



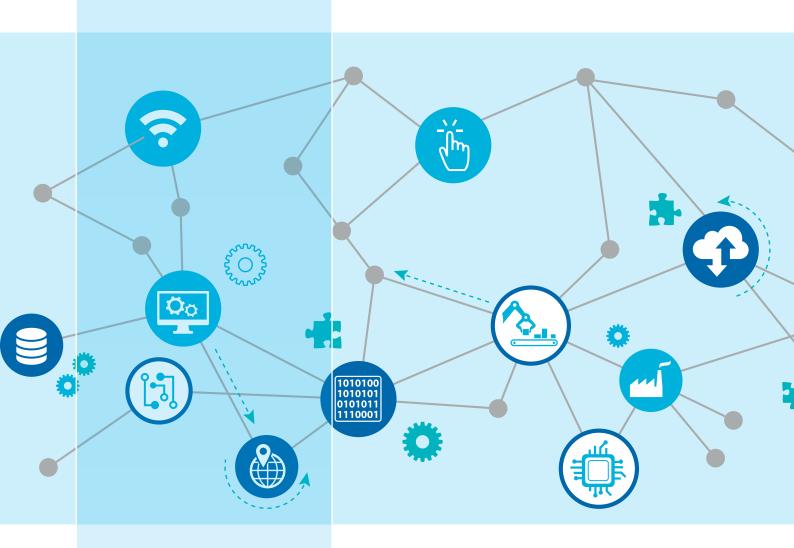


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INSIGHT #1

Digitalisation of Print 4.0



"Print 4.0"

What is it, and what does it mean for companies in the print industry?

OTHER ARTICLES IN THIS SERIES

What exactly is Print 4.0?

For those working in the print business, the buzzword "Print 4.0" has been common currency some time. But what is it, and what does it mean for companies?

Literally speaking, Print 4.0 is the fourth industrial revolution as applied to the printing industry: that is, the evolution from the basic automation that was Print 3.0 into a fully interlinked system. Print 4.0 is, however, more than that. It's a vision – of print transformed for the smart era.



Seamless integration

Print 4.0 is based on the assumption – which is fast becoming reality – that manufacturing and delivery processes can be integrated inside and outside the company. Key to this is the Internet of Things, which makes it possible to integrate all internet-enabled components into a worldwide network.

Applied to the printing industry, this entails printers that can communicate without human intervention, both inside and outside their own companies. At its simplest level, this means printers ordering their own cartridges from suppliers when their ink runs low. However, it is fast coming to mean something that will transform the industry.

Print 4.0 envisages that this level of seamless integration will apply to all processes along the print chain, from customer order to full-service processing and delivery. That includes acquisition, procurement processes, administrative tasks, merchandise management, customer care and more.

Networking and availability

Print 4.0 will increase efficiency, then, not through ever faster presses, but through a higher degree of networking and availability.

Not only will computer-controlled production plants be able to communicate with one another, but they will also be able to incorporate data analysis tools. The result should be networks of machines that can learn from big data and other smart programmes to become self-enhancing and run processes themselves.

Everyday reality

In many respects, Print 4.0 is already here – the process is an evolution rather than a revolution.

There has long been a gradual process of merging analogue production and IT. The first steps were automated prepressed workflows, such as computer-to-plate production.

Another step along the road was the interlinkage with calculation systems, which have matured into management information systems. Some forward-thinking companies, particularly online print providers, are already well onto the next stage.

At an industrial scale, Heidelberg's Push to Stop concept and Koenig & Bauer's AutoRun are already enabling virtually autonomous print production.

However, this smart technology is only really being used on the companies' own products and processes. The next step is bidirectional external communication – linking to customers and suppliers. It will mean transforming rigid value and supply chains into a dynamic, flexible network.

Printing Industry 4.0 – the future

Integration of suppliers should be relatively straightforward.

Paper logistics for Print 4.0 would involve, for example, an automated Management Information System to book paper supplies in and out; and sensors to detect stock levels and trigger order processes independently. All these would be dynamically integrated into one seamless process between paper supplier and printer. Robots would also play a part, in prepress, printing, and material handling. Nonetheless, a pressroom without staff is unimaginable.

Integration with customers is in many ways trickier. They do not necessarily want to invest in new hardware or software. Instead, companies must find ways of providing them with smart services that simplify the process of ordering print products.

Online providers are already taking the lead here. Not only are they making it easier for customers to order print products, but they are also offering a more tailored service. This is driving the trend towards smaller print runs to shorter deadlines, with several studies now finding that around 75% of all four-colour jobs are for fewer than 5,000 copies.

Therefore, the next buzzword that those in the print industry will be hearing, if they're not already, is Mass Customisation. That's the topic for a further new series, and a later blog.

More topics will be available soon.

Together they add up to a must-read series that will prove a valuable reference and vital resource for today's print businesses.







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INSIGHT #2

Digitisation of the Print Business:
Setting up for change



Digitisation of the Print business: Setting up for change

The print sector is on the verge of transformation.

As in every sector, smart technology is revolutionising the way businesses and individuals communicate as well as the services they offer and expect.

All change brings risks, but the worldwide outlook is good: the print sector is expected to grow in value from a global \$767.4 billion in 2014 to a forecast \$862.7 billion in 2025.

However, that growth will come not from an increase in volume – which is forecast to drop deepened by the the current corona crisis – but from momentous changes in the way companies operate and what they offer to customers.

An industry which has already had to adapt

The print sector has already experienced huge disruption caused by the growing dynamism of its markets.

Just as people are increasingly using their smartphones for everything from ordering a cab to paying for a magazine, so too is their interaction with print providers shifting online.

This digital revolution is also transforming production: interlinked printing presses are operating almost autonomously, ordering replacement parts themselves and analysing data to enhance the printing process.

Increasingly, skill sets for those working in the industry are also shifting, with marketing growing in importance. Indeed, it could well soon be that the production of printed matter is no longer the most important part of a print provider's business.

Coming in line with other industries

A recent study carried out on behalf of the Federation of German Industries found that European industries are at the beginning of a fundamental process of change that could mean new growth, higher productivity, and more prosperity for many – but also the potential loss of world market leadership.

The authors, the Roland Berger Strategy Consultants, calculate that:

- If Europe does not realise the benefits of digital transformation, it stands to lose up to €605 billion by 2025 or more than 10% of its industrial base.
- If Europe does realise these benefits, it has the potential to gain €1.25 trillion by 2025.

Sappi envisages that digitalisation will entail:

- Smart factories gearing production to the wishes of individual customers;
- Smart companies organising parallel supply chains with other companies and adapting their offer to emerging trends; and
- Smart homes controlling logistics and reacting within seconds to the wishes or even moods of their residents.

For print providers, this means adapting to customers who want to order print products at the click of a mouse or a tap of a screen. Forecasts by Zipcon consulting are that in 2022, some 40% of the print market in Western Europe will be online – up from 28% in 2018.



Greater efficiency

There are several drivers to this transformation: rising company costs, growing investment pressure, decreasing margins and higher competitive pressures.

They all add up to the need to make companies faster, more agile, more flexible and, crucially, more attractive to customers.

Fortunately, the technology is there to make this possible.

Changing rigid value chains

Above all, digitisation is breaking down traditionally rigid value and supply chains, transforming them into interlinked networks.

This opens up new sales channels and new fields of business activity, enhancing and renewing the business of print.

It will transform the relationship between print provider and customer, enabling companies to respond to clients' individual needs more flexibly.

New product lines and product development

New digital technology enables print providers to expand their offer beyond classic printed products.

Already, online providers are disrupting the industry by offering customisation: e.g.: printed matter, including textiles, for hotels, seminars or trade fairs. Forecasts suggest that customised versions of magazines and brochures will gain in importance in the coming years.

While Mass Customisation is key to the development and growth of the print sector, the real transformation is not so much in the end product, but behind the scenes: in the business models and value chains of print providers.

Companies who can take advantage of technological advances now stand to be ahead of the game, enjoying the benefits of digitalisation for years to come.

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INSIGHT #3

Moving print from mass production to demand driven



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Moving print from mass production to demand driven

For decades, the printing industry lived by the motto of "the more, the cheaper". Mass production enables production at low unit costs, but the wastage of over-production and lack of personalisation that comes with it can make it unfit for purpose.

This means that print runs have to become shorter, update cycles have to increase, and the number of smaller print jobs has to grow, because printing is demand driven. This also conserves resources, such as paper ink and energy.

However, that's not to say that all the benefits of mass production – economies of scale, high automation and low prices for customers – should be lost.



Mass customisation

Customer-specific mass production or mass customisation is a contradiction in terms. The two ideas seem incompatible. But new technological opportunities eliminate the contradiction between individualisation and costs.

Mass customisation plays perfectly into the personalisation trend, while doing so in a way that is cost effective. That's because customers are willing to pay more for a unique product – couple this with the fact that machines and robots today can adjust to specific requirements much more flexibly than they could a few years ago and voila! You have the best of both worlds.

Soft vs hard customisation

There are two forms of customisation – soft and hard – and both result in the customer being provided with an individual product.

Products in the soft customisation category are mass-produced, there are no alternative manufacturing methods and individualisation takes place outside the actual manufacturing process.

A basic example of soft customisation is the production of a mailshot, where a label with the individual's address is affixed only after printing and further processing. Essentially, what you're doing is taking a mass produced product – where the customer has had played no part in the manufacturing process – and adding a layer of customisation to it post-production.

Where hard customisation is involved, customer wishes have a direct influence on the manufacture of the product. The customer communicates their wishes to the company – via a configurator – in advance of production and the company actions these at the production stage on a customer-specific basis.

Understanding how to manage customisation

Now that you understand the theory behind mass customisation, we turn to the practical side of trying to realise its benefits.

You might be wondering whether it can be truly applied to your unique business. Prof. Dr. Frank Piller, who is head of the Institute for Technology and Innovation Management at RWTH Aachen University and is something of an expert in mass customisation, believes that it makes sense for almost every company, irrespective of product and sector.

After researching companies that are already successful at mass customisation, he found three key strengths that the firms shared:

- They are able to recognise customer wants and needs.
- They have the flexibility to adapt production chains.
- They make it as easy as possible for customers to make purchasing decisions.

There is potentially a huge competitive advantage from getting it right. If we are to take Piller's findings as the blueprint for mass customisation, it's about committing to the permanent process of satisfying the wishes of customers – in a way that makes it as easy as possible for the customer to have their say.

Configurators and editors

Consumers and buyers decide for themselves what the products they want to buy should look like and what they consist of. It sounds like a great deal of freedom, and indeed it is, but too much of a good thing causes confusion. It's the editors and configurators that determine the success or failure of an individualisation experience.

A configurator gives the customer a choice between various options (such as a colour combination of product components), while an editor already integrates customer-specific features into the product, such as its own text.

Whether you adopt a configurator or an editor-type approach, usability is key. Customers needed to be guided through the process of making their choices to adapt the product – but too many navigation elements without a clear focus can reduce the desire to try things out and create uncertainty.



Does mass customisation really work?

Mass customisation makes a lot of sense on the page, but how well does it translate into the real world? This is a good point to include some real-world examples of mass customisation in action...Coca-Cola's personalised bottles.

Arguably the best example of mass customisation was provided by Coca-Cola in 2013, when all imaginable names were printed on labels and placed on bottles – the name bearers felt personally addressed.

But Coca-Cola Germany went one step further and opened up its store to such an extent that you could upload your own name on to the online configurator and your personalised bottle(s) would be delivered to your doorstep. In the approximately four months of the limited campaign period, 200 million personalised Coke bottles were sold.

Lindt's "sweet greeting"

Some time ago, Elanders Germany developed a web-to-print solution for premium brand Lindt which enabled customers to send a "sweet greeting" via an interactive microsite inside the Lindt online store.

This personalised chocolate cost 10 euros, about five times the normal price. But that didn't bother customers – over 750,000 bars were sold in just two years. And experience has shown that the repackaging is carefully stored once the contents have been enjoyed.

Final word

Not only does mass customisation make commercial and business sense, the integration of customers into the manufacturing process via mass customisation can increase customer benefit, strengthen customer loyalty and ultimately also improve quality. As a result, customers who are integrated into the process receive exactly the product or service they need for their specific problem.

More topics will be available soon.

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INSIGHT #4

A quick guide to building a successful e-business print service

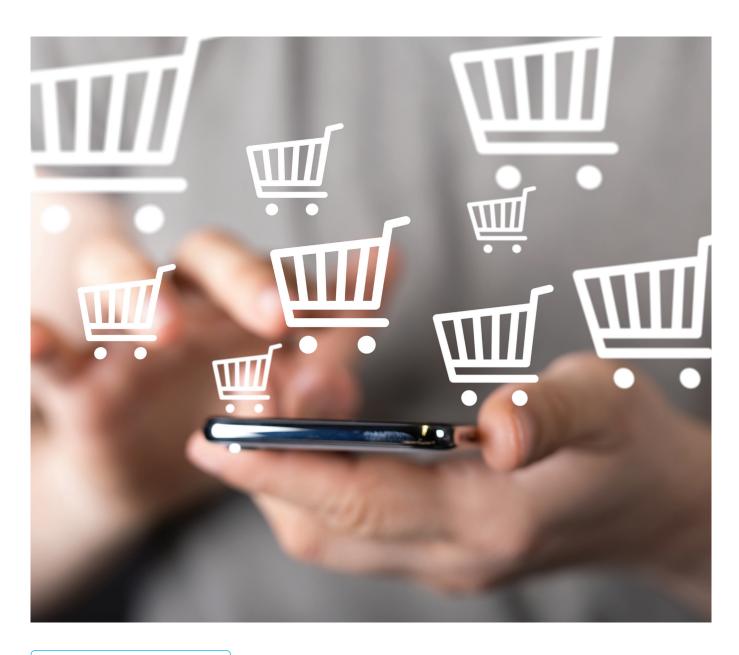


A quick guide to building a successful e-business print service

There's no such thing as a guaranteed success in business – but you can give yourself every chance of a fruitful outcome by following best practice and adhering to implementation principles. There are some elements of an e-business print business model that, if ignored or overlooked, can cause an offering to fall flat.

In this quick guide to building an e-business print service, we provide some tips and tricks on how to stand out with an offering the keeps customers coming back for more.

It's important to stress that online printers are not just printers, they are service providers. In other words, the e-services that complement the print offering must all be up to scratch, with a clear focus on functionality and making it easy for the customer.



It's all in the planning

Before you start putting all the pieces of the puzzle into place, you've got to the plan who, where and how. No successful business was ever built on unsound planning. So, it's time to ask yourself some questions about who you want to target and what you want to offer them.

To get you started, here's a flavour of some of the questions you'll need to ask yourself:

Target group

- Do I want to reach new customers or strengthen existing customer relationships?
- Are their needs and expectations known?

Product portfolio

 Should the current product portfolio be offered, or should new products be produced?

Business model

- Is there a need for the product idea I have in mind?
- Do I want to implement the business model by myself?

Talent

- Does my company have professionally qualified employees who already have online skills?
- Does the company have technical staff who can take care of an additional technical unit?

Bringing your business to life

Once comprehensive planning has been undertaken, you can start to think about bringing your business idea to life.

To increase the chances of making a success of your e-business print service, here are seven tips:

1. Avoid overstretching yourself

If this is your 'baby', it can be difficult to give up too much responsibility to others. But that resistance to delegate or seek outside help needs to be abandoned immediately. After all, nobody can be a machine operator, ERP specialist, marketing professional, etc. at the same time – there are specialists for every field and, if you want to create the best e-business print service you can, you should use them.

2. Work with long-term customer loyalty in mind

Every decision you make should be done so through the prism of what the customer wants and expects. Analysis tools should help to understand the buying behaviour as well as the needs of new and returning customers. Use them to full effect, to design a business that keeps customers coming back for more.

3. Make payment easy

In the beginning you are already well positioned with PayPal, credit card payment, payments on account and direct debit. If there is more demand for other payment systems, these can be retrofitted. For the time being, however, customers should be offered an appropriate and practicable choice that doesn't exclude anyone looking to make an order.

4. Optimise delivery times

In times of Amazon Prime and guaranteed delivery dates, internal and external order processing must be carefully calculated. After production, the now widely accepted standard of two days should become the rule. Any longer than this and it could put customers off re-ordering.



5. Optimise your platform

Your website/platform needs to be optimised with user experience in mind. General advice is to keep click paths short and usability high. Even if you have a lot to offer, you shouldn't want to show everything all at once, because it is too much for the customer. The less content your customers have to consume to get to their destination, the better.

6. Increase reach with social media and SEO

When trying to gain customer trust, having a strong online presence is crucial. When we talk about web search, we usually mean Google. Nevertheless, the other search engines should not be neglected. An appropriate and regularly updated presence on social media platforms is also important for registering on people's radars.

7. Bundle matching products

The principle, which is also called bundling, has been used by big names like eBay and Amazon for quite some time. If products are offered that actually fit the customer's primary buying desire and, in conjunction with this, offer real added value compared with the separate purchase, this means increased sales.

Final word

This is far from an exhaustive list of tips, but should set you on the right road for success in the e-business print world. But don't expect success overnight – to become a key market player requires patience as much as a solid offering. And don't be afraid of seeking specialist help from the start.

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INSIGHT #5 Strategising towards E-business print



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Strategising towards E-business print

A lot needs to go right to be successful in e-business print. It's not just a case of copying an online business model from elsewhere – a unique strategy needs to meticulously formulated and implemented which recognises that e-business print can't just be treated as an "add-on" or an extension of existing operations.

E-business print is the combination of several "e-services" and combines the areas of sales, service, procurement and marketing into one concept. The business is therefore based on serving different media channels – and not just print.

The strategy needs to answer how the business will serve these areas in a way that is either better or different to how current market players are going about it.

Identifying your specialisation

Your strategy will be heavily informed by what your business specialises in. The internet offers every "specialist printer" a considerable opportunity to sell their products across local borders – if you get it right, in the right area, there is significant success to be found.

The unique selling proposition or unique selling point (USP) is the factor or benefit that makes your e-business offering different—stand out—from other firms on the market.

Not only is it important to have a USP to see where you fit within the marketplace, a strong selling proposition, well communicated, will help customers quickly understand what your business offers and why they should choose you over the competition.



Finding your USP means having a good understanding of your target market, your competition, and your industry – then matching those up with the things that you believe your business is really good at.

At the same time, you need to look at those needs that aren't being met by anyone, and also think about the key trends in your industry.

Being adaptable to trends

The printing industry, just like any other, is subject to social and sometimes very fast-moving trends. Today's best-selling products could form next year's slow-moving inventory.

Trends don't just influence production selection but also the scope of services in the shop, the customer approach, the design of the online shop and of course the costs.

In order to adapt, a company must have its antennae tuned to signals of change from the external environment, decode them, and quickly act to refine or reinvent its business model and even reshape the information landscape of its industry.

The common metaphorical phrase, "The only thing constant is change," is a casual but accurate description of today's business environment. Of course, the business environment is always changing, but the internet and other Information Age technologies have put the business environment into an extremely accelerated rate of change.

To adapt is to recognise environmental changes (often changes that the individual cannot control) and make the necessary modifications to continue to thrive despite the change.

Creating the right services

If you're going to operate in the online world, you've got to play by its rules. All too often, we see printing companies set about expanding their existing service in the direction of an online shop, only to provide analogue services on the internet.

A good example of this is customer support. In the offline world, customer support is only available when the shop is open – for the sake of argument, let's say between 9am and 6pm. In the online world, however, the door to the 'shop' never shuts – that means that customer support must also be round the clock. A sophisticated online portal can help here, but a hotline must still be guaranteed because the target group demands it.

Many online service providers, however, do not sufficiently comply with this even after years. This requires considerable work on the company and its level of knowledge as well as service readiness.

When creating your services, you need to ensure they align with the expectations of your customers. In the case of e-business print, service is perceived as part of the product. Therefore, you need to ensure that customers have a seamless experience without any hurdles.

This challenge is complicated by the e-business print buying process chain, which differs considerably from that of other e-commerce portals because the purchased goods are configured individually and can only be produced once the customer has supplied their content (data). This makes the process chain much more complex than in "normal" e-business.

A final word

In short, e-business print is not simply selling printed matter on the internet – online printing requires a fundamental rethink of the economic fundamentals of the printing industry. What has worked well in offline business for decades will no longer work in e-business print.

So, when building your strategy, you need to ensure you're carving out your own niche, aligning with the latest trends and providing the service that your customers expect from you.

More topics will be available soon.

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INSIGHT #6 Moving from inflexible value chains to dynamic networks



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Moving from inflexible value chains to dynamic networks

The digitisation of the print sector means far more than simply using technology to offer new products.

It involves a transformation of business models, breaking down traditional value chains in favour of flexible, dynamic networks that bring customers closer to providers.

There are four core elements to this digital transformation:

- automation,
- networking,
- digital data and
- · digital access to customers.

Each uses certain "enabling technologies" to facilitate different digital applications. Together, this adds up to a renewal of the print industry – or Print 4.0.

1. Automation

The prerequisite for this digital transformation is the automation of all printing processes. This includes procurement and purchasing; administrative tasks such as merchandise management and customer support; production; and logistics.

For many print providers, this transformation is already well underway, using the enabling technologies of robotics and artificial intelligence.

Automated computer-to-plate imaging technology, for example, has set a new standard in the industry, reducing costs and increasing production.

2. Networking

Once all processes are automated, networking becomes possible, linking individual value chains to their supply chains.

The key enabling technology is the Internet of Things (IoT), which will enable any piece of machinery or component of the value chain to communicate with others both inside and outside each individual company.

The IoT is already well on the way to transforming every industry, print included. By 2020, some 200 billion objects worldwide are forecast to be part of the IoT, and by 2025, the global worth of IoT technology could be as much as \$6.2 trillion.

For the print industry, the IoT will mean that many processes within the supply chain can occur autonomously, without the intervention of humans. Printing presses are already employing predictive maintenance to great effect, and prepress and finishing machinery will soon follow suit.

Digital logistics management, through networking with freight forwarders and courier services, is also standard in the industry today. Wideband networks enable the high data rates necessary for such linkages, while cloud computing boosts computing power.



3. Digital data

Once machines are communicating with one another through the IoT, these networks can become self-enhancing. Key to this is the use of analysis tools to process and learn from the vast amounts of information in cloud-based databases, or Big Data.

By capturing, processing and analysing data, decisions can be made more swiftly and automation advanced. Networks can use artificial intelligence technologies to learn and improve.

Big Data really is the next Big Thing for all industries, with revenues for software and services projected to increase from \$42bn in 2018 to \$103bn in 2027, according to Wikibon.

It also brings a major new challenge to the print industry: data security.

4. Digital access to customers

With the previous three core components in place, print providers can focus their attention on the customer. They can build direct, transparent links with their consumers, and offer new services and support.

Online print providers are leading the way, for example through expanding their businesses into new areas such as advertising technology.

Smartphone apps enable customers to order printing while on the go, while Xerox has now announced a new product: a cloud-connected printing station that will be situated in public locations.

Breaking down value chains

While new technology can bring the links in value chains closer together, it can also break them down. The secret of success lies in understanding the rules of the digital market and occupying strategic positions faster than the competition.

While traditional companies are currently able to counter this with their in-depth understanding of the manufacturing process and their customer focus, this advantage is shrinking.

Newer, more agile e-commerce companies are increasingly exploiting their advantage over the traditional industry players: they are reacting faster, with more innovative business models.

The print industry is changing fast – and only the companies who stay ahead of the game will be the winners.

More topics will be available soon.

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INSIGHT #7 The benefits of the digitalisation of the print business



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The benefits of digitalisation

It's clear to anyone working in the print industry that digitalisation is the future. Companies need to digitise simply to survive – an ongoing process that can be uncertain and costly.

Many print providers are therefore asking: are there benefits for me and my business? Will my investment reap returns in the long run?

The Digital Dividend study, conducted by the Handelsblatt Research Institute for Deutsche Telekom in 2018, contains some very reassuring and illuminating findings for concerned print providers.

The 1,000 mid-sized companies from a range of sectors that were surveyed for the report stated they were already benefiting from digitisation and expecting further dividends.



Success stories

According to the Digital Dividend study:

- 38% of companies were already finding that the benefits of digitalisation are outweighing the costs to date.
- A further 30% said benefits and costs are equal so far.
- Only one in five companies had seen no financial return on their investment in digital so far.
- 51.7% were not expecting short-term benefits and were instead focusing on medium to long-term goals.

Thus although just over half of respondents expected dividends only in the future, more than two-thirds were already breaking even or benefiting from the move to digital.

Why make the change?

When asked about their key drivers and objectives for digital projects, respondents gave the following answers:

- More than half said that higher profits and sales were the main drivers of their digitalisation projects.
- 51.2% said that acquisition of new customers was important.
- 46.7% of SMEs saw digitalisation as an opportunity to enhance their own competitive position.
- 50.7% said the need for faster response to customer enquiries was a driver.
- Just 30.6% were looking to reduce employee costs.

Therefore, companies were viewing digitalisation more as an opportunity to expand and improve, rather than to drive down costs or reduce staffing levels.

Company processes

When asked about the most important effects of digitalisation projects on company processes, respondents gave the following answers:

- 52.4% cited the enhancement of digital business processes.
- 52.1% pointed to product and service quality.
- 37.7% cited development of new digital products and services, or further development of existing products by adding smart components.

This indicates that while the term 'digitalisation' may conjure up an image of futuristic new products, it is actually the processes that are most likely to undergo transformation.

Digitalisation cost factors

Digitalisation brings many new costs:

- 40.3% of companies cited reaching out to new customers via new communication channels as a major cost factor.
- 39.9% mentioned security measures against cyber-attacks.
- Recruiting and training new employees and developing digital strategies came further down the priority list.

These figures obviously vary hugely depending on the particular industry and the nature of the digitalisation project in question.

However, to benefit fully from digitalisation, companies should be investing in their employees' digital know-how so they can apply more complex solutions to a wider range of problems.

What's at stake

In the next few years, digitalisation will transform all industries worldwide. Those that are ahead of the curve stand to gain hugely.

A separate study carried out in 2015 on behalf of the Federation of German Industries forecast:

- If European industries fail to digitalise their businesses, the potential loss could amount to up to €605 billion by 2025.
- If they succeed, they could gain €1.25 trillion.

Or, to put it more simply, everything will be smart... or it will disappear.

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