

**RICOH**  
imagine. change.

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## Foreword

**It's no secret that Ricoh's heritage lies in print. We launched our first office copier in 1955, ushering in the age of office automation.**

Today, print has evolved into something far beyond the traditional ink-and-paper process.

New printing technologies enable plastics, metals, fabrics and organic matter to be printed or applied in innovative, flexible ways to different surfaces. This fundamental evolution has huge ramifications for how businesses of all kinds develop, manufacture, deliver and improve their products and services.

In previous reports, we have examined how business leaders and employees have bought in to agility, enabling smarter working, cost savings and innovation. As the final part of our Empowering Digital Workplaces series, this report dives deeper into how businesses are achieving agility in action.

The findings shared in this report reveal the strategic role that print is currently playing throughout the business world. We also explore the exciting future of print and its transformative potential.

You will find examples from four industries, each of which is using new printing technologies in fascinating and

innovative ways: retail, healthcare, higher education and financial services.

I hope this report provides you with useful insight into the exciting potential print holds and stokes your imagination for how you might use these new technologies within your business.

Print has always been an exciting technology, and now the future of print is poised to usher in yet another era of disruption, efficiency and innovation.



David Mills  
CEO Ricoh Europe

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# Executive Summary

## **The refrain that “print is dead” is utterly misguided.**

In fact, print is of more strategic importance than ever before among business leaders. New printing technologies are enabling businesses to deepen their relationships with customers, respond quicker to their expectations and offer a more personalised experience.

In this report – the third in a series looking at how companies can empower their digital workplaces to achieve more – Ricoh surveyed **3,150** business leaders and heads of operations, across **23** countries in Europe, the Middle East and Africa.

Throughout this series, we’ve explored the views of employees and business executives on how technology helps improve their agility. We’ve found that more than three-quarters of company leaders (**78%**) identified the ability to stay agile as a key driver for their organisation today.

This report dives deeper into the new printing technologies that businesses are using in pursuit of this agility. We analyse data from a range of verticals to highlight the specific needs these new technologies are meeting.

We also worked with Trajectory, a research and forecasting consultancy, to identify the key trends affecting businesses around the world and their impact on business, society and culture. These trends give an indication of the main drivers of business growth for the coming years.

**The key findings of the research are as follows:** New printing technology is of key strategic importance for business leaders. **69%** think new printing technology will unlock vital revenue for them in the future and **67%**

think it will provide them with a source of competitive differentiation to help them stand out from the crowd.

**New printing technologies are helping businesses fundamentally transform their operations.** Businesses are using printing technology to provide the framework and foundations of digital transformation. **39% of business leaders** have adopted new printing technologies to implement AI and automation technology. For perspective, only **31%** have invested in actual robotics technology to achieve this same goal.


**Customer needs and expectations are driving these changes.** Business leaders revealed their organisations have struggled to improve customer brand loyalty (**36%**) or approval ratings (**35%**) effectively. Almost four out five (**79%**) identified new printing technologies as integral for maintaining user trust.

**New printing technologies are key enablers of innovation and agility.** The majority of the **3,150** decision makers surveyed say agility (**77%**) and innovation (**69%**) benefits are key investment drivers for new printing technologies. This showed that leaders have fundamentally rethought the role of printing within their organisation.

**Personalisation and speed are the key drivers of new technology adoption across all verticals.** The different requirements of patients, students and customers and their expectations for faster, personalised service have led healthcare, educational, retail and financial businesses to deploy new printing technologies to meet these demands.




Consequently, investment is flowing into printing from a range of sectors. **51%** of all business leaders have invested in new printing technology already. A further **36%** planning on investing in the next five years. This is largely down to the fact that two-thirds (**66%**) think that without investment in new printing technologies their organisation will fall behind the competition in the next five years.




The future of print is intrinsically tied to the future of many businesses. These results show that without the efficiency, innovation and personalisation benefits that new printing technologies bring, businesses in all kinds of industries will struggle to remain competitive moving forward.


As printing technology becomes of greater strategic importance to businesses, executives are looking at how it can help them respond to the urgent challenges they face right now.



**To understand how this is happening in practice, we asked leaders from organisations in four key sectors - Healthcare, Retail, Financial Services and Higher Education - about the ways they're using new print technologies.**



*Their answers give us a more detailed picture of how the future of print is shaping the future of business across Europe.*



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**74%** of **healthcare professionals** are using new printing technology to improve diagnostic rates and lower mortality rates

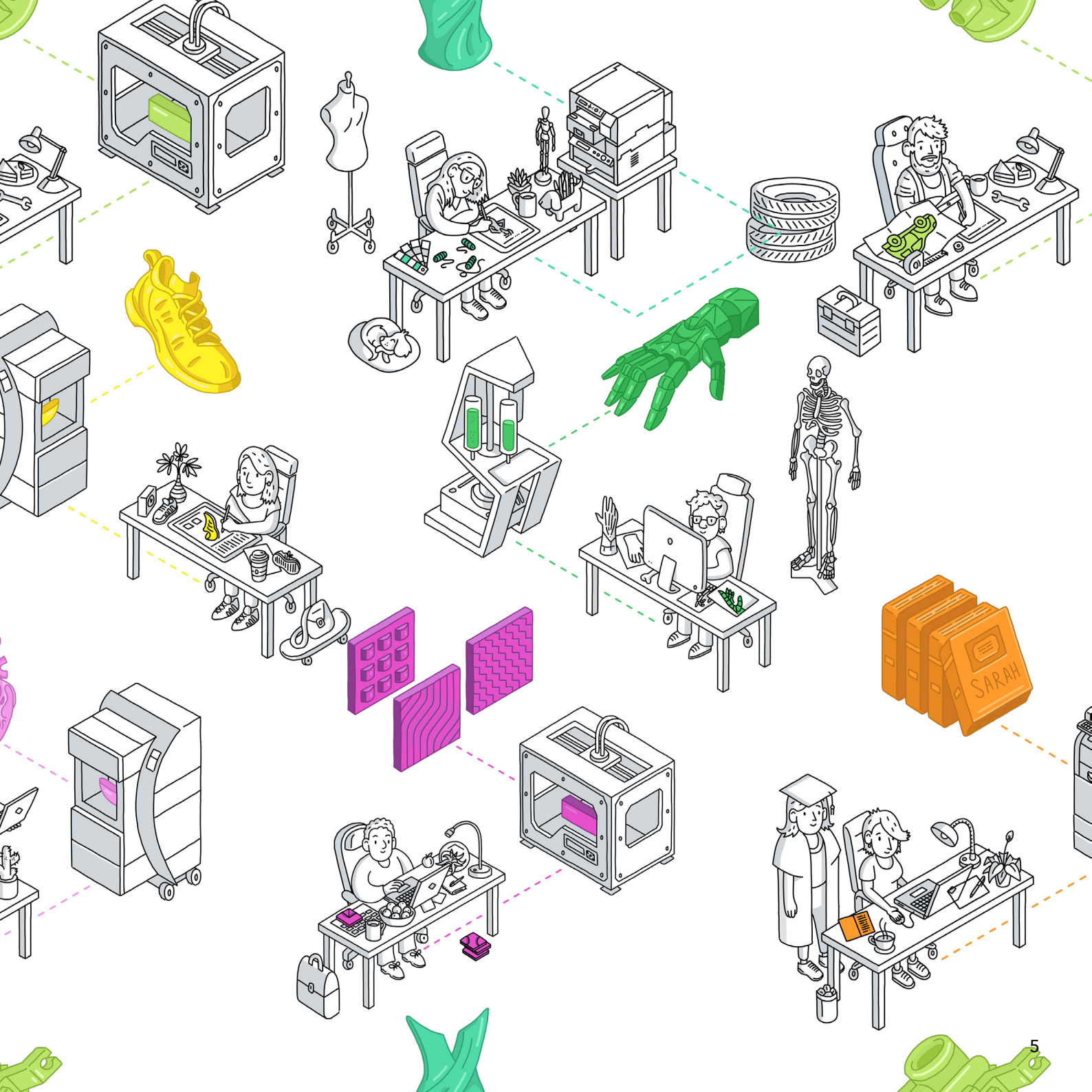
**51%** of **retailers** are using additive manufacturing to improve delivery times

**88%** of **higher education establishments** believe digital fabrication skills are essential in the graduate job market

**51%** of **financial services providers** are using new printing technologies to reduce their carbon footprint and address environmental concerns

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## Print's Strategic Value

**The world of business is arguably **changing faster today** than ever before. A series of far-reaching global trends are coming together to transform how companies work.**

Workforces are changing significantly within many organisations. They're getting older as populations age – especially in Europe. Increasing numbers of people are working well into their **60s** (and sometimes beyond). Different generations are working side by side.

At the same time, customer demands are evolving rapidly. More and more of us expect products and services on our terms – personalised, instant and accessible from anywhere.

Meanwhile a series of major regulatory and political changes are taking place across Europe. Most notably, Brexit will affect the complexion of the European Union. The recent introduction of **GDPR** is a watershed moment in how companies think about and look after customer data. Underlying all of this is the emergence of brand new technologies. These are transforming how we work as well as what we do within our jobs.

Automation is starting to remove some tasks from people and giving them to digital tools. Other mobile and digital technologies are making organisations more fast-paced and flexible, which in turn is creating new corporate structures and forms of management.

All of this change can leave business leaders feeling dizzy with uncertainty. The only solution is for organisations to become more agile so they can capitalise on opportunities as they arise

In order to become more agile, businesses need to scrutinise their operations and identify areas where processes can be improved and costs reduced. One particular technology plays a key role in modernising operations: printing.

New printing technologies mean companies can print virtually any material – from textiles to organic matter – and do so at a rapid pace. They can print smaller batches to be more efficient and nimble. They can also print more personalised content to be more relevant and engaging or their customers.

These advantages can help companies reduce costs, deepen relationships with customers and respond quicker to evolving needs – underpinning a more agile operating model.

## Many businesses already understand the value of printing technology:

- Just over half (**51%**) of the company leaders we surveyed have invested in new printing technology already, with a further **36%** planning to do so in the next five years.
- Two-thirds (**66%**) believe that without investment in new printing technology their organisation will fall behind competitors within five years.
- As print evolves, it plays a much more central role in manufacturing and product development. New tools enable organisations to quickly print prototypes for testing. New products can be brought off the page from design to reality much faster, and refined before mass production begins.

No wonder, then, that **69%** of business leaders think new printing technology will unlock revenue for them. A similar number (**67%**) believe it will provide a source of competitive differentiation. Printing can help identify new product lines and get them to market much faster than was possible just a few years ago. In today's competitive

business environment, that speed can make the difference between success and failure.

## But how are businesses across Europe using these new print technologies in practice?

In the next chapter we look at what organisations are doing in four key industries.



**Printing has traditionally been thought of as just the white box in the corner of the office.** But

that perception is changing rapidly as printing technologies evolve to become a core component of communications, manufacturing and production processes. In other words, printing technologies can drive greater agility for businesses everywhere.

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# Healthcare

**Europe's healthcare systems are widely recognised as among the best in the world, with high-quality care and cutting-edge treatments provided to virtually all citizens.**

But these systems are under huge strain as populations get older, ailments get more complicated and budgets get stretched.

For many healthcare managers, making better use of technology is a crucial way of doing more for less. This is where printing can make a real impact.

New techniques mean it's now possible to print personalised drugs or customised prosthetics that are a more accurate fit with individual patients' needs. Someone who needs a hip replacement, for example, could be scanned so a millimetre-precise prosthetic could be printed to the exact specifications of their body.

That saves both time and money. Patients can get treated faster and achieve a better quality of life. Doctors can deliver personalised treatments and limit the likelihood of problems exacerbating themselves. By helping patients get back on their feet quicker, new printing technologies reduce healthcare costs and materially improve quality of life.

The healthcare professionals we spoke to see printing as integral to their efforts to meet growing patient demands.

Nearly three-quarters of them **(74%)** are using new

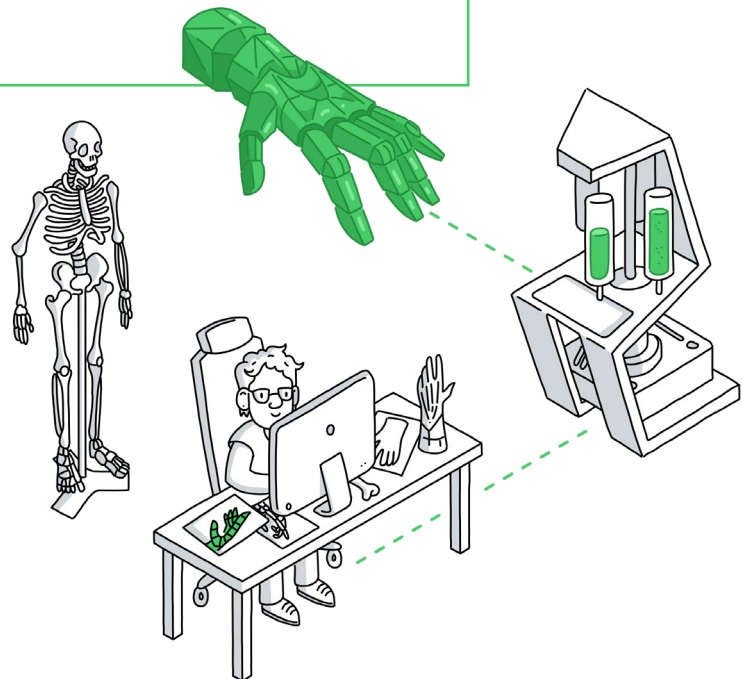
printing technologies to improve accurate diagnostic rates and lower mortality rates. For example, that might involve 3D-printing life-size models of human organs to make diagnoses or practice treatments before doing them for real. Professionals expect this to become increasingly commonplace in the years ahead. Nearly half of healthcare professionals **(46%)** believe that, without investment in 3D printing, they will struggle to meet the needs of patients in the next five years.

In addition to these cutting-edge developments, advances in printing can help in other ways too. Healthcare organisations can generate considerable benefits by digitising their admin systems, reducing paperwork to save time, cut costs and improve the security of patient records.



## SPOTLIGHT ON HEALTHCARE: UCB

- *UCB* is a global biopharmaceutical company focused on the discovery and development of innovative medicines and solutions to transform the lives of people living with severe diseases of the immune system or of the central nervous system.
- *UCB* employs more than *8,500 people across 40 countries* and is required to follow strict regulatory standards for drug development and manufacture.
- *UCB* was looking for a standardised infrastructure that would allow any employee, anywhere in the world, to access any device. The infrastructure needed to interface with line-of-business applications and provide secure governance.
- *Ricoh* deployed versatile managed document and printing technology that was easy to use, securely governed and integrated within line-of-business applications.
- The most important step of *Ricoh's* MDS process is continual optimisation. As such, *Ricoh* provides ongoing support to *UCB*, regularly upgrading print technology, enhancing the services provided and introducing new applications, such as 3D printing.



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# Financial Services

## **The rise of “fintech” firms - financial-focused digital start-ups - has challenged many incumbent organisations in Europe’s financial sector over the past decade.**

Fintech businesses like Transferwise in the UK, Sweden’s iZettle and Germany’s N26 have the advantage of building their processes from the ground up, which means they’re not tied to often complex analogue and paper-based ways of doing things. Not surprisingly, customers are embracing this new approach: around one in three European consumers have used a fintech service.

The result is that financial services firms have to adapt quickly to changing expectations among consumers and B2B customers. Nearly three-quarters of the financial services organisations we surveyed (**72%**) are hiring new skills to accommodate these new customer expectations.

One of the key priorities for financial firms is to personalise their interactions with customers. New printing techniques mean that it’s much easier now to create customised updates and communications for each individual. More than half of financial services companies (**58%**) are using new printing technologies to produce this kind of customised information.

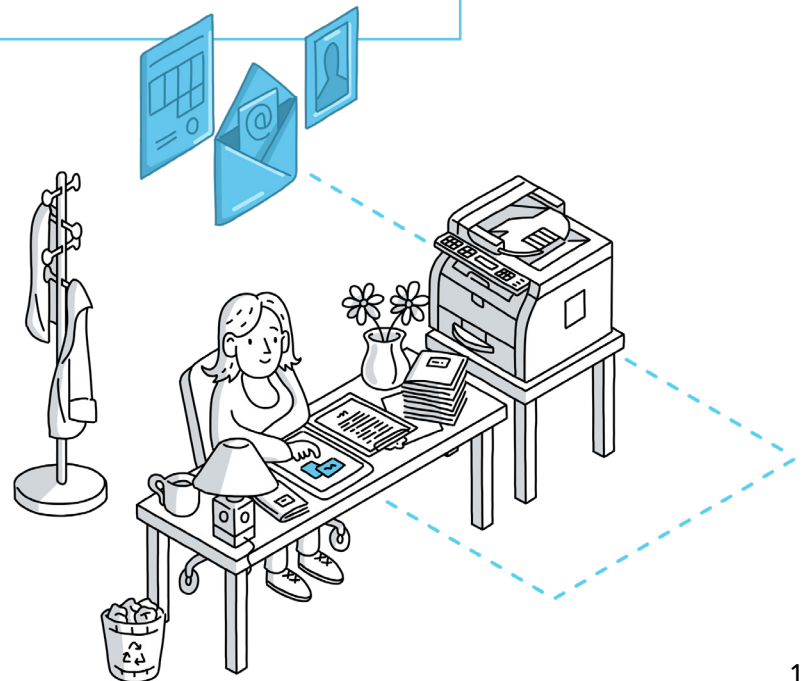
In the B2B environment, the process of sending invoices and collecting payment is still at the core of how businesses operate. Digitising that workflow makes it both quicker and more secure, so companies are more

likely to get paid on time and reduce the need to chase up outstanding bills. More than four in five financial services organisations (**83%**) have identified customer demands for paperless invoicing and interactions as a critical trend requiring their attention.

There’s another consideration too for European financial services firms with paper-heavy processes: reducing their impact on the environment. Over half of firms (**51%**) said they are using new printing technologies to reduce their carbon footprint and respond to environmental concerns.

## SPOTLIGHT ON FINANCIAL SERVICES: DEBEKA

- *Debeka* is one of the largest financial services groups in Germany. The needs of its 6.3m customers are looked after by more than 15,000 employees.
- Like many organisations in the financial sector, *Debeka's* business is document intensive. Insurance proposal forms and policy documents comprise a contractual record that is relied upon in the event of a claim.
- To provide a fast and effective service for its customers, group employees need access to effective information communication technology.
- At the heart of *Ricoh's* solution is a fleet of modern multifunctional printers (MFPs) providing the means to scan, archive and share documents digitally.
- These have delivered significant cost reductions, improved transparency, reduced carbon emissions and increased productivity at *Debeka*.



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# Higher Education

**More Europeans are studying at higher education level than ever before. Europe's student population has increased more than 10% just in the last few years, going up from 24m in 2013 to 27.5m in 2016, the last year for which data is available.**

At the same time, demographic and technological changes are boosting the need for different types of education compared to just a few years ago. As we work for longer and pursue different careers over that time, more of us will become "*life-long learners*", perhaps returning to study several times during our lives. With the rise of online learning, we can increasingly study from our homes or workplaces, rather than spending years at a traditional campus.

Additive manufacturing technology is being used in the classroom to illustrate complex concepts across a variety of different subjects, from geography to medicine. Dubbed "*maker education*", this broader educational movement focuses on the construction of tangible, personalised objects to support the learning process.

All of this means that the traditional "*one-size-fits-all*" model of university education simply isn't suitable any more. Higher education establishments need to provide a more personalised approach to their students, with tailored content that reflects their individual circumstances and requirements.

Our survey found that European universities are increasingly using new print technologies to personalise the education they provide and ultimately better prepare students for working life.

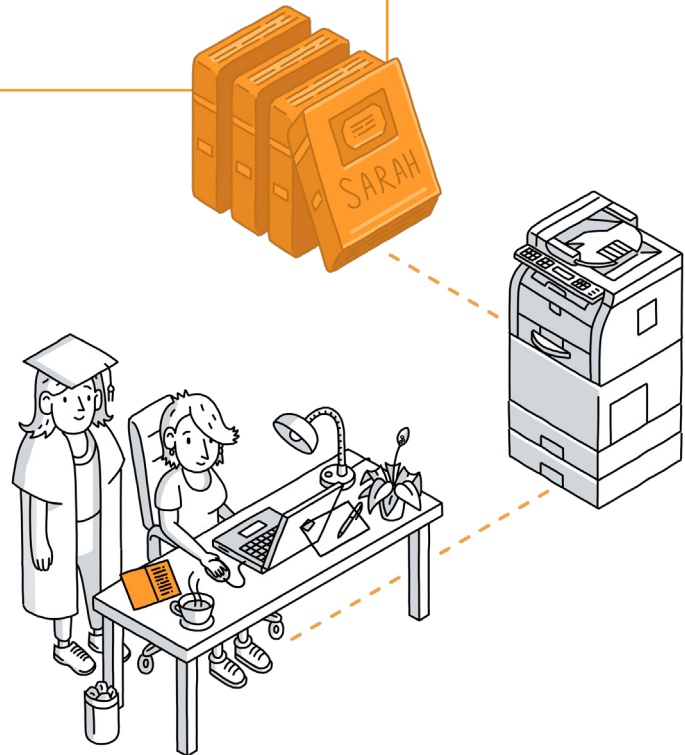
In particular, universities identified the differing requirements of life-long learners (**79%**), the need for more unique/tailored courses (**71%**), and the demand for flexible learning processes (**70%**) as key sector trends.

To that end, nearly half of universities (**46%**) have used new printing technologies to provide customisable course materials, and **48%** have provided personalised syllabuses to attract new students.

This is key to responding to the rapidly changing job market that students are now graduating into. Four out of five higher education establishments (**80%**) report that students find agile learning technology prepares them for the requirements of future employers.

### SPOTLIGHT ON HIGHER EDUCATION: UNIVERSITY OF MILAN

- *The University of Milan* is one of Europe's leading scientific institutes, catering for 64,000 students, eight dispersed faculties and 2,000 professors.
- The university set out to improve the print services in its libraries, seeking to offer advanced services more in line with the needs of its students.
- *Ricoh* refreshed the University's print infrastructure and implemented *myPrint* services across key university locations including libraries and computer rooms.
- Using a smartphone app, students can now print from any location and collect work, on the go, from any device. These advanced printing technologies have given students the flexibility to work from the location that best suits their needs.





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# Retail

**Retail is central to Europe's economy. The region is, after all, home to some of the world's biggest consumer goods groups, supermarkets, chain stores and fashion houses. From Zara and Ikea to Carrefour and Tesco, Europe is a retail powerhouse.**

But arguably no sector is being more drastically affected by technological change than retail. Europe's ecommerce sector is growing at around **14%** a year – in an environment where traditional retail is struggling – and it's now a **€600bn** industry in its own right. Bricks-and-mortar retailers are battling their digital rivals to deliver products on-demand, and personalise them to consumers' individual tastes.

Adidas for example has announced that **100,000** 3D-printed shoes will be produced by the end of 2018. Microsoft's 'HoloLens' headset is showcasing similar innovation, allowing customers to envision their personalised product before it's been built.

These customer needs and technological innovations are prompting retailers across Europe to embrace innovative printing and drive their competitive advantage.

84% of European retailers report that reduced delivery times are a key customer demand now, followed by more delivery options (**75%**) and the ability to personalise their products (**74%**).

Europe's shoppers increasingly expect the items they buy to be available on their terms, with greater choice and convenience as standard.

Printing can play an important role in responding to these higher expectations. 3D printing (also known as additive manufacturing) can allow retailers to print items much more quickly than traditional manufacturing approaches – potentially even in-store – and makes personalising items to an “audience of one” economically viable. That could be why **61%** of the retailers we surveyed said they are investing in additive manufacturing technology, and **58%** are investing in cheaper on-demand printing.

The main reason for this investment, the retailers said, is to deliver greater customer satisfaction (**73%**) and improved delivery times (**51%**).

When online rivals are available through the smartphone in every shoppers' pocket, bricks-and-mortars retailers need to use every technological tool possible to provide an outstanding service.

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# Adapt Now, for the Future of Print...

**As the responses of leaders in healthcare, retail, financial services and higher education have shown, new printing technologies can enable organisations to be much more agile and innovative. This is critical for any firm looking to adapt to today's rapidly changing business environment.**

Smart organisations are already using printing to modernise their operations. This can be especially effective when these tools are introduced into key parts of an organisation.

The majority of business leaders are using new printing technologies in three main areas: the marketing department (**81%**), product development (**78%**) and manufacturing (**74%**).

In all three areas, the latest advances in printing can help improve efficiencies and enable the organisation to move closer to and engage more successfully with their customers.

Marketing communications can be more personalised to improve levels of satisfaction and loyalty, for instance. Data can also be held more securely and transmitted around the company more quickly. These advantages are important in the context of the ongoing battle for customer affection. Over a third of business leaders (**36%**) revealed their organisations struggle to effectively improve customer brand loyalty, or approval ratings (**35%**).

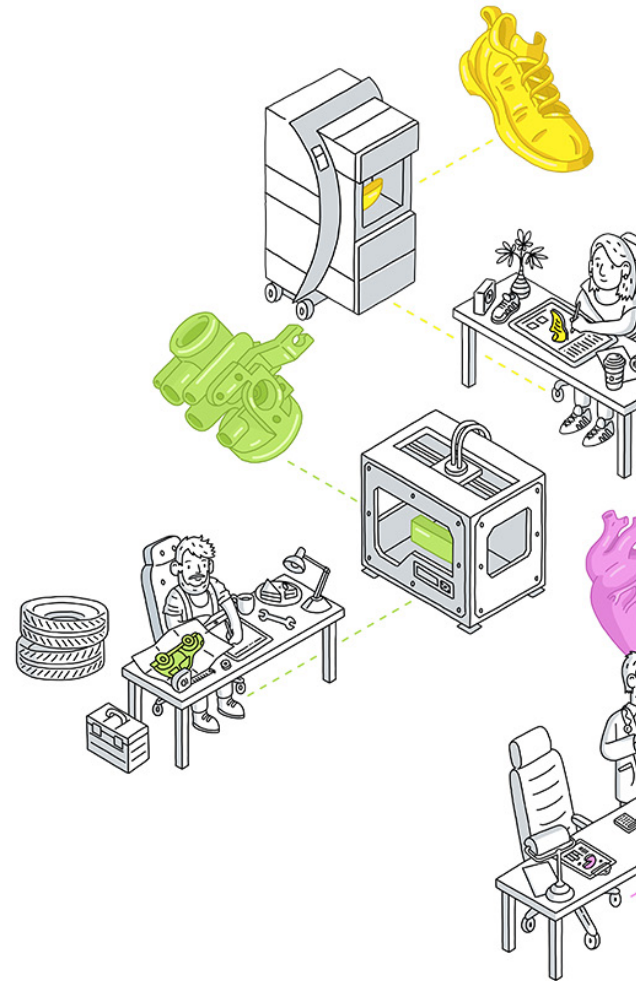
Nearly four in five (**79%**) believe that new printing

technologies are integral to maintaining customer trust.

Meanwhile, advances in printing mean products can be prototyped and launched to market faster, gaining crucial competitive edge. Indeed, **80%** of the executives we surveyed agreed that their investment in additive manufacturing is driven by the need for faster product development. A further **69%** said that the ability to localise manufacturing closer to end users was a key factor as well.

Business leaders must carefully re-examine their printing plans to make their companies as agile as possible. Nearly two-thirds of business (**65%**) in our survey said they plan on investing between €50,000 and €1m in new printing technologies in the next two years. It's imperative that businesses ensure that investment is deployed wisely.

In today's fast-paced business landscape, the only way to succeed is to stay agile and keep up with customers' evolving expectations. Empowering employees to work more productively is part of that solution. So is personalising products and services to customers' unique demands. In both, new printing technologies play an essential role.



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20 Triton Street, London, NW1 3BF UK

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