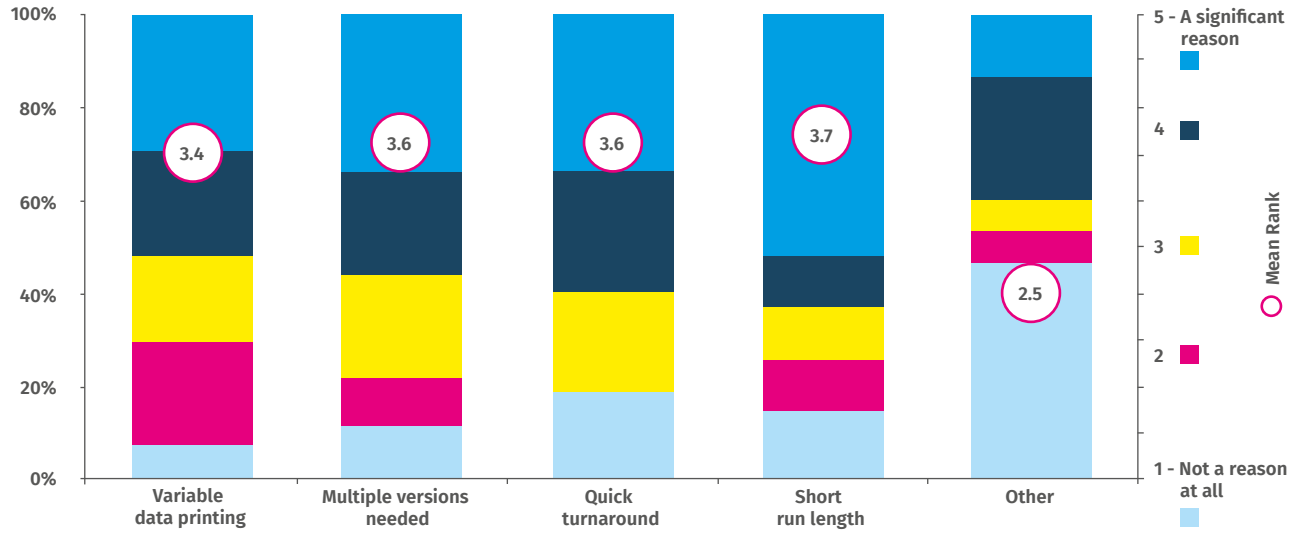
The 2018 FESPA Print Census asked converters to describe the packaging applications that they print as growing, declining or stable and most respondents say that the applications are growing or stable. From this overall result, the main message is that packaging printing applications, in general, are thriving. This is not surprising since packaging is tied to human consumption and not subject to the electronic displacement that affects most other printing applications.

Converters also rated the importance of four possible reasons for using digital printers to print packaging: short run length, variable data printing, multiple versions and quick turnaround. The average responses indicate that all these reasons are important motivators to print digitally but the most important is short-run printing.

Next, all respondents that print packaging — including the 59 converters and the 16 digital print specialists — were asked if they planned to purchase any type of printing equipment for label or packaging in the next 2 years. Of the total respondents, 44% reported that they did plan to make a purchase.

A follow-on question further asks these 33 respondents what types of equipment their companies will be considering. Narrow web inkjet press devices, which would normally be inkjet printers for labels, were cited by 29%. Inkjet options for production-level printing of labels are growing in all regions, although narrow web electrophotographic presses (printers) are much more established and still dominate the current installed base of production-level digital label printers. Note that many other types of equipment are also being considered: analogue presses, tabletop label printers, B2 inkjet sheet printers, A3 EP sheet printers, narrow web EP printers and B1 inkjet sheet printers all

FIGURE 104:
For printing packaging & labels, how would you rate the following as reasons for printing jobs on a digital press?



N varies, Base: Respondents in Packaging

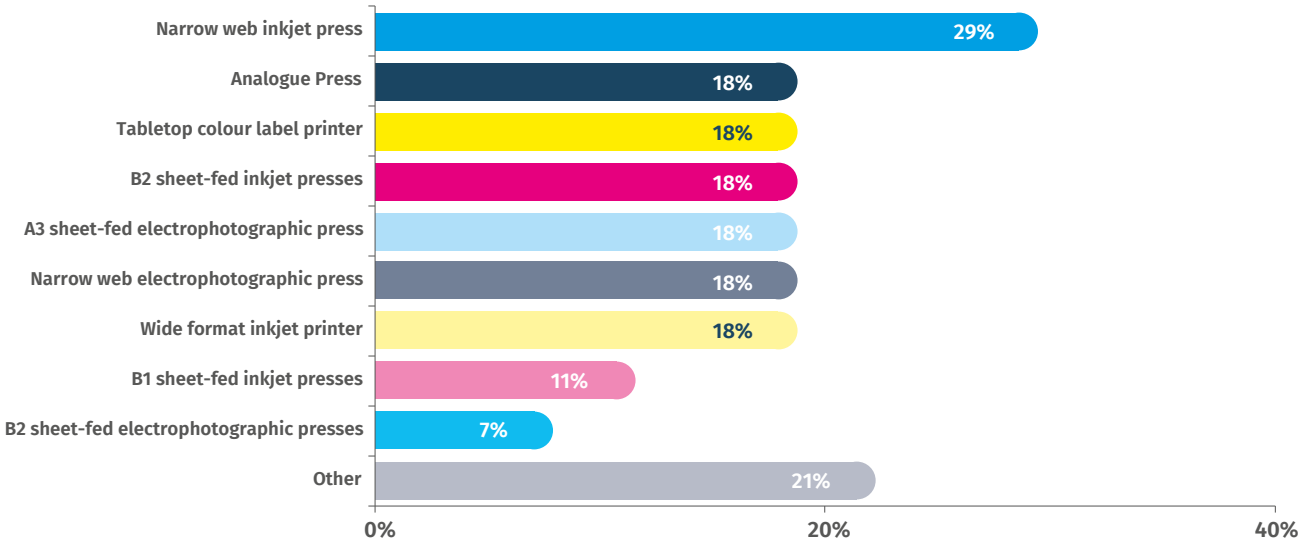
registering 18%. The list is long and diverse because the companies and their applications are diverse and all have different core print technologies (for example flexo webs for labels, sheet-fed offset presses for folding cartons and flexo folder gluers for corrugated).

As for expected investment in new equipment, the response below is just from the packaging converters (no digital print specialists) that will consider buying print equipment for packaging. The median estimate is $100,000. The average response of $543,930 reflects the small incidence of very expensive printers, such as the soon to be available B1-size inkjet sheet presses for folding carton printing, each of which will likely cost $3 million or more. As noted earlier, though, some of the technologies being considered are much less costly analogue products, with analogue label webs and tabletop digital label printers being good examples.

Software Investments

The Print Census also asked respondents about their ownership and/or purchasing plans for certain types of software. The highest share of respondents owned design software (75%) and

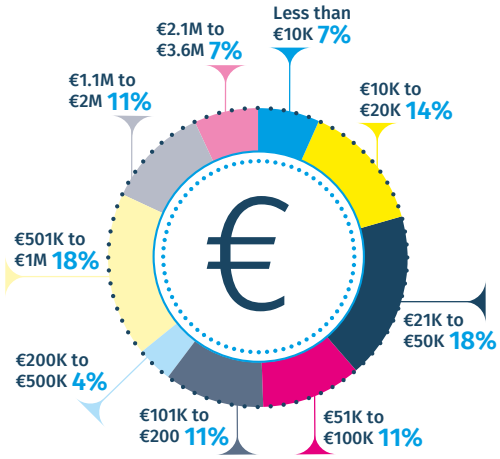
FIGURE 105:
Which of the following types of printing equipment will your company most likely purchase/lease in the next 2 years for packaging or label applications?



N = 33 respondents in Packaging who plan on purchasing or leasing in the next 24 months

Multiple Responses Permitted

FIGURE 106: *How much do you expect to pay for the new equipment you are planning to acquire?*



Mean €543,930

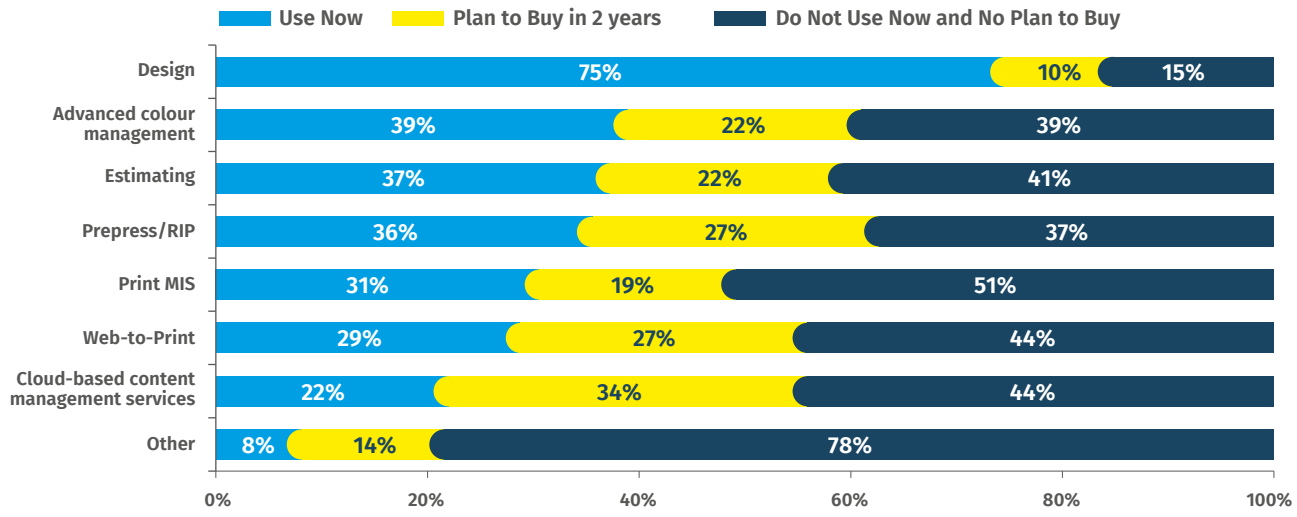
N = 28 respondents in Packaging who plan on purchasing or leasing in the next 2 years

another 10% plan to buy it within 2 years. Two other software types stand out because they highlight the Internet's growing role in converting businesses globally. Web-to-print software (29% own it 27% plan to buy it within 2 years) enables clients to conveniently order print over the Internet. Meanwhile, cloud-based client-facing content management (22% own it and 34% will buy it) is a toolset that will increasingly be important for converters that want to support and communicate with clients remotely.

Respondents Who Do Not Use Digital

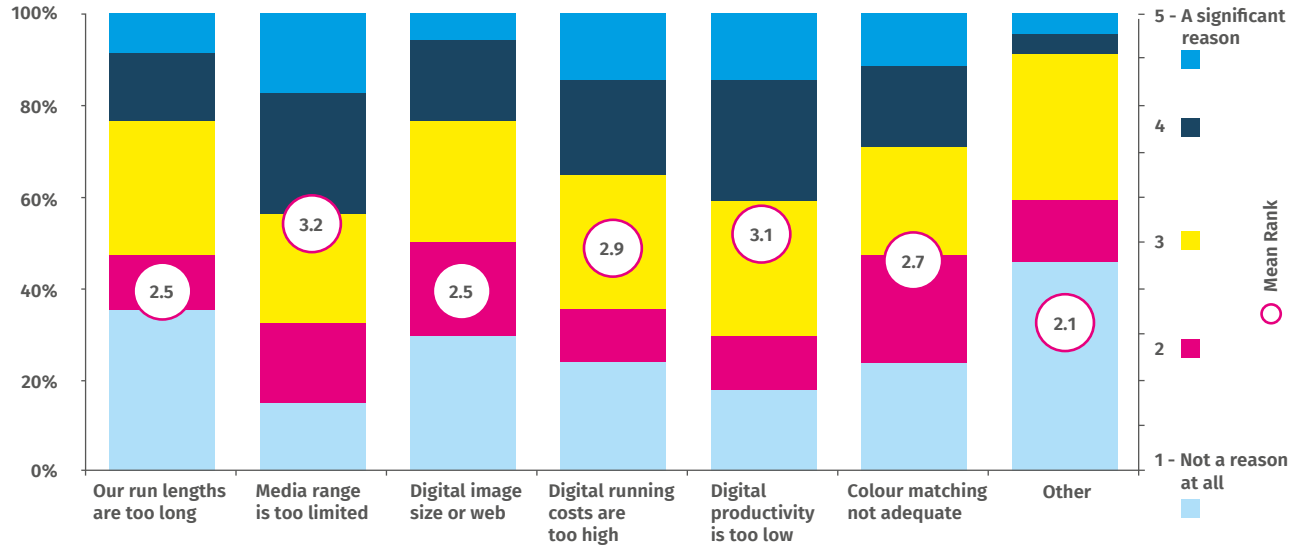
Of the 59 label and packaging converters in the survey, 32 do not use digital printing for packaging and the Print Census asked them to specify the reasons for this. The most significant reasons were that the media range for digital was too limited (3.2 out of 5), digital press productivity is too low (3.1 out of 5) and digital press running costs are too high (3.0 out of 5). These concerns are believable, given some well-known characteristics of digital printing. In terms of media, many common substrates for flexible packaging, labels, cartons and corrugated require pre-treatment for inkjet or EP technology to print effectively and some EP printers cannot print

FIGURE 107:
How would you describe your ownership or investment plans for the following types of software?



N = 59 respondents in Packaging

FIGURE 108:
How would you rate the following as reasons for NOT using digital presses?



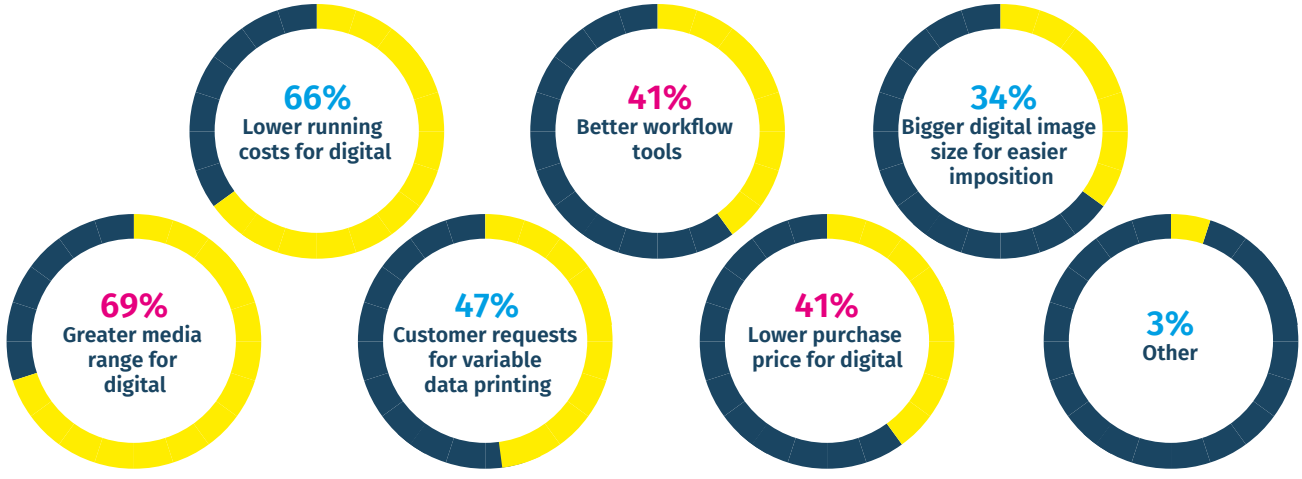
N = 32 respondents in Packaging who do not use digital presses

thin, unsupported films for shrink sleeves or flexible packaging because their use of hot fusing tends to distort that media. Although most digital printers print at much lower speeds than analogue presses, some of the newest high-end digital printers for packaging can operate at much higher speeds; printing labels or flexible packaging at up to 300 metres per minute printing corrugated liner media at 200 metres per minute.

Running costs for digital printers are typically higher than they are for analogue presses, except in the case of many short-run print jobs, where the cost of analogue pre-press makes digital printing the better option in terms of costs.

A final question to the converters that have no digital printing asks them to rate several factors regarding their potential to someday adopt digital printing. A greater media range and lower running costs were cited by 69% and 66% of the respondents, respectively. Motivators like a lower colour digital printer purchase price (41%) and a bigger digital image size for better imposition (34%) were ranked fairly low in comparison. Costs for production-level digital printers and limited web width or sheet size are a general concern as well, at least for printing larger size packages. That said, improving costs and enlarging digital frame sizes will not be as much of a motivator for non-users to try digital as improving media range and cutting running costs.

FIGURE 109:
Which of the following might someday drive conversion to digital imaging for printing packaging or label applications at your company?



N = 32 respondents in Packaging who do not use digital presses

Muliple Respondents Permitted

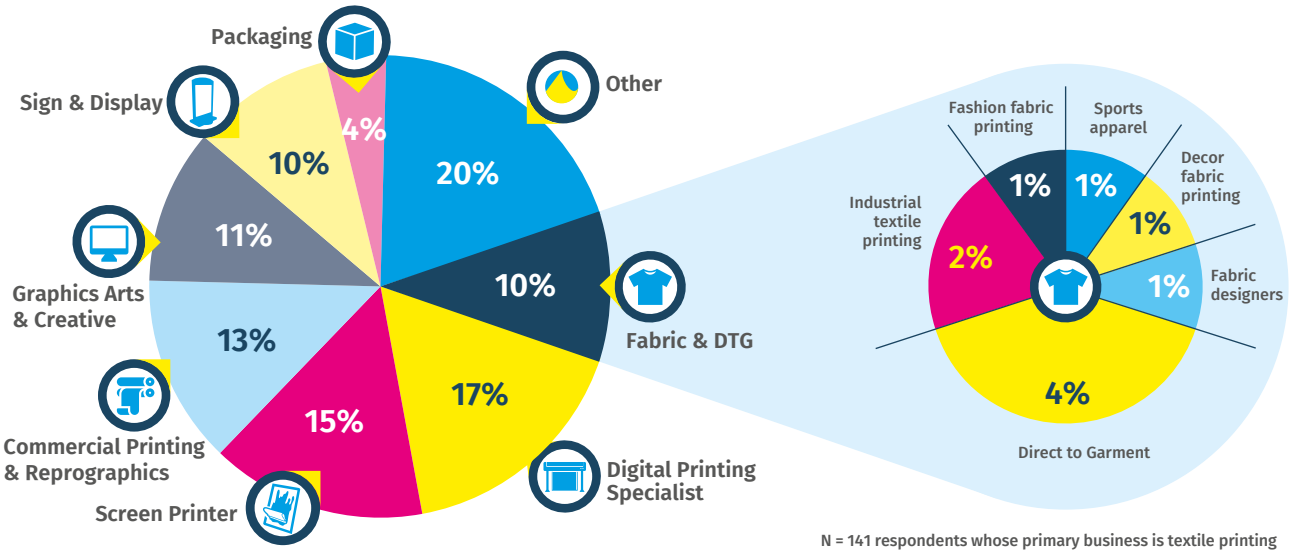
Textiles/Fabrics

TEXTILES/FABRICS

Digital textile printing is a growing segment that is attracting many print providers to invest in technology and expand the range of applications they offer. In the 2018 FESPA Print Census, we have addressed this audience with the distinction between graphic arts applications such as sign & display versus production of fabrics that are primarily used in apparel, decor and industrial fabric printing. Although, in many cases, the print technology will be similar or even identical, these markets are distinct in their supply chain, end-user requirements and business strategies.

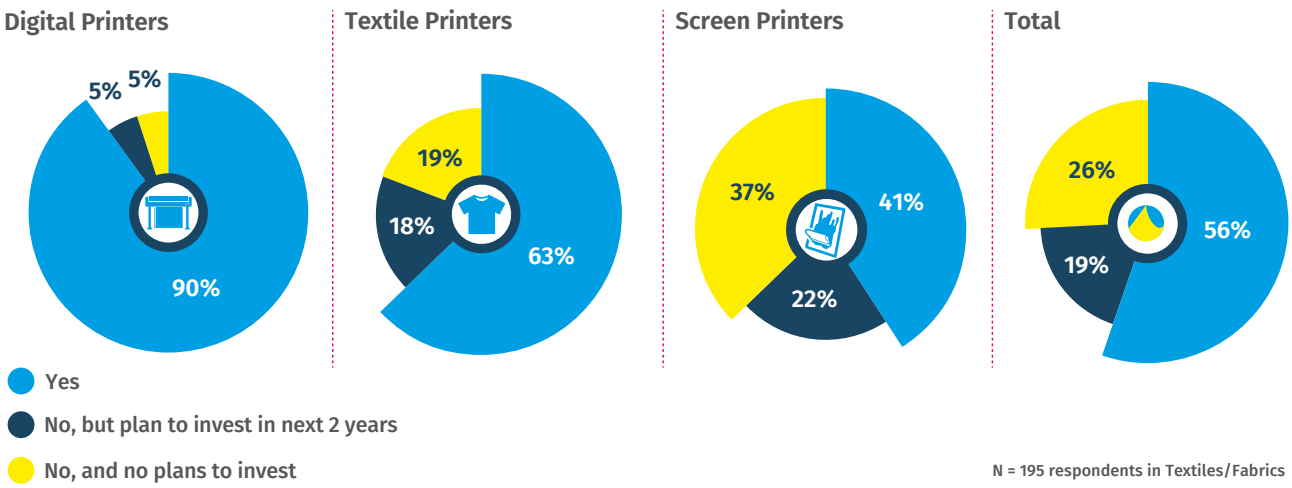
With continued growth in this segment (Keypoint Intelligence - InfoTrends' Digital Textile Forecast, 2016-2021) and digital amounting to about 5% of total worldwide fabric printing, the 2018 FESPA Print Census addresses this audience based on specific equipment used, applications produced and future growth potential. This group accounted for about 10% of total survey participants and was comprised of two types of respondents:

FIGURE 110:
Textiles/Fabrics Printers by Category



N = 141 respondents whose primary business is textile printing

FIGURE 111:
Do you have any digital textile printing equipment to print decor, apparel, or industrial fabrics printing at your company?



N = 195 respondents in Textiles/Fabrics

fabric producers and garment decorators that we term direct to garment producers (DTG). There were also some respondents who identified themselves as screen printers or textile printers. In cases where they indicated that textile production is their core business, we combined their data. In areas where their responses differed, we will show the variation between these respondents.

Technology Use: Current & Future

Our initial investigation of the fabric producers was to ascertain whether they are already using digital printing in their operations. Not surprisingly, the vast majority of respondents have already invested in digital printing or plan to do so in the next 2 years. Nevertheless, adoption is not uniform and there are differences between screen printers and textile printers. Screen printers' adoption of digital printing is slower, as a lot of them still have analogue technology that is producing many of their applications. When we look at the growth trajectory, these gaps will likely fade away and both segments are expected to embrace digital technology almost equally within the next 2 years.

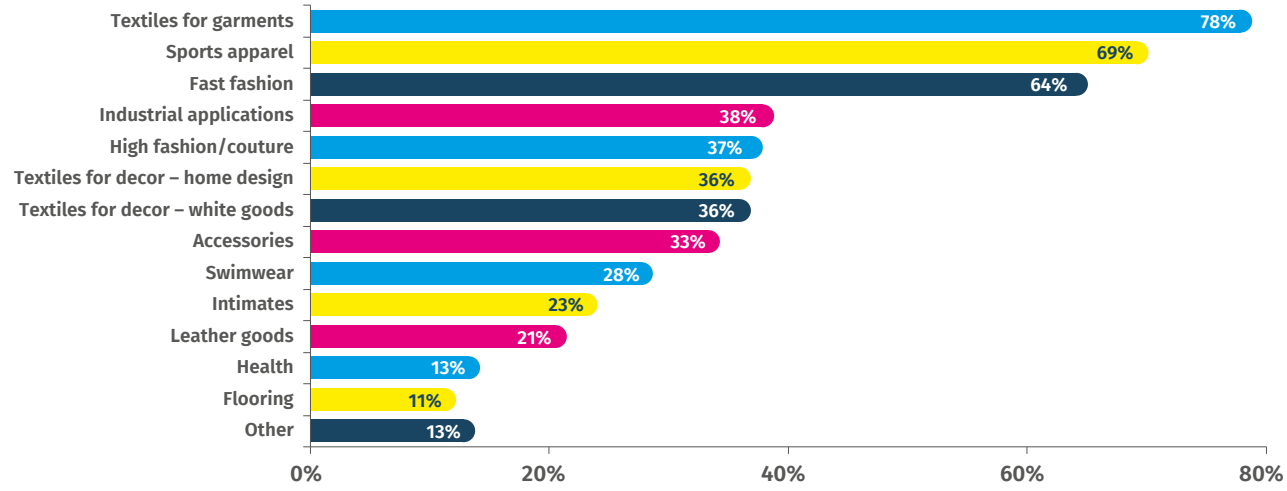
Textile printing is a diverse segment where a range of analogue and digital solutions are used on a regular basis. These technologies enable printing on a range of materials such as cellulosic, protein and man-made fibres. All of these materials require specific ink formulations and printing equipment to meet industry standards for quality and permanency. Final fixation of inks to fabrics also requires specialised equipment such as steamers, washers or calendaring equipment. As a result, many fabric producers use technologies that are dedicated to the fabrics they intend to produce. Table 1 below outlines some examples.

TABLE 1: *Compatibility for Print, Fabric and Fixation Technologies*

Print Technology	Fabric Types Examples	Fixation Technology
Analogue rotary screen printer	All	Steam / Calendar Radiant heat
Analogue frame screen printing equipment	All	Steam / Radiant heat
Acid inkjet printing	Silk, Polyamide	Steam
Pigment inkjet printing	Cotton, Polyester	Radiant heat
Direct disperse inkjet printing	Polyester	Steam
Reactive inkjet printing	Cotton, Linen	Steam
Sublimation inkjet direct printing Sublimation inkjet transfer printing	Polyester	Calendar
Vat dye inkjet printing	Cotton, Blends	Steam

As noted earlier, the diversity of this segment lends itself to a wide range of applications and leading among them is apparel, with the top three applications being garments (78%), sports apparel (69%) and fast fashion (64%). This is in keeping with many of the trends we observed as digital technology is adopted by fabric manufacturers. Fabrics for fashion applications have seasonal cycles that require fabric producers to be able to manufacture smaller, more customised batches of fabric. These meet the design and brand community to keep their product line fresh in retail and online stores. Digital printing is uniquely capable of addressing these requirements.

FIGURE 112:
Garments Represent Top Segments for Survey Respondents



N = 195 respondents in Textiles/Fabrics

Multiple Responses Permitted

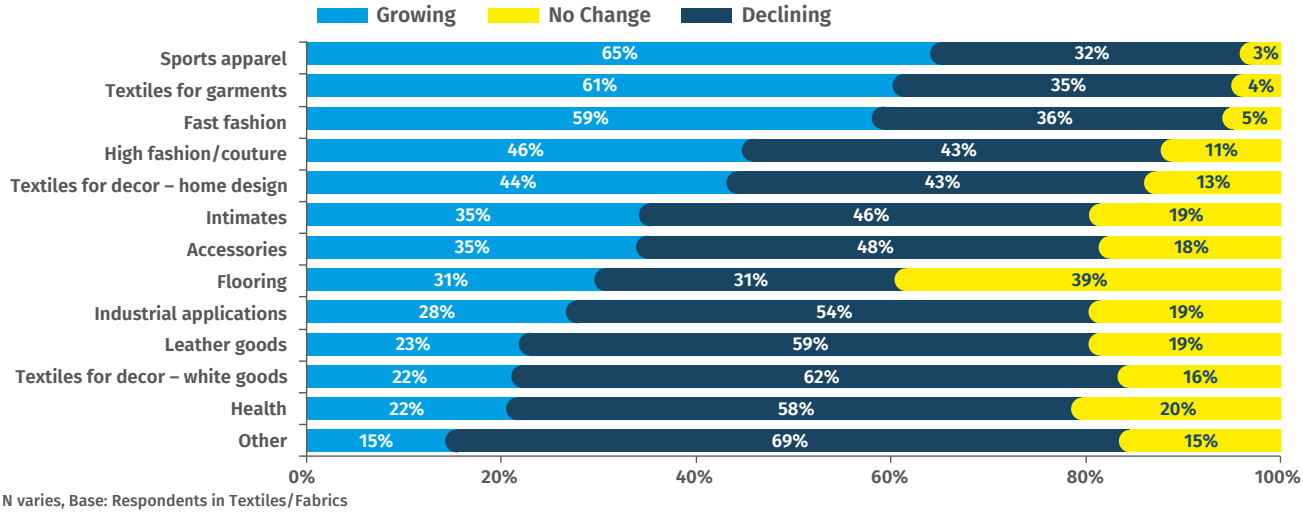
We note also, however, that the adoption of pigment print is becoming popular with decor fabric producers. We expect to see this segment continue its growth, albeit slower than that of the fashion segment.

Fabric producers' responses to the growth trends in the range of applications that they manufacture reaffirm our observations. Again, the apparel category comes in at the top. Sports apparel (65%) garments (61%), fast fashion (59%) and high fashion/couture (46%) lead in growth, followed closely by decor applications.

A closer examination of textile fabric producers revealed their sentiment on three topics that are important for understanding their strategies in digital printing investments. Expansion into new markets and meeting industry standards for colour consistency using digital printing are extremely important. Respondents are more neutral on the use of 3D garment design as a value-added opportunity. We believe that the competitive nature of this market is focusing activities of textile fabric producers on quality assurance and expanding into new applications. However, as will be discussed later, innovations in creative applications are already prevalent.

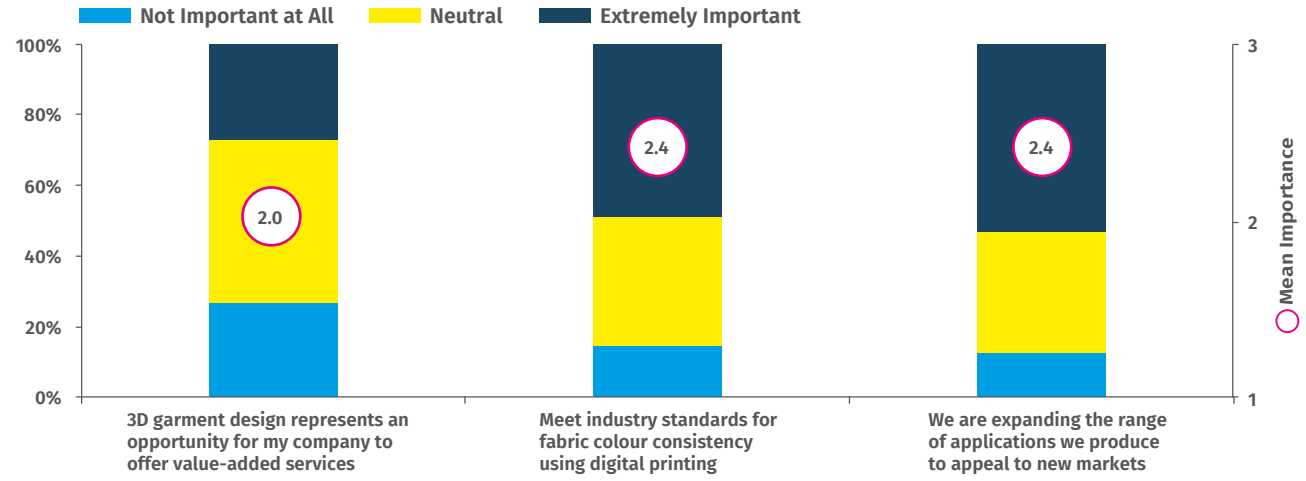
The result of managing multiple substrates is evident in the responses where many fabric producers have a range of technologies on the floor of their production facility. Sublimation transfer printers are prominent among textile printers (59%) as well as screen producers (40%). This technology has been available for printers since the early 1990s and today's devices

FIGURE 113:
How are these applications changing as a percentage of your fabric printing business?



N varies, Base: Respondents in Textiles/Fabrics

FIGURE 114:
How would you rate the importance of the following opportunities to your overall business?



N = 195 respondents in Textiles/Fabrics

have a variety of capabilities and price points. A second technology for printing on synthetic fibres with superior quality is direct disperse, which 20% of textile and 14% of screen respondents own, with an average of 5 units per respondent. This is an indicator of the growing importance of synthetic fabrics for fabric producers and the adoption of digital technology.

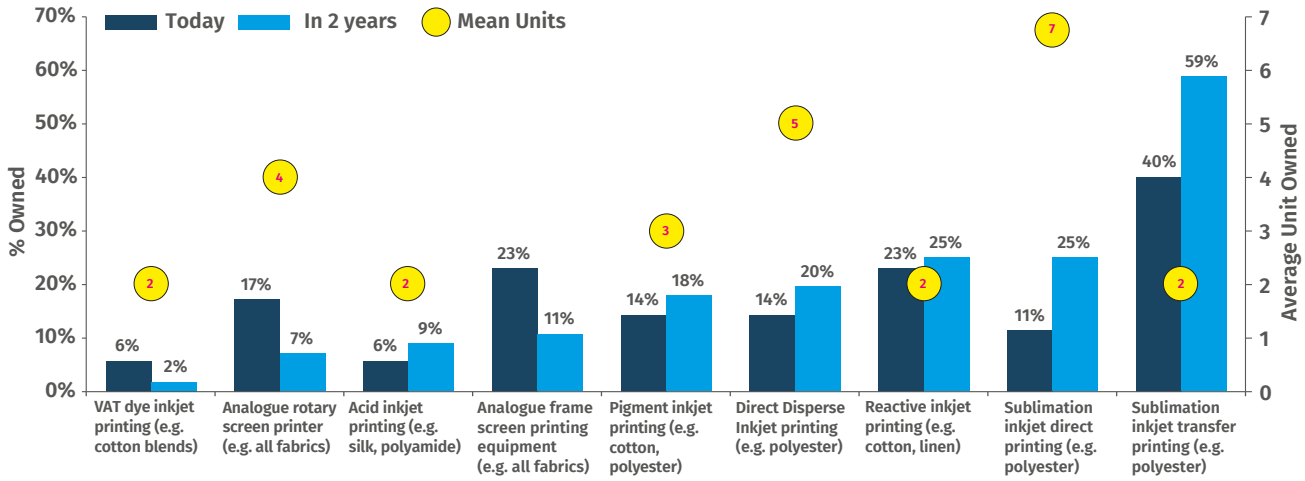
Second to synthetic fibres are technologies that print on natural fibres (for example cotton), where reactive inks are predominantly used. 23% – 25% of respondents own an average of two units that are capable of printing digitally on these fabrics. It is interesting to note that, based on InfoTrends' industry forecast, these are typically high-volume production systems that contribute a significant print volume, whereas sublimation printing technology is comprised of many smaller devices that contribute to overall print volume. Global print volume is comprised of roughly equal parts of natural and synthetic fibres at this time, but we expect synthetic to dominate in the future.

Two more inks are making headway in the digital landscape due to their unique attributes, namely pigment and vat dye inks. Pigment inks are suitable for printing on natural and synthetic fabrics using heat-based curing, thus eliminating the need for steam fixation and different printers for each fabric type. Despite great improvements with some manufacturers having made considerable strides in pre-treatment, colour saturation and "hand," digital pigment inks are still more expensive and it is difficult to achieve fastness levels that are comparable with dyes so these inks are not desirable for all applications.

Vat dyes are new to the digital print world but they are extensively used in high-volume and high-permanency applications such as military and outdoor settings. This is primarily due to the vat dye ink cost and permanency (for example washability, fade resistance or rub resistance). At the time that this research was conducted, only one digital printer and one digital ink supplier offered vat dye solutions. It is likely that some respondents may have confused our survey question with analogue vat dyes.

On the finishing side, key technologies include calendaring (32%) and steaming (12%).

FIGURE 115:
Equipment Ownership – Textiles/Fabrics



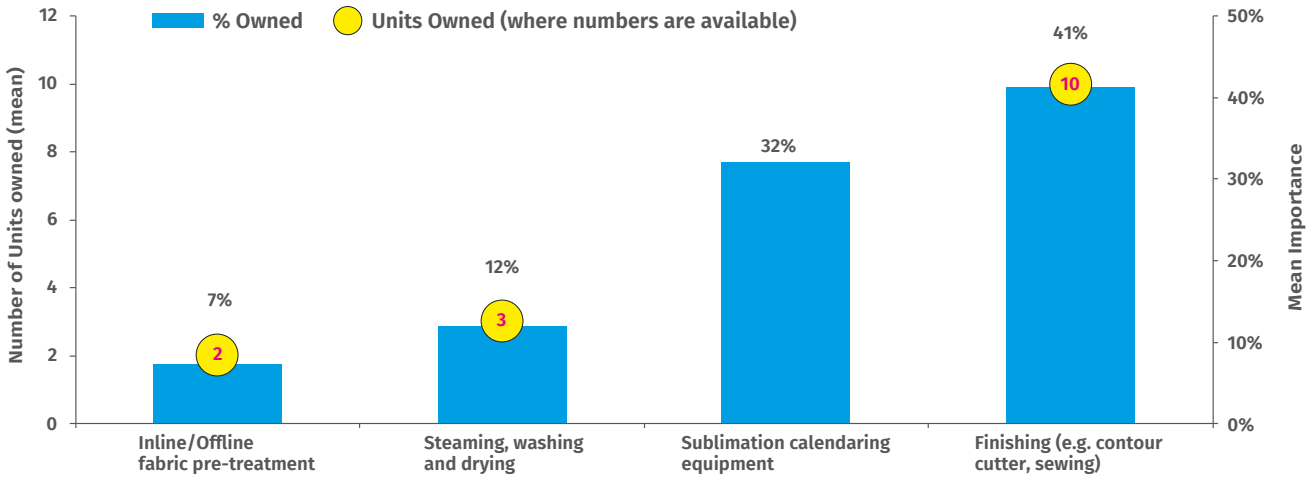
N varies, Base: Respondents in Textiles/Fabrics that own wide format printing equipment

A notable finding is that 41% of our respondents have contour cutting or sewing solutions and these are critical accessories for getting close to final production. Some of our respondents are in vertically integrated environments. Having all the tools to produce a final garment are critical for the operation.

As we see from the equipment owned by our respondents, their production facilities serve customers using analogue and digital technologies. We see digital printing growing in importance as time goes on. Fabric producers who currently own digital printing technology report that about 40% of their turnover is attributed to digital printing. This is expected to reach about 51% in the next 2 years. It should be noted that within the firms expecting growth, digital already represents more than 50% of revenue. Respondents with lower digital revenues are not so optimistic which might be because integrating digital solutions into fabric printing operations requires strategic planning, training and management to become successful.

When comparing the different responses by digital printers, screen printers and textile printers, we note that, as a percentage of revenues, textile printers and digital printing specialists report revenues in digital textile

FIGURE 116:
Finishing Equipment Ownership – Textiles/Fabrics



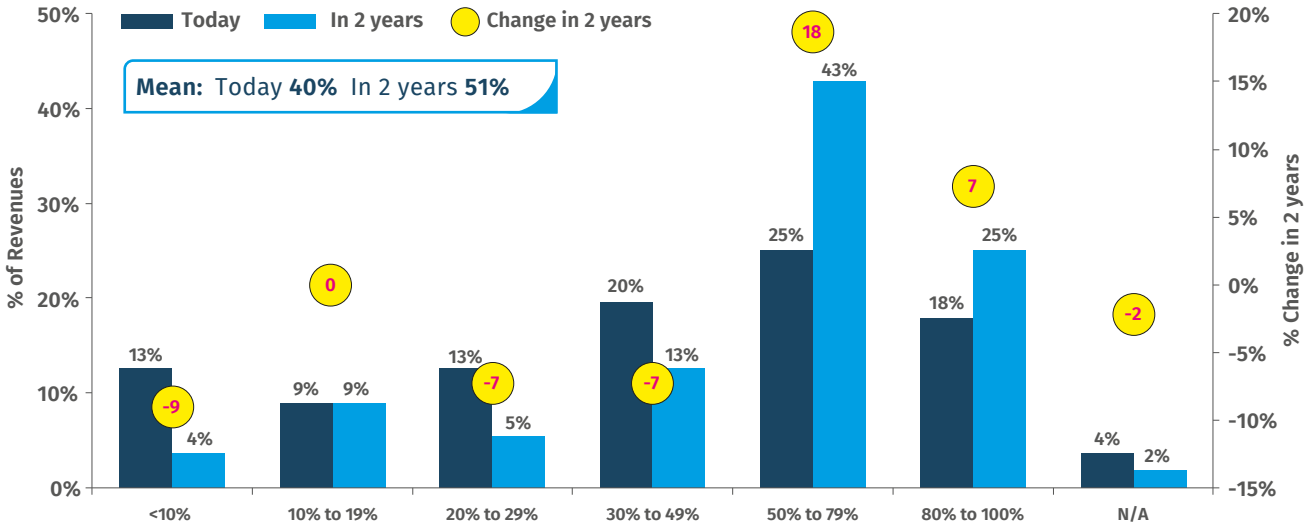
N varies, Base: Respondents in Textiles/Fabrics that own wide format printing equipment

production at over 45% today while screen printers lag behind at about 27%. Nevertheless, it is interesting to see screen printers expect a strong 12% growth from digital textile revenues, which is as much growth as textile printers expect. Digital printing specialists do not expect as much growth in the proportion of digital textile so they might be experiencing stronger growth in other digital printing segments.

A deeper dive into the technology mix that is generating this business growth reveals three strongholds for our respondents who own digital printing: sublimation transfer printing (30% of revenues), analogue rotary screen printing (17% of revenues) and reactive printing (13% of revenues). It is interesting to note that direct

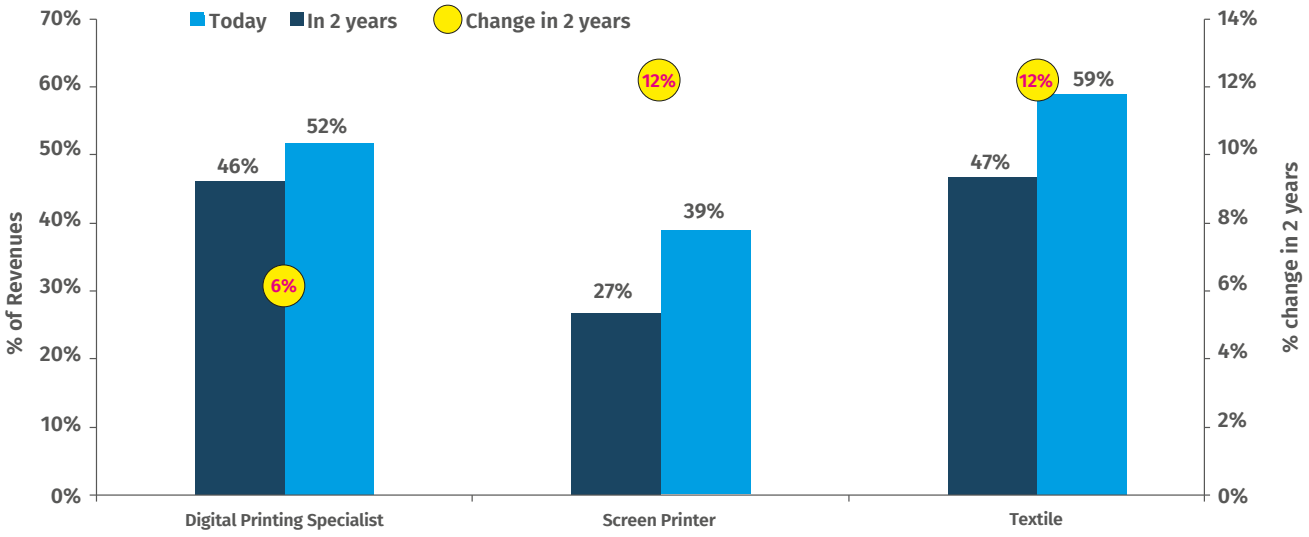
Fabric producers who currently own digital printing technology report that about 40% of their turnover is attributed to digital printing. This is expected to reach about 51% in the next 2 years.

FIGURE 117:
Change in Digital Wide Format Printing Revenues



N = 109 respondents in Textiles/Fabrics who have digital textile printing technology

FIGURE 118:
Wide Format Printing Revenues - Current & Future



N = 109 respondents in Textiles/Fabrics who have digital textile printing technology

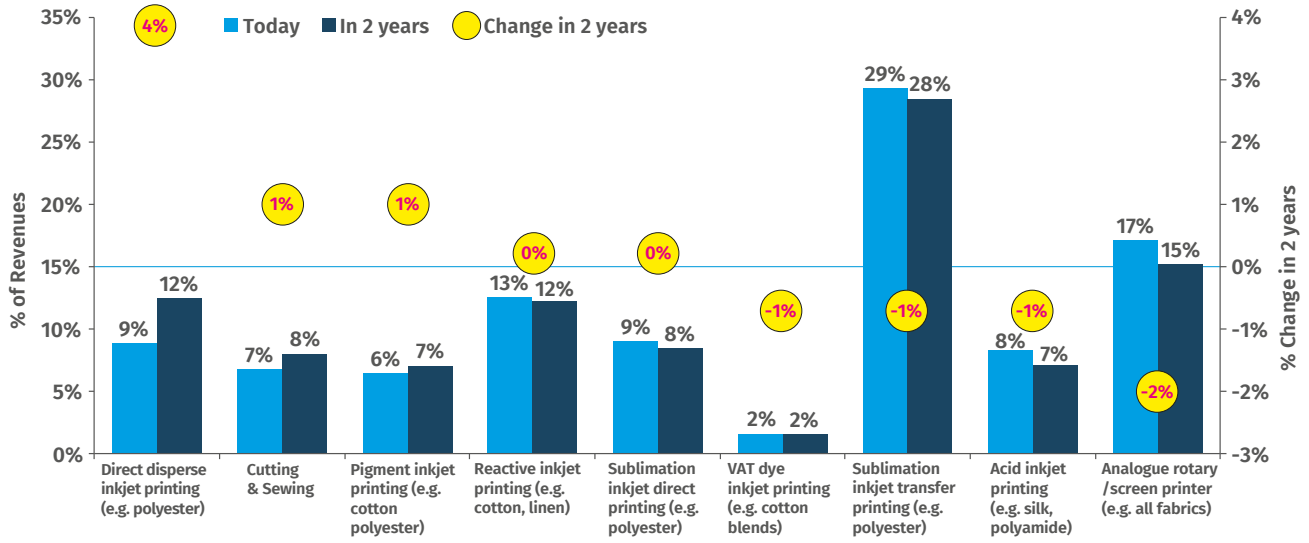
disperse (for example high energy sublimation) is expected to show the highest growth over the next 2 years.

In terms of new equipment purchases, the most common choices include sublimation transfer (32%), pigment printing (24%) and sublimation direct printing (17%). For our respondents, the attraction to sublimation and pigment stems from their ability to produce fabrics for apparel and decor applications through dry fixation, without the need for steam and wash fixation. The ability to produce fabrics without a wet fixation can improve environmental impact (for example use less energy and/or less water) and expediency of product to market. This is attractive to producers without wet fixation technologies or to those in zones that may not allow unrestricted use of natural resources.

A closer look at the technological investments by digital, screen and textile printers shows a commonality in the movement toward sublimation and pigment printing. A notable difference is the intent of 28% of screen printers to invest in their durable analogue rotary screen printers.

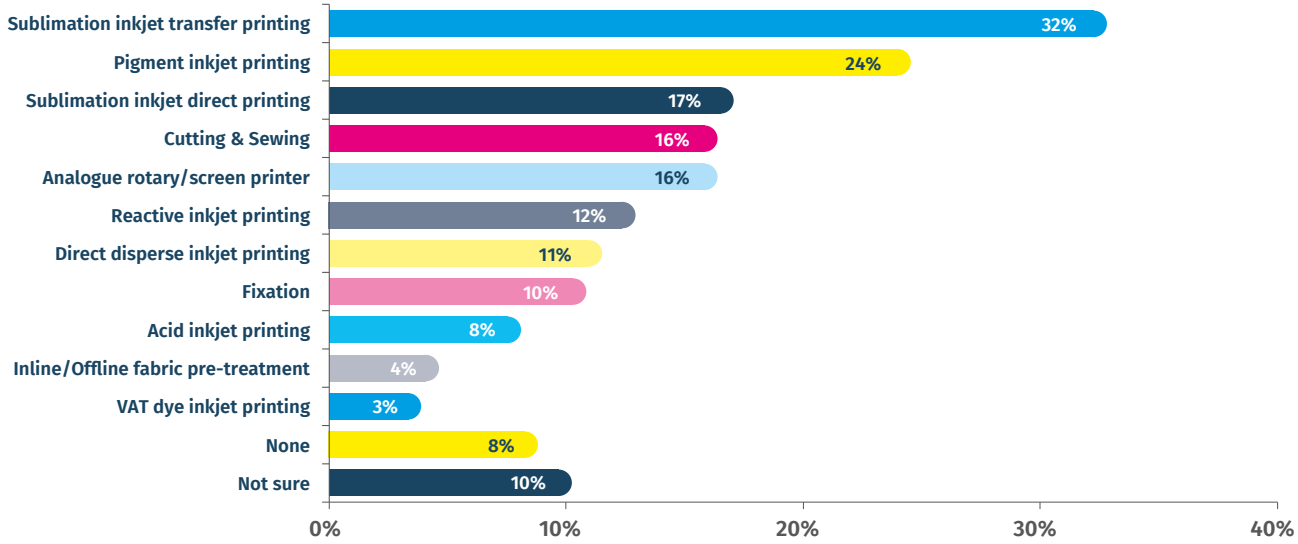
Respondents who indicated that they do not have digital printing equipment today were

FIGURE 119:
Change in Printing Revenues (By Technology Type)



N = 109 respondents in Textiles/Fabrics that have digital textile printing technology

FIGURE 120:
Which of the following types of digital textile printing equipment or accessories will you most likely purchase in the next 2 years?



N = 145 respondents in Textiles/Fabrics who have digital textile printing technology or plan to invest in the near future

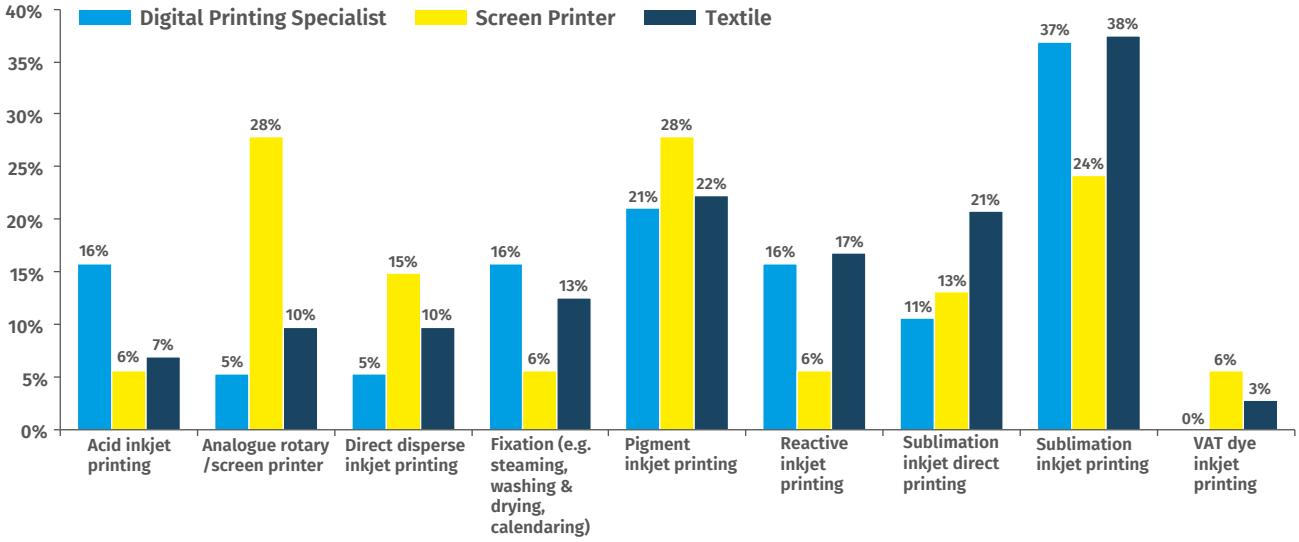
Multiple Responses Permitted

asked how their revenues will likely be split in the future. The top revenue generators included analogue printers (30%), pigment printers (20%) and sublimation devices (16%). The commonality between the latter two technologies is their use of dry fixation to bond the ink to fabrics, eliminating the once required and more complicated steam wash and dry process.

When respondents were asked how much they might expect to pay for new equipment, the average anticipated investment was €242,570. At this price point, a company would be able to purchase a high-end unit that uses scanning head technology rather than single pass. The device would be capable of producing around

When respondents were asked how much they might expect to pay for new equipment, the average anticipated investment was €242,570.

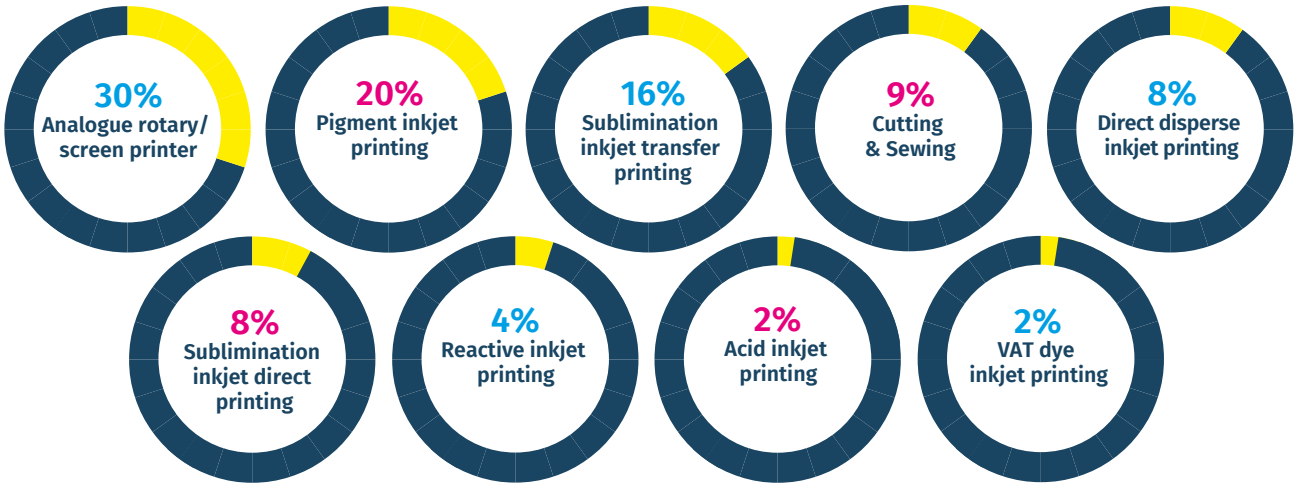
FIGURE 121:
Which of the following types of digital textile printing equipment or accessories will you most likely purchase in the next 2 years?



N = 145 respondents in Textiles/Fabrics that have digital textile printing technology or plan to invest in the near future

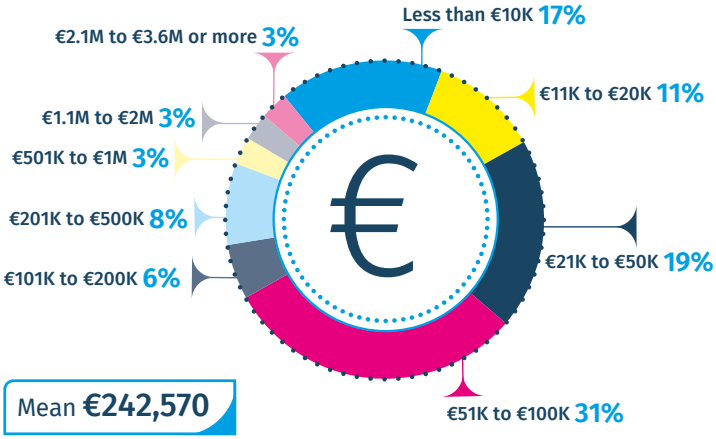
Multiple Responses Permitted

FIGURE 122:
Thinking just about your fabric printing revenues, approximately what percentage will be attributed to the following technologies in 2 years?



N = 36 respondents in Textiles/Fabrics who plan to invest in digital textile printing technology

FIGURE 123:
How much do you expect to pay for the new equipment you are planning to acquire?



N = 36 respondents in Textiles/Fabrics who plan to invest in digital textile printing technology

Unlike respondents in the other segments we studied, media plays a lesser role for fabric/ textile printers. The cost of ink is likely directly compared with analogue printing on a per print basis, rather than viewing the other value adds and benefits that digital brings, such as reducing inventory, saving natural resources and design and personalisation capabilities.

200-300m² an hour at production quality. Naturally, pre-treatment, dryers and unwinders would represent an additional cost.

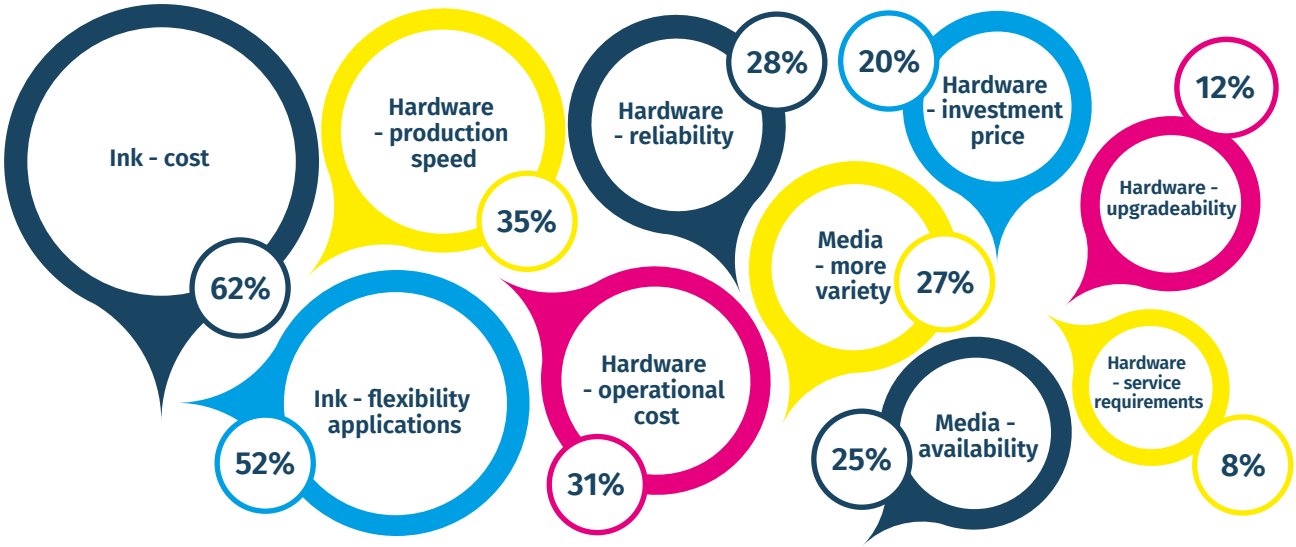
As with many respondents in our survey, textile fabric producers are seeking innovations that will make them more cost-effective and bring pricing closer to traditional printing. The top innovations that respondents were interested in included those associated with ink costs and ink flexibility across a range of applications (for example pigment). These are followed by typical needs of faster production speeds (35%) and reduced operational costs (31%).

Software Investments

In keeping with our observation regarding their key strategies for business growth, fabric/textile producers' top planned software acquisitions include quality control (31%) and colour management (30%). The issue of colour management is clearly becoming a focal point for vendors and producers alike. The transition from special colourways to composite colours in digital printers creates many opportunities for creativity, but close attention to colour consistency and matching output from one production batch to the next are required. This is not always an easy task with so many variables, including ink, drying and steam fixation.

Fabric/textile printers are also planning investments in web-to-print and cloud content management — two key enablers of opening their business to the changing supply chain. Digital printing is available today to mainstream large producers as well as an emerging range of

FIGURE 124:
Where would you like to see more innovations in digital textile printing technology?

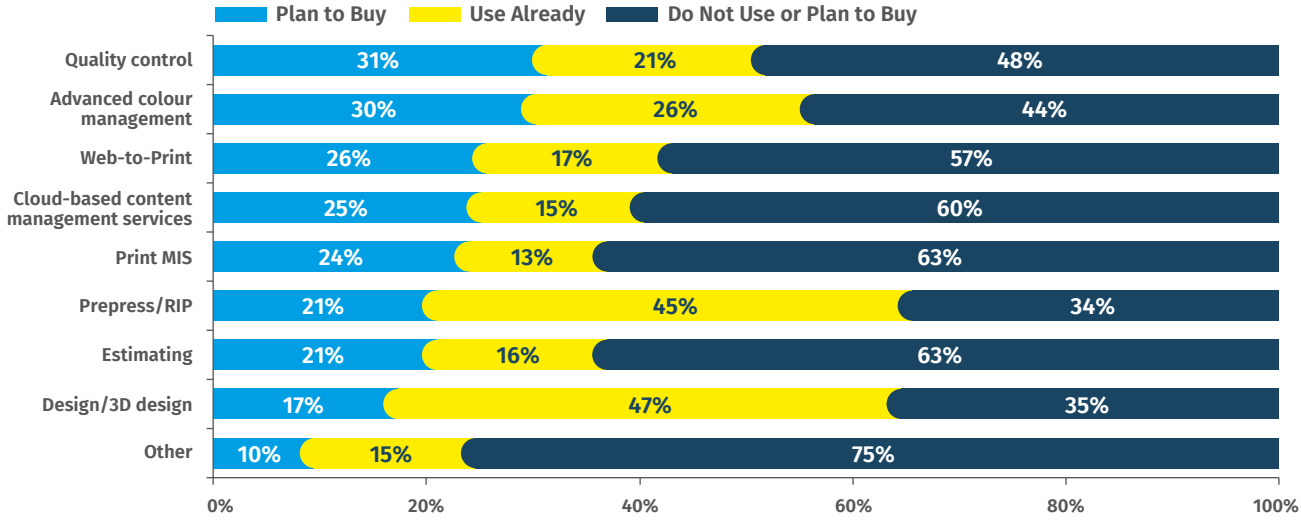


N = 133 respondents in Textiles/Fabrics who have digital textile printing technology or plan to invest in the near future

Multiple Responses Permitted

FIGURE 125:

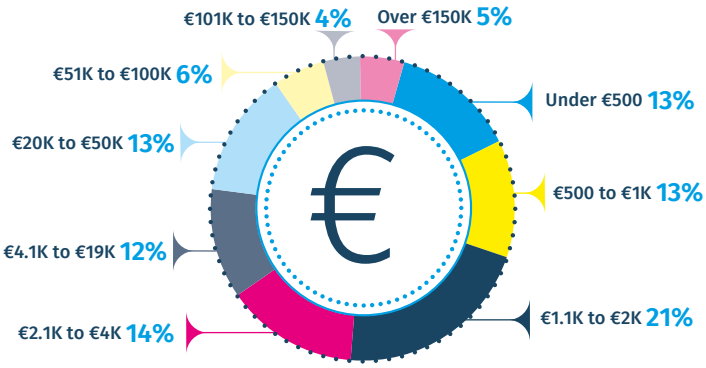
How would you describe your ownership or investment plans for the following types of software?



N = 195 respondents in Textiles/Fabrics

FIGURE 126:

How much do you expect to spend on the software that you plan to acquire?



Mean €23,650

N = 128 respondents in Textiles/Fabrics who plan on investing in software

The transition from special colourways to composite colours in digital printers creates many opportunities for creativity, but close attention to colour consistency and matching output from one production batch to the next are required.

on-demand producers that can compete with them in shorter runs with identical quality output. These are the centre of a shift within the industry, where smaller digital-savvy producers can address small batch manufacturing by offering customisation, short turnaround and highly personalised experiences. These are enabled by technologies that allow rapid processing along with a positive experience.

In keeping with their investment strategy, textile fabric producers expect to invest an average of €23,650 which is significantly more than that of their peers in other segments we surveyed. We attribute this higher average to the importance of quality control, colour management and an online presence. These factors typically require substantial investments in software and accessories (for example spectrophotometres).

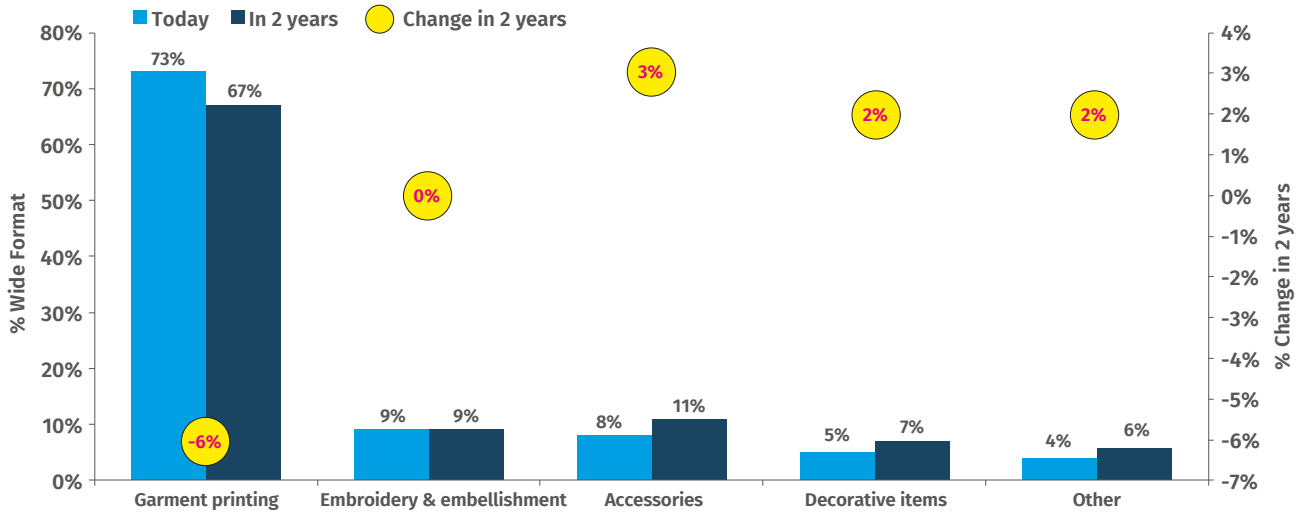
Direct-to-Garment (DTG) Printers

DIRECT-TO-GARMENT (DTG) PRINTERS

Garment decorators that took part in the survey included companies with traditional printers such as screen and embroidery as well as those using digital print with transfer printing methods and direct-to-garment inkjet technology. In this survey, we use the term Direct-to-Garment (DTG) for decorating and printing on formed garments or accessories covering all printing methods.

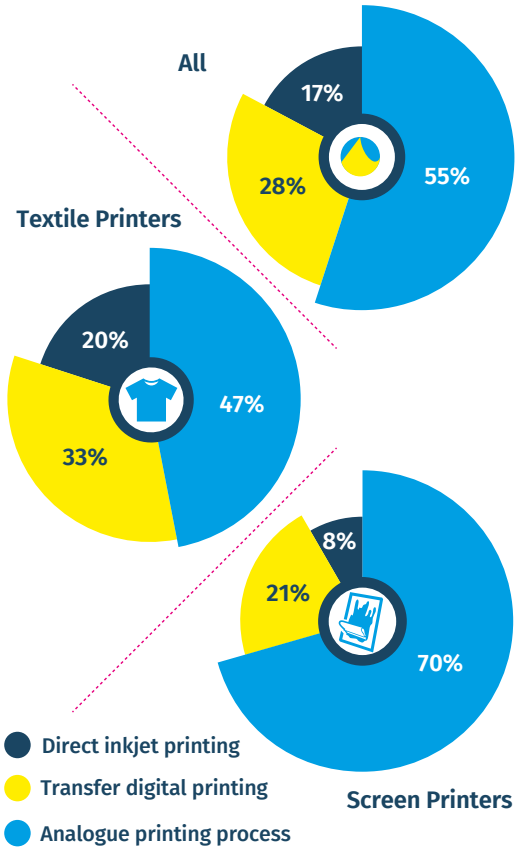
Direct Inkjet DTG print systems most commonly use pigment inkjet technology for printing multiple colours and complex designs using single or multiple pallets with a transport system. Most offer CMYK inks plus a white base ink to enable printing onto dark garments as well as light. Digital inkjet DTG printing is a growing market segment, valued at almost $6 billion and growing at about 13% year on year. It attracts vendors of low volume commercial printers for short run and customised printing as well as high-speed industrial printers that can produce hundreds of T-shirts per hour. Some vendors have hybrid devices with screen carousels for white and speciality ink printing and they may integrate a digital CMYK for customisation and shorter set-up time.

FIGURE 127:
DTG Printing Revenues – Current and Future



N = 92 respondents in Direct to Garment

FIGURE 128:
Focusing on your direct to garment business value (for example turnover), what percentage is from the following?



N = 92 respondents in Direct to Garment

Transfer digital printing incorporates thermal transfer technology that uses a standard desktop inkjet or laser printer printing onto a transfer paper that is coated with a polymer to enable the print to stick onto the shirt. Alternatively, sublimation transfer printing uses a specialist sublimating dye that permeates into the fabric when heated with a heat press.

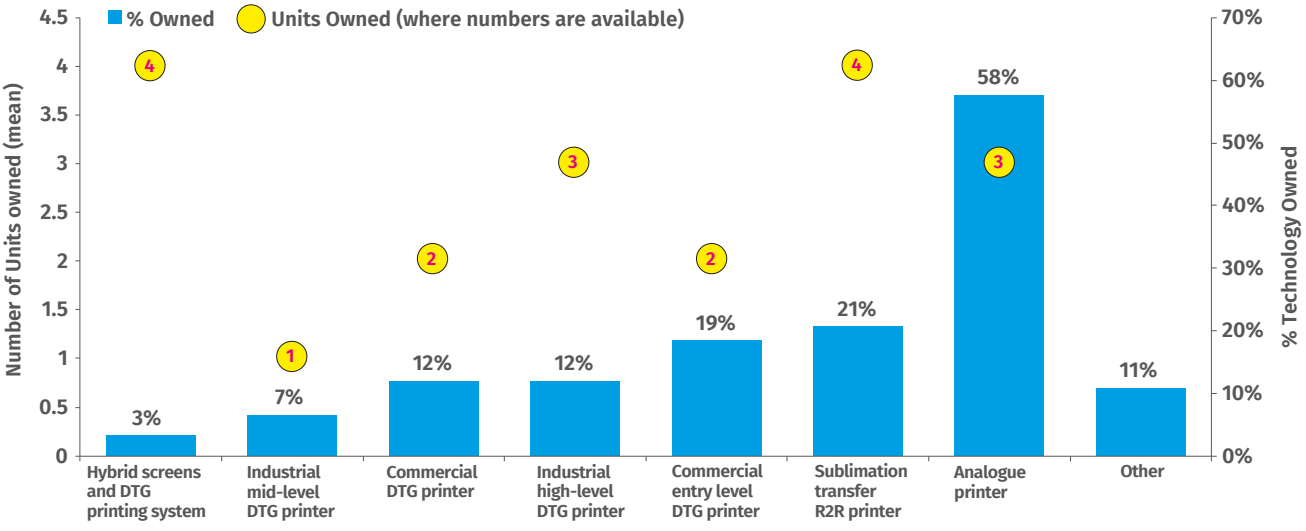
Technology Use: Current & Future

During the 2018 FESPA Print Census, 92 respondents (about 4% of the total) identified themselves as DTG Printers and over 70% of these stated that DTG is their main source of revenue. When asked about expected sources of revenues in 2 years, it is clear that garment printing will remain the biggest revenue generator. As a proportion of all revenue, however, accessories and decorative items will be growing their share over time. This indicates that the potential for revenue earnings is growing beyond mainstream garment printing (for example T-shirts and sweatshirts) to other types of finished accessories and fabric pieces (for example cushion covers, tea towels and tote bags).

As is the case with the fabric printer respondents, about one-third of DTG printers identified themselves as screen printers with textile as their primary business. These companies remain 70% analogue while companies referring to themselves as textile printers are now using over 50% digital processes. Direct inkjet printing is still a smaller percentage of digital than transfer printing processes, particularly among screen printers. This might suggest a greater growth potential for DTG devices in the longer term.

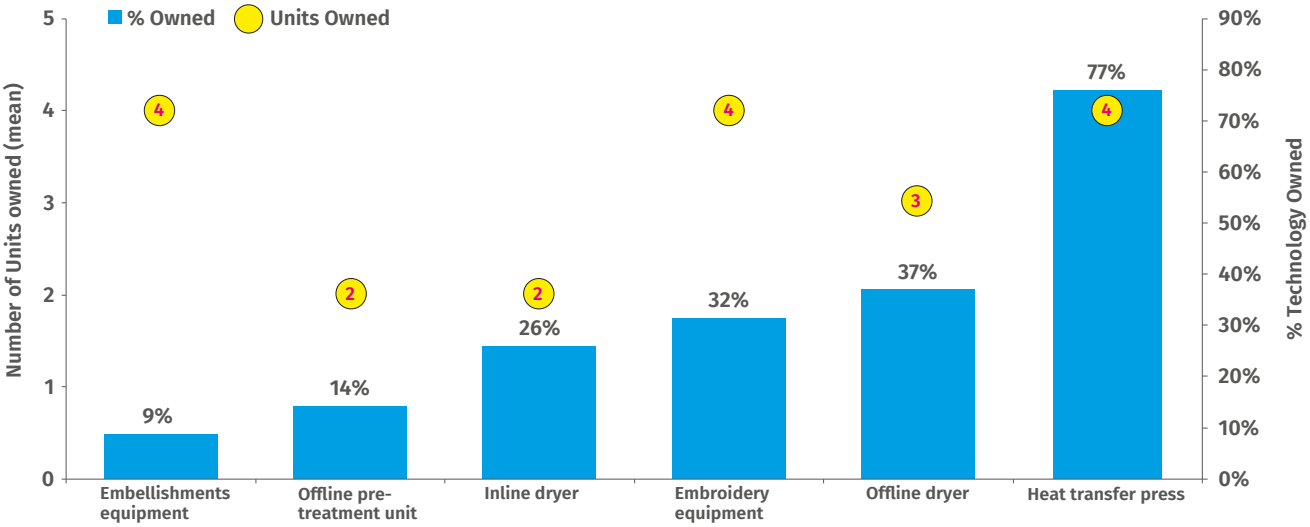
The breakdown of machine ownership across respondents is broad. While it shows the dominance of analogue printing overall with 58% of respondents owning on average 3 screen printing devices each, the spread of digital DTG devices is broad across

FIGURE 129:
Printing Equipment Ownership – DTG



N = 92 respondents in Direct to Garment

FIGURE 130:
Accessory Ownership – DTG



N = 92 respondents in Direct to Garment

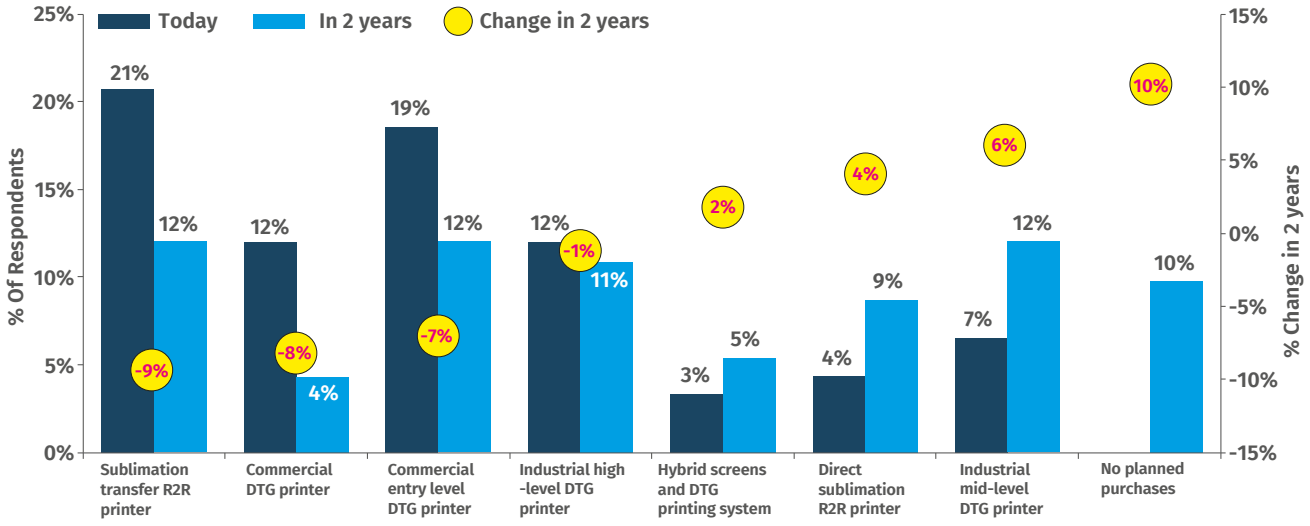
commercial and industrial segments representing a total of 41% of respondents owning collectively around 107 devices (53% commercial and 47% industrial or industrial hybrids). 21% of users own an average of 4 roll-to-roll sublimation transfer printers and many of these are likely to be lower-end devices used for transfer printing.

The majority of garment printing companies own an average of 4 heat presses, while dryers may be online or offline with users owning between 2 and 4 each. Embroidery equipment is popular among respondents with a third of companies owning around 4 machines each.

Pre-treatment units are owned by just 14% of respondents, which correlates in part to the 17% of respondents that handle direct digital inkjet printing. In this case, pre-treatment is usually needed for white base layer printing onto dark garments. The pre-treatment is typically applied using nearline units and garments are then dried and printed. That said, wet-on-wet pre-treatment is also available to eliminate process steps.

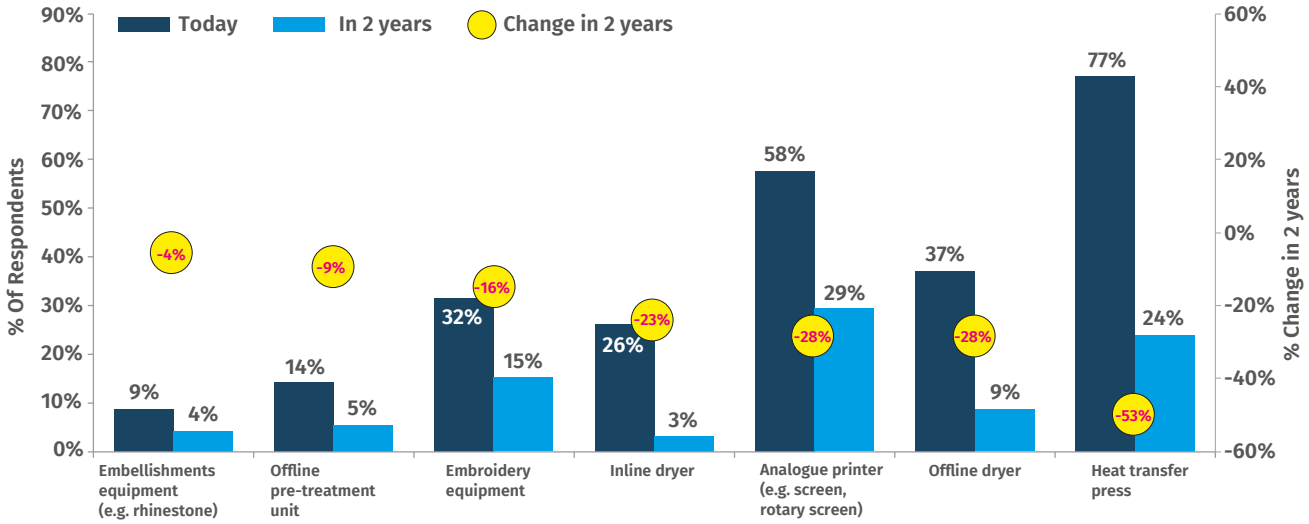
Over the next 2 years, we expect to see increased investments in industrial mid-level DTG printers, direct sublimation devices and hybrid screen and DTG printing systems. The growth in these segments reflects the professional printing nature of the respondents in the survey, whereas commercial inkjet DTG

FIGURE 131:
DTG Printing Equipment Ownership – Current & Future



N = 92 respondents in Direct to Garment

FIGURE 132:
Analogue & Finishing Equipment Ownership – DTG



N = 92 respondents in Direct to Garment

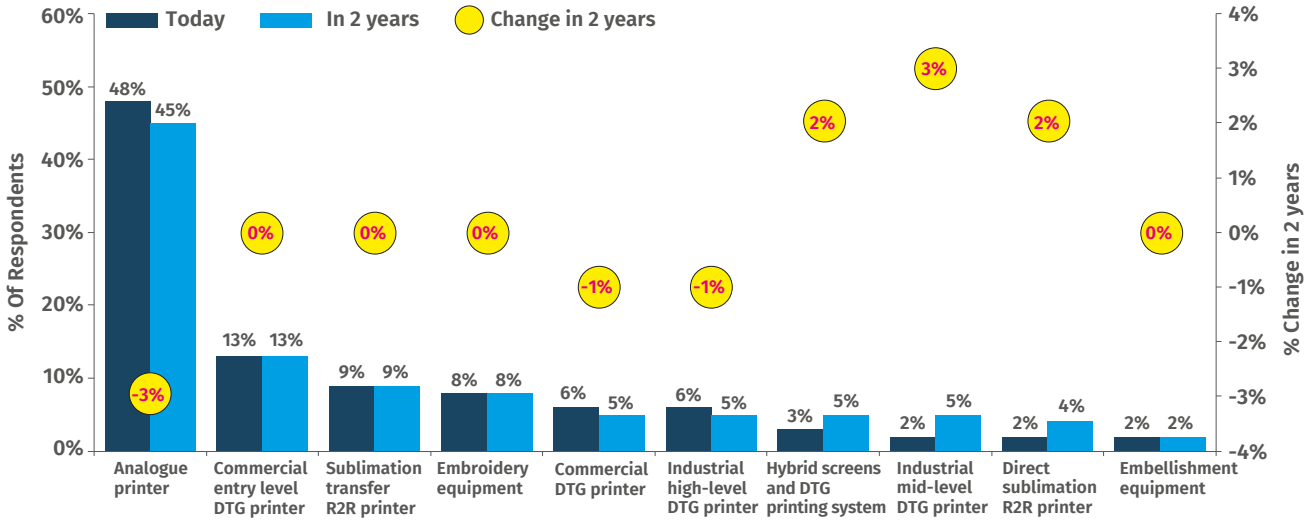
growth is more likely to come from lower volume environments.

The biggest dip in investments over the next 2 years are expected in heat presses, dryers and analogue equipment. This suggests that most DTG respondents are planning to invest in digital equipment moving forward.

Along with the investment growth sectors, FESPA respondents expect to see growth in revenues from hybrid DTG, industrial mid-level and direct sublimation printing and the biggest dip in revenues from analogue printing. Mild declines in revenues from commercial DTG and industrial high level DTG devices are also expected in the next 2 years. This is only a two-year trajectory, so it is possible that these respondents recently invested in equipment and don't expect to need more in the next 2 years.

Over the next 2 years, we expect to see increased investments in industrial mid-level DTG printers, direct sublimation devices and hybrid screen and DTG printing systems.

FIGURE 133:
Changes in Printer/Accessory Revenues – DTG

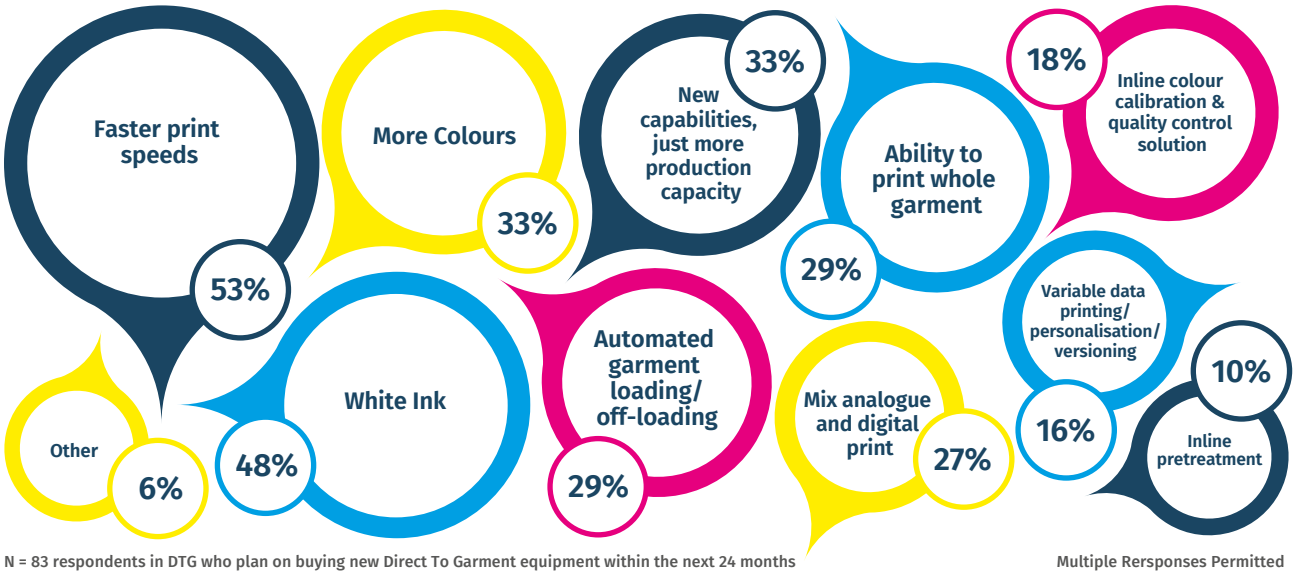


N = 92 respondents in Direct To Garment

Among respondents that are planning to invest in new DTG equipment in the next 2 years, the features they are most interested in are faster print speeds, white inks and more colours. This correlates well to developments in digital inkjet technology, which enables photorealistic colour printing as well as white ink base printing, whether printed on the fly in some systems or as a base layer in most. Print speeds are also getting faster in digital inkjet systems, enabling the production of several hundred impressions per hour. Some industrial systems are capable of producing the same print speeds on light and dark garments. More production capacity as well as automation in garment on and off-loading are also desired by around 30% of respondents. DTG is increasingly being used for printing a broader range of items, including whole garments. The interest in mixing analogue and digital print (27%) reflects a huge surge in the availability of hybrid systems. A number of these devices have been showcased at recent FESPA exhibitions, likely igniting the interest and realisation of business potential for using these types of machines.

When DTG respondents were asked how much they expected to spend on new equipment, the

FIGURE 134:
Which of the following direct-to-garment printer attributes or features are the most interesting to you?



N = 83 respondents in DTG who plan on buying new Direct To Garment equipment within the next 24 months

Multiple Rersponses Permitted

average was €121,660. This represents a substantial investment and it might suggest that more DTG respondents are expecting to purchase mid-level industrial or high-end devices.

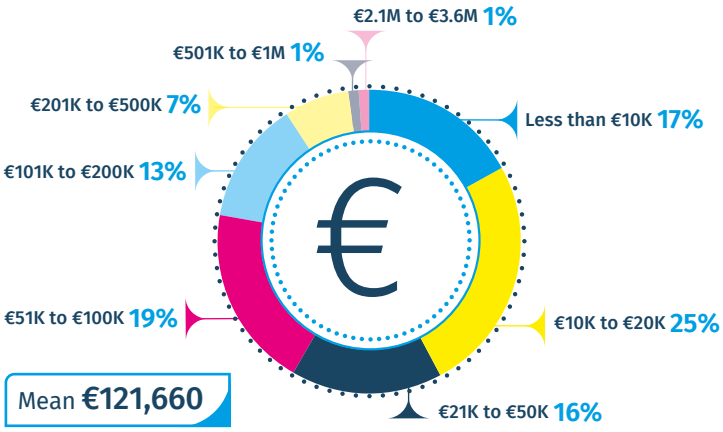
When reviewing the use of Digital Inject DTG machines, the average amount of T-shirts, sweatshirts and novelties being printed per month did not vary greatly. On average, 7,480 T-shirts, 6,120 sweatshirts and 5,060 novelties are printed per month. T-shirt printing averages at 58% light while sweatshirts are 35% light and novelties are 55% light. This correlates with InfoTrends' DTG Forecast research that found around a 50:50 split across the board. At the same time, however, there are differences in dark to light output ratios within the industrial and commercial printing segments.

For T-shirt printing, most of the volume comes from lower-end users printing up to 3,000 shirts per month and these were slightly more biased towards dark shirt printing. The companies printing over 3,000 per month had higher proportions of light shirts.

Meanwhile, sweatshirt printing saw 71% of light and dark shirts printed by users doing 1,500 or lower per month, but a couple of high-end companies were producing more than 70,000 a month on dark. This brought the mean of dark to light up to 65%.

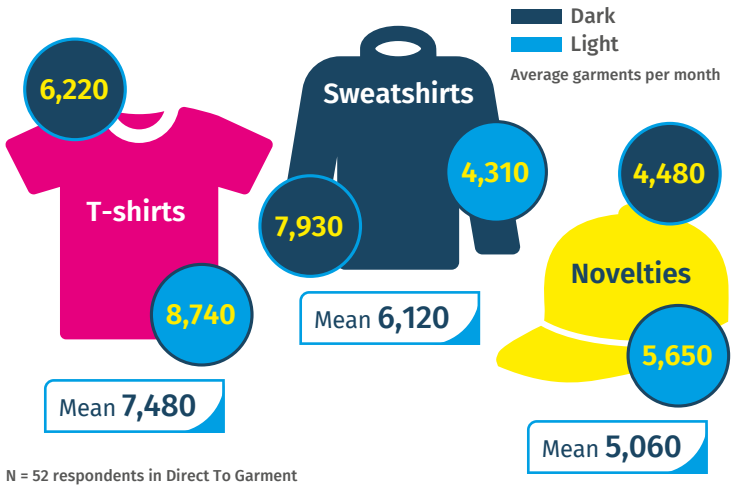
On novelties, 65% of both light and dark are printed by companies printing less than 1,500 per month and almost three quarters under 3,000 per month.

FIGURE 135:
How much do you expect to pay for the new equipment you are planning to acquire?



N = 69 respondents in Direct To Garment who plan on buying new Direct To Garment equipment within in the next 2 years

FIGURE 136:
Thinking only about your direct-to-garment inkjet printers, how many of the following do you print per month?



N = 52 respondents in Direct To Garment

The variations in type of output depend on trends and evolve with the applications that they are being used for. As digital ink developments continue in terms of more colours, metallics and discharge inks and more screen and digital devices are integrated, the ability to increase value with special effects will rise for mass customisation and high value short-run printing.

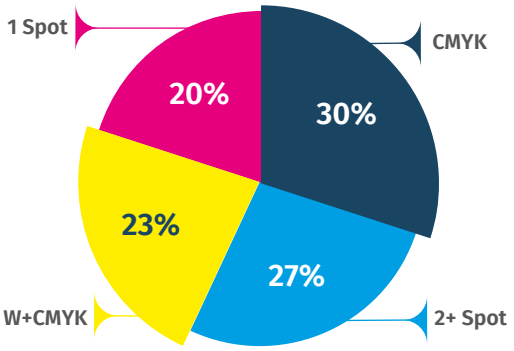
Of all respondents across analogue and digital processes, almost a third are producing CMYK process colour. Meanwhile, under a quarter are producing CMYK plus white, so a total of 53% of jobs are process colour. The remaining jobs are 1 or 2 spot colours. Looking at the respondent type digital printing specialists stated 68% W+CMYK and 83% process colour, while screen printers showed a majority in spot colours and textile printers were evenly spread between spot colours and CMYK process colour.

Software Investments

Software investment plans showed that over one third of respondents intend to purchase quality control software and almost 30% want to invest in colour management, prepress and web-to-print software. Interestingly design software was bottom of the list of intended purchases because 83% have already invested in it while prepress/RIP software was also already heavily invested in. Web-to-print software was planned or already used by 75% of digital print specialists and advanced colour management software had greater current or expected use by textile printers. Design is clearly the most valued software across the board, followed by prepress/RIPs.

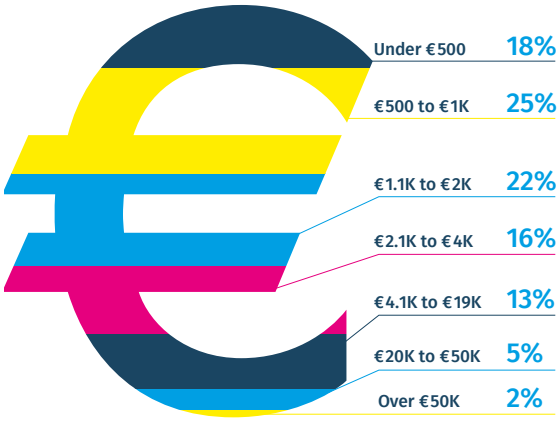
Software investment expectations averaged at just under €7,000, with the majority of companies spread across values up to €19,000. Very few companies were prepared to spend upwards of €150,000.

FIGURE 137: *What is the share of colour combinations that you typically produce (for example screens or separations)?*



N = 92 respondents in Direct To Garment

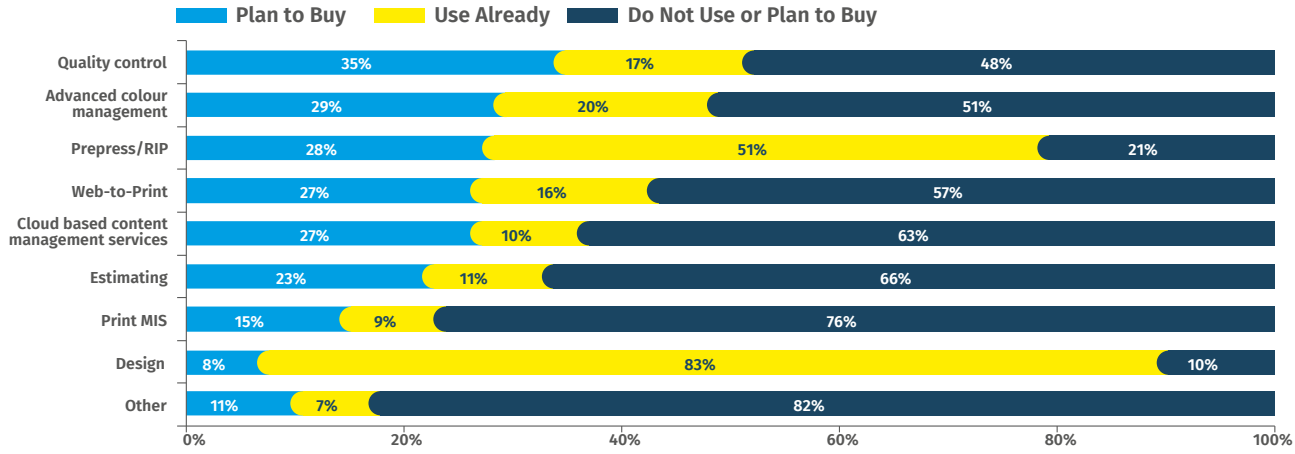
FIGURE 139:
How much do you expect to spend on the software that you plan to acquire?



N = 63 respondents in Direct To Garment who plan to buy software

Mean €6,815

FIGURE 138:
How would you describe your ownership or investment plans for the following types of software?



N = 92 respondents in Direct To Garment

InfoTrends' Opinion

For several years now, FESPA and InfoTrends have collaborated on the design, implementation and development of findings of the FESPA Print Census.

This edition is wide-reaching and the largest yet, covering 102 countries and 1,405 respondents from a diverse set of industry segments. Responses from this community enrich our knowledge about the key trends that impact technology adoption, preferences and the overall business health of our respondents.

It was clear from this survey that wind of change is driving producers to offer and invest in advanced digital technologies that will help them meet customer demand for efficiency, automation and accountability to facilitate mass customisation. The desire to meet mass customisation needs is manifested in the adoption of technologies that are aimed at improving capacity and extending reach while keeping a keen eye on environmentally friendly solutions.

Another aspect that was evident in the research was the intention to increase investments in technologies that ensure quality output and consistency for today's increasingly demanding clients.

We firmly believe that equipment suppliers and print service providers will continue to innovate, providing FESPA members with a fertile ground for expanding business growth. This timely, valuable, ongoing research can help guide strategic planning and product acquisitions. It can also foster a well-rounded understanding of the trends in the various market segments.

Contributors

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Group Director

Keypoint Intelligence - InfoTrends

As Group Director at Keypoint Intelligence—InfoTrends, Ron Gilboa leads a team of professionals covering industry segments including print on demand, packaging, wide format printing, industrial printing and production workflow. He is responsible for conducting market research, market forecasting, custom consulting projects, strategy and planning engagements and creating editorial content for product/market analysis reports. Ron has been involved in the graphic arts, publishing and industrial printing industries since 1980.

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FESPA Associations

FESPA is a federation of 37 national Associations, directly representing a combined membership base of over 16,000 printers worldwide. Coming together annually at the General Assembly, which is hosted by a different Association each year, members benefit from networking opportunities, information sharing, Association-focused events and FESPA-supported local projects.

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www.sgiaa.asn.au

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(GREEK SCREEN PRINTING ASSOCIATION)
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HUNGARY | MAGYAR SZITANYOMOK SZOVETSEGE
www.fespa.hu

INDIA | SPAI (SCREEN PRINTERS ASSOCIATION OF INDIA)
www.spai.org.in

ITALY | FESPA ITALIA ASSOCIAZIONE
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JAPAN | JSDPA
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SWEDEN | FESPA SWEDEN ASSOCIATION
www.fespa.se

SWITZERLAND | VERBAND WERBETECHNIK+PRINT
www.v-w-p.ch

THAILAND | TSGA
www.thaiscreenprinting.or.th

TURKEY | ARED
www.ared.org.tr

UKRAINE | USDPA

UNITED KINGDOM | FESPA UK ASSOCIATION
www.fespauk.com

About FESPA

As a global federation of Associations for the wide format printing community, FESPA's mission is to support the stakeholders of its industry by supplying relevant information and events for them to scope new technologies and market opportunities related to print in order to sustain their business and push forward the standards of wide format printing.

We provide a range of global exhibitions, educational events and market intelligence covering digital printing, screen printing, textile printing, signage and garment decoration to worldwide solution providers in addition to local projects delivered via our 37 trade Associations.

FESPA's mission

"To be the leading globally connecting imaging community reinvesting its profits for the purpose of inspiring, educating and growing the industry."

1 | SGIAA
2 | VERBAND DRUCK & MEDIENTECHNIK
3 | FEBELGRA
4 | BACGP
5 | CSGIA
6 | HRVATSKA UDRUGA SITOTISKARA
7 | ASOCIACE SÍTOTISKU A DIGITÁLNÍHO TISKU ČR
8 | GRAKOM
9 | FESPA FINLAND ASSOCIATION
10 | FESPA FRANCE ASSOCIATION
11 | BVDM
12 | HEL.SPA
13 | MAGYAR SZITANYOMOK SZOVETSEGE
14 | SPAI (SCREEN PRINTERS ASSOCIATION OF INDIA)
15 | FESPA ITALIA ASSOCIAZIONE
16 | JSDPA
17 | SPAK
18 | CANAGRAF
19 | NEPAL PRINTERS' ASSOCIATION
20 | FESPA NEDERLAND ASSOCIATION
21 | FESPA NORWAY ASSOCIATION
22 | SIDGAP
23 | PSSiDC
24 | APIGRAF
25 | ARSIT&D
26 | RSPA
27 | SSA
28 | SZSDT
29 | Printing SA
30 | FESPA ESPAÑA ASOCIACIÓN
31 | SLAP
32 | FESPA SWEDEN ASSOCIATION
33 | VERBAND WERBETECHNIK+PRINT
34 | TSGA
35 | ARED
36 | USDPA
37 | FESPA UK ASSOCIATION


FESPA 19
GLOBAL PRINT EXPO
Munich
14-17 May 2019
EUROPEAN SIGN EXPO
14-17 MAY 2019 MUNICH
FESPA 19
AWARDS 2019
Munich
FESPA 19
ASIA 2019
Bangkok
21-23 February 2019
FESPA 18
AFRICA 2018
Johannesburg
12 - 14 September 2018
FESPA 18
EURASIA 2018
Istanbul
6-9 December 2018

List of Tables and Figures

List of Tables and Figures

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profit for purpose

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