

Digital Atlas of Germany

Summary

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This study was conducted by IW Consult with financial support from Google Germany. IW Consult applies the principles of independent scientific research.

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1 Introduction

The Digital Atlas of Germany was drawn up by IW Consult and presents a wide-ranging analysis of progress made on digitalisation in important social spheres and economic sectors in Germany.

Digitalisation has very positive connotations for businesses, educational establishments and non-governmental organisations (NGOs). They believe it presents considerably more opportunities than risks. Businesses currently generate a good 15 per cent of their turnover from digital products or services, and they expect that turnover to increase over the next five years; they will continue investing heavily in these big growth markets. Investing in digitalisation delivers a digital pay-off in the form of yields. The main obstacles businesses face are a lack of skills and skilled labour, the as yet insufficiently digitalised supplier and customer environment, and legal uncertainty surrounding digitalisation. In addition to a lack of digital skills, NGOs and educational establishments have to contend with a lack of funding to invest in IT. As a result, businesses, NGOs and educational establishments alike need a broad range of support, ranging from financial support to make the necessary investments, to training courses to build employees' digital capacities, to types of virtual collaboration and online marketing.

Against this backdrop, the overall analysis is divided into five major areas. In addition to a longer chapter which provides a general overview, it comprises the following four individual chapters which each contain an in-depth analysis:

- Businesses and SMEs
- Societies and NGOs
- Educational establishments
- The future of work

Each of these four chapters sets the specific area surveyed within a conceptual framework and presents an empirical review.

The analysis begins by considering basic aspects of the digitalisation process. The definition of "digitalisation" applied in the analysis builds on the theory of public goods, because one key feature of digital economies is the lack of rivalry in consumption: files and data models can be used by several actors simultaneously without one actor restricting another's use. This basic characteristic gives rise to the specific features of digital economies, the likes of which or the extent of which have never been seen before. They include the problem of monetisation, controlling the diffusion of knowledge, the importance of platforms, the high level of disruption and new opportunities for collaboration and communication.

The conclusion drawn in the chapter on "Digitalisation in SMEs in Germany" is that small and medium-sized enterprises (SMEs) in Germany have recognised the great strategic significance of digitalisation. Nevertheless, the digitalisation process is only just beginning and SMEs have a lot of catching up to do compared to bigger companies. Only a fifth of SMEs are truly digitalised. SMEs in Germany generate a good 15 per cent of their turnover and more than 14

per cent of their value added from digital products, services and the relevant digital components. The percentages are significantly higher for those SMEs which have already reached higher levels of digital maturity. Digitalisation won't run by itself, though. Between 2013 and 2016, SMEs invested just over 9 per cent of their turnover in digitalisation projects. That share is significantly higher, namely 12.7 per cent, for digitalised SMEs. These efforts have borne fruit and delivered a digital pay-off: regression analyses show clearly that progressing to higher levels of digital maturity leads to more jobs and turnover. Moving up one level of maturity increases turnover by 11 per cent and the number of employees by 8 per cent.

The Digital Map of Germany also puts the spotlight on "Digitalisation in NGOs". A semantic analysis of all the surveyed NGOs' websites identified eight NGO clusters: sports; culture and society; research and education; business and politics; environmental and animal protection and nature conservation; social affairs; civil and consumer protection (e.g. fire service, the Technical Relief Service THW, tenants associations); and refugees and integration. The NGOs were then classified according to orientation in respect of digitalisation. Three types were made out: Internals, Intermediaries and Externals. NGOs attach great importance to digitalisation, especially the Externals, whose objective is high visibility. NGOs feel that digitalisation presents considerably more opportunities than risks, particularly when it comes to generating publicity. However, NGOs are still using digital instruments primarily in their public relations (PR) work and to perform administrative tasks. NGOs need a great deal of advice and support when it comes to financial support, training courses to build employees' digital capacities, types of virtual collaboration, online marketing and search engine marketing, and cloud computing services.

Educational establishments also play a key role in the digital transformation. Digital tools are playing an increasingly important role not only in their administrative processes but also as a teaching subject. Thus, the educational establishments surveyed were unanimous in that digital technologies should in future be an integral part of mandatory curricula. Digitalisation in educational establishments has also led to a redefining of their role, as they have recognised that knowledge acquisition may possibly have to be a collaborative process which actively incorporates pupils and students. The same approach should be adopted when it comes to building teachers' digital capacities, given that most still lack the confidence to use new digital tools in the classroom.

The analysis concludes by looking at "The future of work". The specific structural characteristics of the German economy mean that in the long term no serious net loss of jobs is to be expected in consequence of the digital transformation in Germany. There will, nevertheless, be some very significant structural shifts at the expense of less skilled staff. Germany will be able to avoid a net loss of jobs by responding to these structural changes by undertaking a major realignment of both internal and external training ("upskilling"). Some time and effort will, however, have to be put into shaping this change process. Both broad-based and tailor-made support and training measures are needed to build these capacities.

2 Digitalisation is still a work in progress

Digitalisation is changing the economy and society at breakneck speed. The new keyword is “disruption”. Old asset-oriented business models are being superseded by new data-driven and networking-oriented concepts. Digitalisation entails far more than simply using modern information and communication technologies (ICTs) and Internet technologies. At its core, it is about virtualising processes and products on the basis of data, data models and algorithms. Physical objects in the analogue world are transformed into data packets and thus made universally available. The result is the ubiquitous availability of things (products, processes and resources) in space and time. Various actors can use digitalised products and processes simultaneously and without limitation. This produces enormous efficiency gains and the possibility of scaling business models. At the same time, the Internet enables people and things to be networked at very affordable prices. One of the characteristic features of digital economies is the “double zero marginal costs phenomenon”. Digital knowledge can be reproduced and disseminated via the Internet at practically no cost. Also, digital networking involves sharing data and knowledge. Cooperation and collaboration – i.e. simultaneously working and acting on the same item and real-time interaction – take on a new significance. Positive external effects emerge in these networks, which in turn open up new growth opportunities. New business models, such as search engines, social media offers, and transaction and intermediary platforms like Über and Airbnb would hardly have been conceivable without digital technologies. The following economic features can be extrapolated:

- **Monetisation:** Generating revenue is difficult on account of the fact that data are public goods. Digital business models solve this problem either by applying the principle of exclusion (e.g. licences) or by means of indirect monetisation (paying with data/advertising). The latter is an entirely new approach.
- **Diffusion of knowledge:** Digital business models cannot and should not entirely prevent the diffusion of knowledge. Determining the optimum degree of openness along a continuum between knowledge drainage and using third parties’ know-how is one of the key challenges faced in digital economies.
- **Platforms:** Transaction, intermediary and development platforms form the infrastructural heart of digital economies. The bigger they are, the more efficient they are too. Monopolies, however, are expected to arise in only a few exceptional cases – even these markets are contestable, i.e. open to new competition.
- **Disruption:** Digitalisation means using widely applicable technologies, which can lead to the wide-ranging, creative disruption of old business models across sectoral boundaries. Agility is the only possible response.
- **Collaboration:** Digitalisation opens up new opportunities when it comes to collaborating on knowledge platforms or jointly using resources. It often occurs within amorphous structures under ambiguous rights of data usage and revenue models.

Digitalisation is only just getting started. There are still many more potentials to be tapped into. Nevertheless, users, consumers, NGOs, businesses and governmental institutions all believe that digitalisation presents considerably more opportunities than risks. The digital transformation will, however, not take care of itself – the process needs to be actively designed and organised.

- **The economy:** The digital transformation of the economy is only just getting started. Only a fifth of businesses are truly digitalised. Digital products and the relevant digital components account for some 15 per cent of value added. Large companies have made more progress than SMEs. Businesses are increasingly investing in digitalisation – a good 9 per cent of their turnover.
- **Society and consumers:** Only a third of people living in Germany are digital pioneers with the relevant skills and the required openness of mind. Men, the younger generation and people on a higher income and with higher levels of education tend to be more digitally savvy. Good digital literacy skills are essential across all groups of society because digitalisation means involving consumers and users directly in value added chains. That will only be possible if people know how to use digital tools and have a positive attitude to them.
- **NGOs:** Eighty per cent of all NGOs rate digitalisation as “important or quite important”. They feel it presents considerably more opportunities than risks. Digitalisation offers all the NGOs tools which are useful for improving their internal administrative processes, communication and PR work. Digitalisation is even more important for lobby groups.
- **Educational establishments:** Almost 90 per cent of the establishments surveyed believe that digitalisation is important, in particular when it comes to improving administrative processes. Digital tools and digital learning content are not yet sufficiently widespread in teaching.

Digitalisation is linked to hopeful visions of growing value added, greater customer benefits and rising productivity. It is not yet possible to measure these effects at the macroeconomic level. Microeconomic studies, though, suggest that there is already a digital pay-off. Digitalised businesses have significantly higher growth in terms of turnover and employment than the comparison group of less digitally savvy businesses. Analyses show that moving up one level in a four-level digital maturity model leads to an 11-per-cent increase in turnover and an 8-per-cent increase in employment. Measured in terms of the total number of jobs, no big overall labour market effects are expected. Significant structural shifts at the expense of less qualified staff, auxiliary jobs and classic skilled workers are, by contrast, to be expected. Soft skills such as working independently and communication skills will become increasingly relevant for the majority of employees. To date, robots have not cost a single human their job in Germany, although they have in the United States.

3 Digitalisation in SMEs in Germany

Small and medium-sized enterprises in Germany have recognised the crucial strategic significance of digitalisation. They feel it provides considerably more opportunities than risks. Nevertheless, digitalisation is only just beginning and SMEs lag far behind bigger companies:

- According to the Digital Index, which measures the outward facing digital presence of all businesses based on externally visible indicators, SMEs only score 5 out of a possible maximum of 100 points. On average, bigger companies score 24 points.
- SMEs tend to use modern ICTs and Internet technologies to a lesser extent than bigger companies do. Only a third of SMEs are high or very high users of these technologies; that share rises to 70 per cent for bigger companies.
- SMEs make only 10 per cent of their turnover via electronic sales channels; that share already stands at 28 per cent for bigger companies.
- Only just under a fifth of SMEs are truly digitalised, that is they already use data, data models and algorithms to virtualise their processes or products. Just over 80 per cent of SMEs are still at the computerisation stage. They use ICTs and Internet technologies to support their business models but are not yet in a position to render their analogue business world in the virtual arena. Just under 30 per cent of larger companies can already be classed as “digitalised”.
- SMEs in Germany generate a good 15 per cent of their turnover and more than 14 per cent of their value added with digital products, services and the relevant digital components. SMEs exhibiting higher levels of digital maturity achieve a significantly higher percentage.

Digitalisation will not take care of itself. Between 2013 and 2016, SMEs invested a good 9 per cent of their turnover in digitalisation projects. Digitalised SMEs invested a significantly larger proportion, namely 12.5 per cent. These efforts have borne fruit and delivered a digital pay-off:

- Regression analyses for businesses in the industrial and industry-related services sectors show that moving to higher digital maturity levels leads to more jobs and more turnover.
- Assuming, in a simple calculation, that 20 per cent of SMEs which are at the highest level of maturity (“digitalised”) made that progression over the last three years, we can then measure the digital pay-off: the shift to the highest digital maturity level has created 160,000 new jobs, 50 million euros in additional turnover and 20 billion euros of value added.

Thus, it pays for SMEs to gradually improve their digital maturity level by level. The study therefore investigates what distinguishes the front runners (i.e. digitalised companies) from those which are lagging behind:

- Digitally savvy SMEs use more data and data models. They attach greater importance to digital distribution channels, online marketing, social media activities and search engine optimisation (SEO).
- Unwanted knowledge drainage as a result of taking part in networked value added chains is one of the new risks associated with digitalisation. SMEs have clearly recognised these risks but have chosen to accept them on account of the big opportunities which digitalisation presents.

The survey of SMEs shows that the biggest obstacles are felt to be the lack of skills and skilled workers (quoted by 58 per cent of respondents), an insufficiently digitalised supplier and customer environment (44 per cent) and legal uncertainty (39 per cent). Inadequate broadband coverage is a significant obstacle for more than 25 per cent of the businesses surveyed.

The SMEs taking part in the survey expect digitalisation to above all bring about tangible changes with regard to HR and personnel. In future, technical expertise will not be enough, as a basic amount of technical curiosity and soft skills will become an increasingly important factor for success.

Of course, SMEs also want to carry their staff along and – like their larger counterparts – are therefore offering them wide-ranging and highly differentiated training measures.

- SMEs also appear to be adopting many of the recommended measures, including knowledge transfer systems and mixed-age teams. A surprising number of SMEs are taking creative steps such as providing a working environment which is conducive to learning.
- The only measure which is not yet being widely used is “self-directed learning with (digital) learning media”.

Regardless of their level of digitalisation, the SMEs surveyed are particularly interested in help with the legal aspects of digitalisation. Almost half of the less digitalised SMEs also reported the need for external assistance when it comes to general know-how and training. A detailed analysis of the collated data shows that computerised businesses often even lack the basics: they have training needs in regard to general digitalisation trends, data analysis principles and measuring success in the Internet. Digitalised companies above all need more information about search engine marketing. There appears to be some potential for optimisation in this respect so that SMEs can better communicate their own (often digital) services and the specific benefits of those services to customers.

Despite the personnel-related risks, obstacles and challenges, digitalised SMEs feel that digitalisation still affords more opportunities and they expect higher turnover figures over the next five years than the comparison group of less digitally savvy SMEs. Thus, SMEs, too, will no doubt continue with the digitalisation process. The key drivers are communication, using new technologies, and the further digitalisation and virtualisation of processes and products.

4 Digitalisation in NGOs

There are more than 600,000 societies with almost 24 million members across Germany. Together with foundations, religious communities, political parties, trade unions and lobby groups they make up the group of NGOs.

Based on a semantic analysis of all the surveyed NGOs' websites, eight clusters can be made out: sports; culture and society; research and education; business and politics; environmental and animal protection and nature conservation; social affairs; civil and consumer protection (e.g. fire service, the Technical Relief Service THW, tenants associations); and refugees and integration. Classifying NGOs according to orientation in respect of digitalisation is also an interesting exercise. Three different types can be made out:

- **Internals** – which mainly provide services to their own members (e.g. sports clubs)
- **Intermediates** – which mainly provide services to third parties (e.g. fire service, the Catholic charitable organisation Caritas)
- **Externals** – which are interest/lobby groups (e.g. associations, trade unions, Greenpeace, the German environmental protection and nature conservation NGO BUND).

The study uses a survey to establish whether these three types primarily differ in terms of their use of digital communication and PR work:

- Digitalisation is of great importance to all the NGOs surveyed. Eighty per cent of them rate it as “very important or quite important”, around 19 per cent as “fairly unimportant” and 1 per cent as “unimportant”. This produces a very positive balance (“important” minus “unimportant”) of 60 percentage points.
- Based on this criterion, digitalisation is more important for Externals (positive balance of 71 points) than for Intermediaries (63 points) and Internals (48 points).
- Focusing on main areas of activity, digitalisation proves to be of particular importance in regard to research and education, services of general economic interest, and business and politics. It is of slightly less relevance in regard to culture and society, environmental and animal protection and nature conservation, and sports.
- Digitalisation is of very great importance (positive balance of 92 points) for all international NGOs. It is somewhat surprising that there is often hardly any difference based on the size of the NGO.

When it comes to the type of task performed, digitalisation is particularly important for PR work and performing administrative tasks (working with master data, internal processes):

- The balance between “important” and “unimportant” is 90 percentage points for both tasks, which is extremely high. Digitalisation tends to be efficiency-driven particularly when it comes to the NGOs’ administrative tasks.
- Digitalisation is somewhat less important in regard to the NGOs’ interaction with their members. It is less important for Intermediaries, because their focus is on providing services to third parties.
- Overall, Externals have made more progress on digitalisation than Intermediaries and even more so compared to Internals.

NGOs feel that digitalisation provides far more opportunities than risks.

- In an evaluation of whether digitalisation is more of an opportunity or a risk, on a scale of 0 (extreme risk) to 100 (extreme opportunity) NGOs score an average of 66 points; there is hardly any difference between the various different types of NGOs.
- Most NGOs (39 per cent) awarded between 71 and 80 points in the survey – which is clearly towards the “opportunity” end of the scale.
- Fewer than 5 per cent of NGOs have a critical attitude and feel there are more risks than opportunities (0 to 40 points).
- Three quarters of NGOs feel that digitalisation presents a great opportunity to increase their visibility.

All the NGOs surveyed now have their own website and Internet access, and most have also provided all their staff with email accounts; more than two thirds of the NGOs surveyed already have a social media presence:

- More than 80 per cent of NGOs say their website is still the key PR tool.
- More than half of NGOs use social media and more than three quarters use other tools such as online marketing and web analytics only rudimentarily or not at all in their PR work. Many NGOs do not yet appear to have recognised the benefits of using these tools.
- Many NGOs are still not exploiting cloud computing services, Facebook or AdWords to the fullest extent possible in their PR work; Externals are slightly more open to these options.

Staff members’ digital skills are a key driver for using digital tools more frequently. NGO staff do not differ significantly from the general population in this regard: they already know how to use basic applications (e.g. web browsers, Google search, email), but still lack the know-how to be able to use more complex digital applications.

As a result, NGOs need a great deal of advice and support. The following topics are particularly important: financial support; training courses to develop employees’ digital literacy; types of virtual

collaboration; online marketing and search engine marketing (SEO and search engine advertising [SEA]); using social media; cloud computing offers; and IT security and data protection.

5 Digitalisation in educational establishments

Educational establishments play a key role in the digital transformation. There are 13.7 million pupils, students and trainees in Germany who are taught by more than 1 million teachers in upwards of 42,700 educational establishments.

The study uses a survey of educational establishments to establish whether digitalisation is regarded as a positive opportunity, to what extent it is of relevance to administrative processes, communication and interaction, and whether it has already become an integral part of the establishments' curricula:

- Educational establishments are already addressing the topic of digitalisation in great depth and in diverse ways. Almost 87 per cent of the educational establishments surveyed rate digitalisation as “very important or quite important”, 12 per cent as “fairly unimportant” and 1 per cent as “unimportant”. The positive balance (“important” minus “unimportant”) amounts to 74 percentage points.
- Digitalisation is clearly more important in vocational colleges (positive balance of 100 percentage points) than in further and continuing training institutions (80 percentage points), other educational establishments (70 percentage points) and non-vocational schools (66 percentage points).
- Digitalisation is regarded as equally as important to both privately and publicly funded educational institutions (positive balance of 74 percentage points).

In regard to the types of tasks performed, digitalisation is very important when it comes to performing administrative tasks. However, it is gaining increasing importance both as a teaching tool and as a teaching subject:

- Digitalisation is extremely important when it comes to performing administrative tasks, with a balance (“important” minus “unimportant”) of more than 90 percentage points.
- Digital technologies are very important as a teaching subject (rated as “very important or quite important” by 86 per cent of the establishments) and as teaching tool (rated as “very important or quite important” by 73 per cent). The positive balance (“important” minus “unimportant”) is always much higher in vocational colleges than in further and continuing training institutions, non-vocational schools and other educational establishments.

Educational establishments feel that digitalisation provides them with considerably more opportunities than risks:

- In an evaluation of whether digitalisation is more of an opportunity or a risk, on a scale of 0 (extreme risk) to 100 (extreme opportunity) educational institutions score an average of 65 points; there are no major differences between the various types of institution.
- Most of the educational establishments (39 per cent) awarded between 71 and 80 points in the survey – which is clearly towards the “opportunity” end of the scale.
- Fewer than 5 per cent of the educational establishments have a critical attitude and feel there are more risks than opportunities (0 to 40 points).

Nearly all the educational establishments already have Internet access, although only half of those surveyed have a social media presence:

- According to the establishments surveyed, 89 per cent of them use their website as a key PR tool.
- Around a third of the educational establishments make intensive use of social media or online marketing.
- Privately funded educational establishments are a step ahead of publicly funded educational establishments in this respect; further and continuing training institutions, as well as universities/colleges are more open to using social media, SEO and SEA.

Educational establishments primarily use “non-digital”/“classic” teaching materials (52 per cent of respondents make very intensive use of them, 40 per cent at least intensive use). However, around a third of respondents said that they are increasingly using more modern digital teaching materials such as CD-ROMs/DVDs, learning apps, e-books, wikis/Wikipedia or online dictionaries, videos, online tutorials (e.g. YouTube).

The curricula of 43 per cent of the educational establishments cover digital technologies as learning content (targeted web searches), 31 per cent include IT security and a critical approach as regards digital issues, and 30 per cent look encompass the functioning of applications and software function. What is particularly striking is that

- the educational establishments surveyed are unanimous in that digital technologies should in future be an integral part of mandatory curricula;
- more than 40 per cent of the educational establishments surveyed believe that digital tools are particularly suited to promoting pupils’ and students’ media skills, especially in view of their future world of work.

Digitalisation in educational establishments has also led to a redefining of their role, as they have recognised that knowledge acquisition may possibly have to be a collaborative process which actively incorporates pupils and students. The same approach should be adopted when it comes to building teachers’ digital capacities, given that most still lack the confidence to use new digital tools in their teaching (e.g. incorporating social media, designing web applications).

Educational establishments feel that digitalisation presents diverse opportunities, most especially when it comes to improving their administrative processes and increasing visibility. They face challenges in regard to the lack of funding to invest in IT, the broadband infrastructure, as well as the fact that insufficient attention is paid to digital learning methods, to technology and to applications in teacher training.

They also need extensive support, ranging from financial support, to building digital capacities, types of virtual collaboration, e-learning, IT security, and to using social media and online marketing.

6 The future of work

The use of digital technologies and techniques is changing everyday life, the economy and society. The digital transformation will not, however, sound the death knell for work, despite what the doom-mongers say:

- First studies of the labour market impact of digitalisation predicted massive negative effects. Frey/Osborne calculated that 47 per cent of existing jobs would be lost in the United States; Bowles predicted a loss of 47 per cent of jobs, Brzeski/Burk a loss of 59 per cent of jobs in Germany. However, these studies ignore the fact that it is not jobs but tasks which are being digitalised.
- Drawing this distinction produces significant effects. Bonin calculated a loss of 42 per cent of jobs but of only 12 per cent of tasks. Other studies which take account of tasks predict fewer job losses. Dengler/Matthes put the figure at 15 per cent, Arntz at 12 per cent.
- The above studies all focus solely on the negative effects of digitalisation, that is on the threat potential. Digitalisation also presents diverse opportunities, though. When account is taken of the possible positive effects, the threat scenarios evaporate into thin air. Wolter et al., for instance, only predict a loss of 0.1 per cent of existing jobs.

Nevertheless, employees will be affected to varying degrees by the digital transformation depending on the tasks they are required to perform. That is why structural changes to professions are to be expected. The largest increase in demand in the Economy 4.0 scenario compared to the baseline scenario up to 2035 is expected to arise in regard to the social professions, core IT professions and advertising professionals. The biggest drop-off in demand is predicted for industrial careers and tool making, the electrical trade, clerical jobs and HR. More jobs are likely to be lost in these areas than will be created.

In addition, the way we work will undergo lasting change. This change will not only lead to a need for more experts with specialist IT skills. Those skills will in future only be required of a small proportion of staff. The majority will primarily need soft skills such as being able to work independently and communication skills. This is borne out by company surveys:

- Only 11.9 per cent of highly digitalised companies regard IT expertise and software programming to be an important skill which the majority of their staff need to have, although 76.4 per cent regard planning and organisational skills/working independently and 87.4 per cent regard communication skills and the ability to cooperate as important.
- With regard to highly digitalised companies, 43.8 per cent believe that planning and organisational skills/working independently will become considerably more important for the majority of their staff, and 45.5 per cent believe this to be the case in regard to communication skills and the ability to cooperate. By contrast, only 20.6 per cent of highly digitalised companies expect IT expertise and software programming to become significantly more important for the majority of their staff.

Demographic change is already creating skills shortages. As a bottleneck study shows, the same goes for those with good digital skills, given their relevance for the digital transformation. Skills shortages are already being noted in southern Germany in particular. Businesses are also reporting that they are already having difficulty filling vacancies. This brings to light a very specific feature of the ongoing transformation: while in the past the younger generation took the place of the older generation in companies and brought new knowledge with them, the demographic situation has now markedly changed. In 1980, 16- to 30-year-olds accounted for 23 per cent of the population. By 2017 that share had dropped to only 17 per cent. The share of 45- to 65-year-olds, however, rose from 23 to 31 per cent over the same period. Significantly fewer young people are thus joining companies than was the case in the past. At the same time, early retirement options have been considerably limited. In other words: owing to current demographics, businesses will have to rely on their existing workforce to complete the ongoing transformation process.

Against this background, continuing training has a key role to play. Select staff need to be taught specialist IT skills and the majority need to learn soft skills. In a comparison of EU15 countries, Germany at least has significantly more people with basic or more than basic digital literacy. They offer a sound basis for successful digitalisation:

- According to Eurostat, 61 per cent of 16- to 24-year-olds have more than basic digital literacy, only 11 per cent have only low digital literacy.
- Only a fifth of those in the 25- to 54-year-old group, a key group on the labour market, have more than basic digital literacy, and two fifths have at least basic digital literacy. A fifth of this age group has only low digital literacy.

Businesses can build on this when designing their continuing training activities. Continuing training already plays an important role in the economy, and many companies already provide their staff with continuing training. However, a significant gap emerges in terms of teaching digital skills depending on the size of the company: SMEs are doing less in this area than bigger companies:

- Eighty-four per cent of small businesses and virtually all medium-sized and larger companies offer their staff some form of formal or informal continuing training.

- Seven per cent of small businesses teach their IT experts specialist IT skills and 20 per cent teach other staff IT user skills. The figures for medium-sized enterprises are 27 per cent and 43 per cent, respectively. When it comes to larger companies, 64 per cent teach specialist IT skills and 72 per cent IT user skills.

Companies state that important obstacles to offering continuing training include “no time to release (more) staff from work”, “no (further) capacities to organise continuing training”, “no (further) need for continuing training” and “too expensive/no (additional) budget”. Those companies which are investing in digitalisation have more frequently overcome these obstacles than those which are not investing in digitalisation. Continuing training should be expanded so that companies do not miss the boat. To that end businesses need to have a range of suitable continuing training courses at their disposal, they need to recognise their benefit, and courses should not be too expensive nor should they tie up too many personnel resources.