



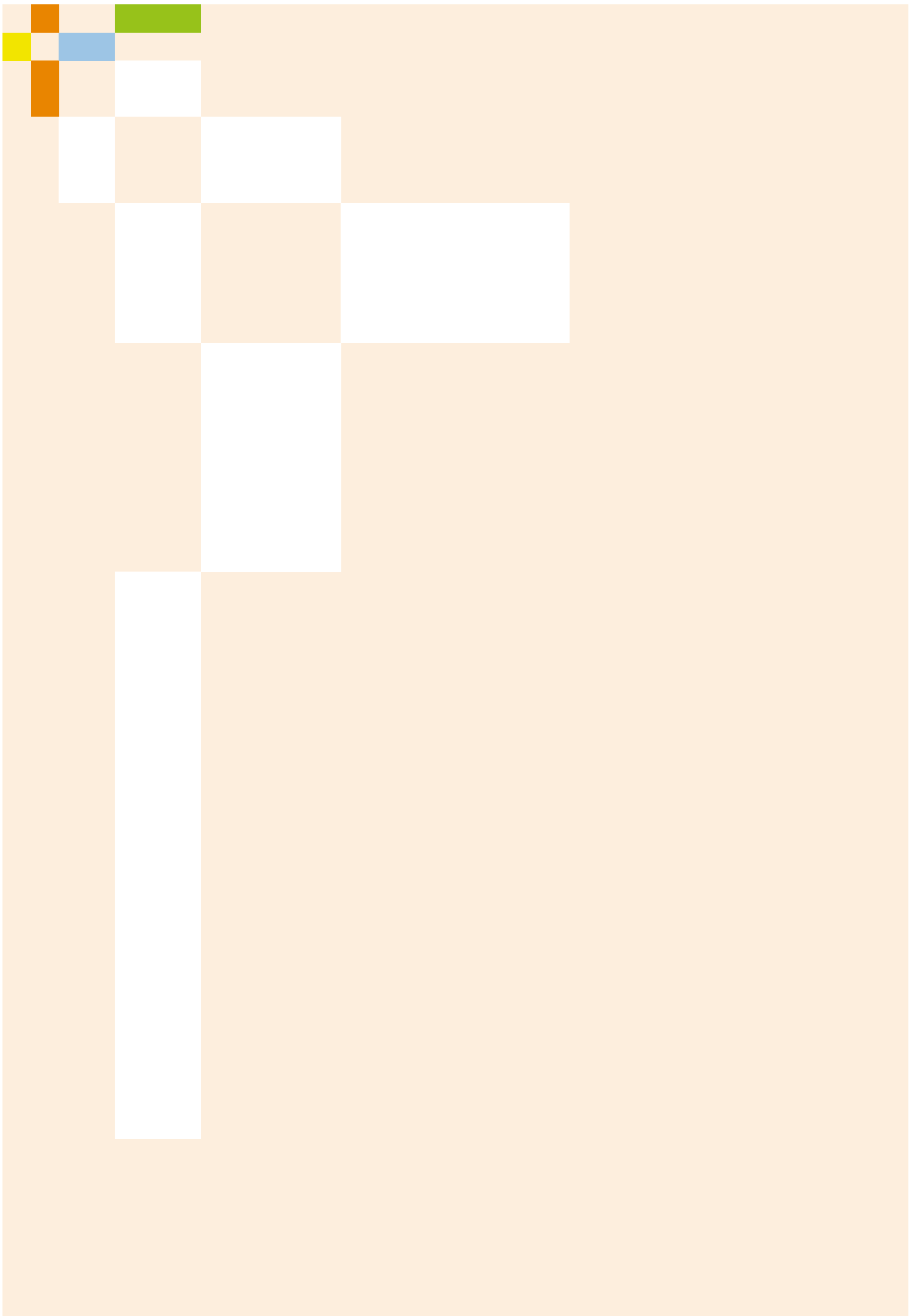
acatech DISCUSSION

The Future of Work in the Digital Transformation

Agility, Lifelong Learning and the Role of Employers and Works Councils in Changing Times

A paper by the acatech and Jacobs Foundation Human Resources Working Group – Forum for HR Directors on the Future of Work

J. C. Jacobs, H. Kagermann, D. Spath (Eds.)



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This publication is the English translation of the acatech DISCUSSION *Arbeit in der digitalen Transformation – Agilität, lebenslanges Lernen und Betriebspartner im Wandel*. All presented challenges for businesses and proposals for solution are based on the German-language publication.



The acatech DISCUSSION series

This series documents symposia, working groups, workshops and other events organised by the National Academy of Science and Engineering. The relevant editors and authors are responsible for the contents of the publications in this series.

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Foreword

In 2014, acatech and the Jacobs Foundation established the *HR-Kreis* (HR Working Group) for Human Resources Directors in order to provide them a forum for discussing the challenges of the digital transformation that would enable them to send out a consistent message in the public debate on the future of work. Academic expertise is provided by selected acatech Members from the fields of human factors and ergonomics, educational research, business administration and business organisation.

In April 2016, acatech published the HR Working Group's initial views and impressions in the acatech IMPULSE *Die digitale Transformation gestalten – Was Personalvorstände zur Zukunft der Arbeit sagen*. The purpose of this paper is to instigate a wake-up call – action must be taken to actively shape the digital transformation, rather than simply assuming that it will automatically succeed of its own accord. Many business, government and civil society actors in Germany underestimate just how radically and rapidly we will need to change. This pressure to transform applies to businesses, education, the workplace and society as a whole. At the same time, however, the HR Working Group painted a positive picture of work in the future – if we make the most of the opportunities provided by digitalisation, it will be possible to secure prosperity and jobs in Germany. Employees, freelancers and the self-employed will be able to work more flexibly,

creatively and with more individual choice and responsibility. One of the keys to this transformation is a new form of governance that promotes a willingness to embrace change and creates the freedom to experiment both within companies and at a regulatory level.

This acatech DISCUSSION analyses three aspects that the HR Working Group Members regard as especially critical to a successful transformation: organisational agility, lifelong learning and a modern understanding of company-level co-determination. It is largely based on the findings of three working groups that each addressed one of the above factors. Between October 2016 and April 2017, the working groups discussed the concrete day-to-day challenges for businesses and formulated a range of proposals regarding how companies, employees, employer representatives, works councils and government can work together to shape the transformation. One of the key messages to come out of this process is the need to entrust people with more responsibility and have faith in their ability to responsibly manage the way they work.

This paper is intended as a contribution to an open political and social debate on the future of work that is independent of the views of any particular political party, employers' association or trade union. Accordingly, the HR Working Group is keen to engage in a dialogue with other stakeholders from government, public administration, business, academia and the general public.

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Project duration

In April 2016, the acatech and Jacobs Foundation Human Resources Working Group published its initial impressions regarding the future shape of work in the acatech IMPULSE *Die digitale Transformation gestalten – Was Personalvorstände zur Zukunft der Arbeit sagen*. This acatech DISCUSSION was produced between October 2016 and April 2017. It analyses the three aspects of agility, lifelong learning and the role of employers and works councils in changing times.

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Executive summary

The digital transformation will result in fundamental changes to work and organisational processes within companies. These changes must be shaped in a way that benefits businesses and employees in equal measure, creating a win-win.

Companies will need to ensure the **agility** of their organisation, i.e. its dynamic ability to respond rapidly and effectively to changing circumstances. They will also need to adopt a wider understanding of **lifelong learning**. The third, cross-cutting theme is the innovation-oriented **development of company-level co-determination**. This will be key to enabling employees to actively participate in shaping the transformation in the first two areas. The structure of this acatech DISCUSSION is based on these three aspects. For each of the three areas, it first sets out the key challenges of the transformation before presenting proposals as to how corporate policy, statutory regulations and co-determination procedures can be developed in order to support the transformation process.

Our observations are based on a number of general assumptions. We believe that employees are the real “experts” when it comes to shaping the way they work. As **responsible adults**, they should be given the opportunity to participate in shaping the digital transformation themselves, rather than simply having to go along with the decisions of others. **Entrusting** employees with **more responsibility** will require a change in attitude on behalf of managers, employer representatives, works councils and lawmakers. Rather than following a “command and control” strategy, this more modern approach will place greater emphasis on **creating and supporting individual freedom**. After all, it is impossible to create a master plan for shaping the future of work that fully anticipates every conceivable development and establishes all the relevant regulations in advance. The transformation will, in the main, come about through trial and error.

Agility – helping companies to adapt faster and increasing flexibility for employees (win-win)

The digital transformation will enable companies to meet customers’ needs faster and better. In addition it will enable companies to differentiate their products and services from competing companies. New data-driven business models unleash the potential to open up new markets and disrupt established

industries. The ability to implement decisions rapidly, adaptability and the willingness to embrace and leverage change are all crucial to an organisation’s global competitiveness. Hence it is also necessary to take advantage of the opportunities offered by digitalisation in the workplace, companies are increasingly adopting the principle of organisational agility. One of the most important implications of this transformation of the world of work is the opportunity for employees to use the flexibility provided by digital technology to **achieve a better work-life balance** and to work with their companies to **safeguard employment** on a long-term basis.

Lifelong learning – boosting companies’ productivity and innovativeness and enhancing employees’ ability to perform their duties and employability (win-win)

Lifelong learning is one of the most important keys to translating the opportunities of the digital transformation into productivity gains and faster and better innovation. In addition, it plays a critical role in safeguarding and maintaining employees’ **ability to perform their duties and employability** over the longer term. Lifelong learning is a **shared responsibility** – both companies and employees must each carry their weight: Companies must provide a work environment that facilitates learning and actively support individual learning processes for their employees in order to promote self-efficacy and lifelong employability. There are no one-size-fits-all solutions for this – all employees should be provided with solutions tailored to their specific needs. They should engage in more targeted on-the-job and on-demand learning and have access to new, increasingly digital learning solutions such as Massive Open Online Courses (MOOCs). For their part, employees will need to do their bit by learning more autonomously and self-reliantly – insofar as they are able to – and investing in their professional future, for example by being prepared to learn in their spare time if necessary.

Innovation-oriented co-determination – reconciling companies’ need for adaptability with employees’ interests (win-win)

Co-determination is one of the keys to the success of Germany’s social market economy. Cooperation with the social partners is characterised by a high degree of reliability. Works councils are important partners for companies, playing a valuable role, particularly at times when the business is being transformed. A co-determination culture that reconciles companies’ need for

adaptability with employees' interests – in order to enable them to **shape the organisation's future together** – could be a feature unique to Germany that provides it with a global competitive advantage in the digital transformation. For this to be possible, it will be critical for employees to actively participate in shaping the transformation and for them to benefit individually from the promise of greater flexibility.

In the future, organisations will need to become **ambidextrous** in all three mentioned areas. In this context, the term "ambidextrous" describes a company's ability to implement the principle of "one organisation, two different ways of operating". Under this approach, the company continues to efficiently build on the

existing strengths of its established business, while at the same time creating the space to develop more radical and visionary solutions and innovations. Although established procedures – for example in production, but also in the area of co-determination – are not completely remodelled during the transformation, they may be modified in some individual cases. Additionally the potential of creative solutions – especially in parts of the business focused on innovation – should be used in a more effective way in order to provide opportunities for flexible working and enhance the organisation's ability to transform.

The challenges and potential solutions outlined below primarily relate to knowledge workers and administrative staff.

Key messages

Agility

- **Increase competitiveness, productivity and employee satisfaction**

Flexible, agile working where employees can make own decisions about how to organise their work will be key to companies' future success. It will enable them to respond to changing circumstances as well as customer requirements and to remain both innovative and competitive. Further it will increase productivity and employee satisfaction.

- **Facilitate new flexible working time arrangements**

New regulations regarding maximum working hours, minimum breaks, rest periods and working on Sundays and public holidays should reflect the ways that society is changing by facilitating more flexible working time arrangements which are better able to meet both individual employees' needs and companies' requirements. The goal is not to work more, but to work more flexibly.

- **Remove obstacles to working with freelancers**

The German *Arbeits-, Sozialversicherungs- and Betriebsverfassungsrecht* (Employment and Social Security Law as well as Works Constitution Act) should be modified so as to facilitate the temporary recruitment of freelancers for innovation processes (e.g. on a project basis) and their integration into agile working arrangements. This would

imply that companies would no longer be operating in a legal grey area. One key challenge in this area is the social protection of freelance workers.

- **Promote individual employee skills management**

Short innovation cycles require precisely tailored employee training measures. These can only be developed by analysing the skills that individual employees currently possess and those that they will require going forward. The co-determination regulations on the introduction and use of IT tools and on workplace training and the use of (online) training formats should be modified so that they facilitate rapid and systematic tailoring of professional development measures to meet the needs of both the individual and the company.

- **Use new feedback tools to strengthen performance management**

Integrated, technology-based feedback tools which enable continuous and transparent ad-hoc peer group feedback can deliver lasting improvements in the quality of agile working. Co-determination regulations should be modified to allow employees greater flexibility regarding the use of modern feedback tools. For instance, they should be free to choose whether they wish to use apps to communicate with and to provide feedback to their colleagues.



Lifelong learning

- **Take advantage of the opportunities offered by digitalisation**

Lifelong learning is one of the most important keys to maintaining employees' ability to perform their duties and their employability over the longer term. It is also the means of choice to successfully translating the opportunities of the digital transformation into productivity gains and faster and better innovation within companies.

- **Work together to maintain employees' ability to perform their duties and their employability**

Companies and employees are jointly responsible for maintaining both employees' ability to perform their duties and their employability. Companies must provide a work environment that facilitates learning and support individual learning processes that are tailored to their employees' needs. For their part, employees will need to learn more autonomously and self-reliantly and – insofar as they are able to – invest in their professional future, for example by being prepared to learn in their spare time if necessary.

- **Promote autonomy and self-reliance through personalised solutions**

To promote learning motivation and success, lifelong learning should always be geared towards the employee's individual needs, with learning processes that support their autonomy and self-reliance. Self-directed learning tailored to the individual's requirements should increasingly become the norm.

- **Leave lifelong learning in the hands of the company**

In order to ensure that lifelong learning meets the specific needs of the company as well as the individual needs of employees, the relevant instruments should remain in the hands of the company. Companies are already doing a lot in this area and are working with employees to develop innovative solutions. Political demands for one-size-fits-all statutory regulations are counterproductive.

- **Enhance more flexible regulations**

More flexible regulations on working time, co-determination and data privacy would help to promote lifelong learning that is better tailored to individual requirements. Such flexibility would enable better integration of learning with people's everyday work, simplify and speed up procedures for modifying learning content and introducing training formats, and facilitate personalised learning support based on employees' personal records.

- **Support the efforts of companies and employees**

Government can make an effective contribution to lifelong learning and personalised training by providing appropriate support for the efforts of companies and employees where it is able to do so. Examples might include a cross-industry national skills monitoring scheme, the reciprocal strengthening of knowledge transfer between higher education and industry, and measures to ensure that the theme of learning fitness is already addressed in schools and higher education institutions.

Employers and works councils in changing times

- **Develop a modern understanding of co-determination**
A modern social partnership requires an understanding of company-level co-determination as a secure and stable framework that strengthens autonomy, provides safeguards and thus fosters flexibility in people's minds as well as in the relevant procedures. In the future, co-determination culture must also learn to "let go of the reins". It should seek to promote individual responsibility and strengthen people's ability to act on their own initiative and make their own decisions. It will therefore be necessary to keep adjusting the balance between the established protection mechanisms contained in collective agreements and modern, responsibly framed individual freedoms.
- **Adapt to the requirements of different organisational forms, employee groups and real-world cultures**
Corporate structures are frequently dualistic and encompass both agile and more traditional organisational forms. In order to enable "ambidextrous" management, measures should be taken to ensure proper representation of different personnel structures in the relevant bodies.
- **Promote the flexible introduction of IT tools and agile workplace equipment**
In order to enable the rapid and flexible introduction and use of new, software-based tools, co-determination processes should concentrate on those IT tools, which are specifically introduced for monitoring employees' behaviour and performance, rather than on all IT tools, that are technically capable of being used for this purpose. Furthermore, flexible value creation which is not tied to a particular location will necessitate changes to the German *Arbeitsstättenverordnung* (Workplace Ordinance), so that employees who voluntarily request to work from home (some or all of the time) will be at least partly responsible for their own health and safety when using the equipment provided by their employer (e.g. teleworking stations).
- **Allow experimentation to facilitate controlled change**
Allowing experiments among particular target groups will make it possible to develop a co-determination culture that is better tailored to these groups' specific needs and to create more flexibility in the relevant collective agreements or legislation. This will be necessary to try out alternative forms of co-determination.
- **Involve employees in the work of the social partners**
In response to growing demand on behalf of employees, the existing social partner structures should be supplemented with direct forms of employee participation. It is recommended that direct employee involvement in formulating demands and in decision-making processes should be increased, for example through project or group work.
- **Recognise the new market conditions and faster rate of change as success factors**
As well as striking a balance between commercial success and employees' interests, a co-determination culture tailored to the needs of different groups will also have to recognise that the new market conditions, constantly changing competitive environment and fundamentally faster rate of change all form a key part of the big picture.
- **Accelerate processes and be bolder about using agile methods**
More flexible, digital tools should be widely introduced for concertation procedures and process sequences. It is also necessary to adopt a bolder approach towards the use of agile, iterative worker participation procedures and regulations that are only temporarily applicable.
- **Establish a legal basis for faster decision-making**
In order to keep pace with the increasing speed of corporate decision-making processes and safeguard the position of German industry, legislation should be adopted to accelerate company-level co-determination procedures.



1 Leveraging the opportunities provided by the digital transformation – defining work in a new way

What expectations do people have about work?

Working like we did on campus

26-YEAR-OLD FATHER, PHILIPP, TALKS ABOUT HIS FIRST EXPERIENCE OF WORKING FOR A COMPANY

"I still clearly remember my first day at work here: I arrived at an airy office floor in our head office, they let me choose my own desk, everyone was really nice. Then they gave me a clunky great laptop that looked like the sort of thing my parents would buy. To this day, I still don't understand why they wouldn't give me a smartphone.

During my onboarding period, I worked on several small projects in order to learn on the job. I had worked on various different projects in my last two years at university, so I was used to flexible project work. We often used to sit together late into the night writing our project reports, especially after my son was born and I started taking time out in the afternoons to be with my family. We could share files via the cloud, everyone could view the latest changes online and you could seamlessly start working on the project again in the

evening. I could send questions to any members of the team who were still online via our chat group.

The way we work at our company is very inflexible – I really miss sitting with my friends in a team room or swapping and discussing ideas in the café before jointly deciding how we wished to proceed. Having said that, it's not just where we work, but also how we work. Every morning I have to wade through hundreds of e-mails, even though I hardly ever use e-mail anymore in my private life. I spend the afternoons in meetings that go on forever and often end without any concrete decisions being taken. Meanwhile, I'm missing the chance to pick up my son from daycare and spend a bit of time with him. I'd be more than happy to work later in the evening if I had more freedom to manage my own time.

I'm lucky to have a boss who shows a lot of faith in me and allows me the flexibility to work from home. But this isn't the norm at our company. In the future I hope to be able to work like we always used to on campus."

Working and learning in production

20-YEAR-OLD TRAINEE INDUSTRIAL MECHANIC, LISA, TELLS US ABOUT HER DAILY WORK

"I'm in the third year of my course as a trainee industrial mechanic, so I usually spend three days a week in-house at the company and two days at the vocational college. I work in production, making various machinery components and modules. As well as the metalworking, I particularly enjoy building custom units tailored to the customer's specific requirements.

For me the rigid shift schedules at the company are very frustrating. One of my fellow students at the vocational college work at a company where they have an online shift tool that allows him to use a tablet or smartphone to choose his preferred working hours when he's at home or on the go. If a lot of customer orders all come in at once, the tool gives him the option to work extra shifts. I wish my shift schedule was a bit more flexible, too.

One thing I really like about my traineeship is that there are always new tasks and challenges. If I have any questions or need assistance, my work colleagues and in particular my training supervisor always find the time to help me out. I'm increasingly being allowed to do things on my own and am now solely responsible for some small production steps. Sometimes, though, I wonder whether it will still be the same once I've finished my training and whether my bosses will still have so much time for my questions and personal development.

During my vocational college I recognised that my English skills are poor, so I've downloaded a learning app onto my smartphone. I often do the vocabulary exercises on my phone while I'm travelling to work on the train, or sometimes even at the weekend. Unfortunately, I can only afford a very cheap learning app that isn't really suitable for my current requirements and is also rather boring. I'm thinking about asking my training supervisor if the company could provide me with a better software solution."

Returning to work after a long period of family care leave

50-YEAR-OLD HEAD OF STAFF DEVELOPMENT, MARIE, TALKS ABOUT HER FUTURE CAREER PLANS

"As head of staff development at a medium-sized company, I am responsible for the planning of needs-based training for the company's workforce. I recently returned to work after taking six months leave to care for my sick father. Together with my team, I am now looking to expand and restructure our "Careers and Training" and "Leadership and Cooperation" functions. In my position, I have considerable individual responsibility and choice in terms of what I do. I'm delighted to have the chance to finally put all the ideas I've recently come up with into practice.

I recently read an article in a professional journal about the use of digital tools to optimise HR processes. I've been using various apps and digital services to manage my data at home for some time now and never cease to be amazed by

how efficient they are. I simply can't understand why our management team is so reluctant to make use of online tools – it's going to take a lot of work to win them over. In general terms, I would like everyone at our company to actively learn about the latest developments so we can make the most of the opportunities these changes have to offer.

Things are a lot quieter at home now that we've found a place for my father at a nearby care home and our daughter has gone abroad to study. So I'm really looking forward to getting properly stuck into my job again. One thing I'm especially pleased about is that I finally have more time to network with other HR people. A couple of weeks ago, I joined an online community where I can chat with people about the common issues we face in our work. I've already got a few ideas which I'm trying to implement in our company. This weekend, I'm going to a conference again for the first time in ages and may even get to meet some other members of the online community there. I've also agreed to do a small teaching assignment for a distance learning university – my first ever webinar."



The digital transformation will provide companies with a huge opportunity to get better and faster at innovating, leading to major changes in work and organisational processes. As well as being key to companies' ability to transform themselves, **a new understanding of work** will also make it possible for employees to benefit from the opportunities of digitalisation.

New levels of freedom in terms of how companies and employees operate will allow people to work more flexibly and with more individual choice and responsibility. Many people's **expectations about work** are increasingly linked to these freedoms (some examples are provided through the personas on pages 12/13).

Against this backdrop, there are three factors that will play a critical role in the digital transformation:

1. **Agility** is one of the keys to a successful transformation. Agility refers to the dynamic ability of an organisation and its decision-makers to recognise changing circumstances and respond to them rapidly and effectively. However, agile working is often hindered by established structures and processes within companies and by statutory regulations. These must therefore be modified in order to support the transformation and meet the need for greater individual flexibility and choice.

2. The transformation will require people to develop new skills: job profiles will change and new employment opportunities will come about. **Lifelong learning** is critical in order to address new requirements as soon as possible and translate the opportunities of the digital transformation into productivity gains and greater innovativeness within companies. First and foremost, however, empowering employees to continuously acquire new knowledge and skills and regard doing so as the norm will maintain both their ability to perform their duties and their employability.
3. In order for employees to actively participate in shaping the digital transformation and benefit from the promise of individual flexibility, employers and works councils will need to find a new way of working together: In an innovation-oriented **co-determination culture**, employers and employees shape their future together, rather than resorting to highly procedural, formal and inflexible regulations to provide reactive solutions to conflicts of interest.

The following chapters illustrate the practical challenges in these three areas and recommend a number of changes to statutory regulations and company procedures in order to enable employees and companies to take full advantage of the opportunities of digitalisation.

2 Agility

2.1 Status quo

The digital transformation will disrupt work and organisational processes within companies as we know them today. New digital technologies, virtually unlimited access to information and the new opportunities to create networks through the Internet of Data, Services and Things provide companies with a huge potential to improve their productivity at every stage of the value creation process. At the same time, however, the changes will require companies to meet customers' needs faster and better and to differentiate their products and services from competing companies. Digitalisation will also lower market entry barriers, in some cases enabling start-ups and companies from other industries to significantly increase the pressure on established companies to transform themselves. New data-driven business models have the potential to open up new markets and may have a disruptive impact in certain instances. The main difference with the digital transformation, compared to similar situations in the past, is the enormous speed of change.

While it will be critical for companies to transform their business in order to maintain and enhance their global competitiveness, corresponding changes will also need to occur in the workplace. Moreover, many employees are keen to use the flexibility offered by digital technology to achieve a better work-life balance.

Agility is one of the key enablers towards a successful digital transformation. It refers to the ability of a company's organisation and decision-makers to respond rapidly and flexibly to new customer requirements, technological developments and competitors, but also to better meet the changing needs of their employees. Increasingly, agile work may be carried out anytime, anywhere, in networks and on digital platforms.

What is organisational agility?

Agility describes an organisation's response to the challenges posed by continuous change and uncertainty.¹ Organisational agility is generally defined as "a set of processes that allows an organization to sense changes in the internal and external environment, respond efficiently and effectively in a timely and cost-effective manner, and learn from the experience to improve the competencies of the organization".² Agile companies are quick to adapt their technologies, workforce and management so that they can respond to changing customer requirements.³ It is important for agile companies to continuously transform themselves by keeping their internal processes flexible and fluid enough to keep up with the rate of change in the external environment.⁴ Agile organisations simultaneously optimise both their ability to transform and their efficiency – on the one hand they experiment, but at the same time they also strive for stability.⁵

Agility can improve companies' productivity by expanding the available repertoire of competitive strategies and alternatives in response to changing circumstances. This allows them to limit their market exposure and the degree of uncertainty that they have to cope with. A more flexible IT infrastructure and an adaptive organisational structure help agile organisations to shorten innovation cycles and take advantage of new market opportunities. This in turn leads to higher productivity and stronger growth.⁶

While agility may be observed at the organisational level, it is also reflected in the working methods used by an organisation. Agile working methods such as scrum are especially widely used in product development as a means of rapidly coming up with innovative solutions.⁷

1 | See Zain et al. 2005.

2 | See Seo/La Paz 2008, p. 136. Organisational agility is, for instance, one of the main dimensions assessed by the Industrie 4.0 Maturity Index, which helps companies to assess how well-prepared they are for Industrie 4.0 (see Schuh et al. 2017).

3 | See Kodish et al. 1995.

4 | See Morgan 1997.

5 | See Meilich 1997.

6 | See Sambamurthy et al. 2003.

7 | See Kettunen/Laanti 2008.



In order to meet the growing need for flexibility and individual choice, both established structures and processes within companies and statutory regulations must be modified, especially with regard to the organisation of working time and time off.

The need to strike a balance between flexibility and stability is not a new challenge – it has always been at the heart of running a business. Nevertheless, the recent developments outlined above imply that the importance of flexibility has increased dramatically compared to the need for stability.

Insight into company practice

Agility at SAP: scrum and design thinking



SAP began implementing the scrum agile project methodology in its software engineering business back in 2010. The goal was to reduce the amount of time spent on coordination, increase the rate of innovation and thus improve the efficiency of software product development.

Although the main reason for fully converting the traditional software engineering business to agile working methods is to increase its efficiency, in the case of cloud products an agile approach is in fact imperative. In the age of digitalisation, the market demands rapid, right-first-time product delivery and a contemporary response to customer feedback. Design thinking provides an agile product development tool that facilitates co-innovation with customers and partners in relatively short cycles. SAP therefore makes extensive use of this methodology.

Agile working methods such as scrum have several dimensions that can at times clash with a company's established culture and structures. One core feature implemented at SAP is that development teams which work closely together should also be physically close to each other (co-location). Small, cross-functional teams are another critical element

that helps to reduce the time spent on coordination with teams in other departments.

In addition to these innovative teamwork and project coordination processes, agility is also characterised by enhanced engineering practices that make it possible to deliver more functionality to higher quality standards in less time, i.e. in shorter cycles. One example at SAP is "pair programming", where two people jointly develop parts of the product. This ensures high quality right from the outset and promotes knowledge sharing within the team.

Scrum also puts the emphasis on higher technical expertise and training rather than inflexible processes. Consequently, the introduction of scrum and other agile practices at SAP was handled by a single, central team rather than by individuals in different teams.

A comprehensive changeover to agile development methods requires strong support from top management in order to pull off the balancing act of creating the time and space for the changes while still carrying on with the company's everyday business.

2.2 How can we strengthen companies' agility and ability to transform?

One of the factors that determine just how agile a company can become is the successful implementation of ambidextrous corporate structures. Ambidexterity refers to a company's ability to be simultaneously active in its traditional business and in the digital world, and to focus on both efficiency and innovation at the same time. This requires an appropriate regulatory framework that, for instance, allows people the freedom to choose when and where they work. Regulation should recognise that employees are mature, responsible humans who wish to make individual choices.

But how does the balance between individual responsibility and choice for employees and the company's responsibilities as an employer need to change in order to promote agility? Which IT resources are required to effectively support agile working? How can a modern approach to performance management – i.e. the systematic, strategically oriented management of employees' performance – provide employees with continuous individual support? And how can companies identify the skills that will be needed in the future and make sure that they are available and can be deployed as and when required?

Progressive changes to both the regulatory framework and companies' internal structures and processes will help to resolve these questions to the mutual advantage of companies and their employees, creating a win-win situation. The following sections outline some of the relevant challenges and propose potential solutions.

2.2.1 Create more flexible working time arrangements

Most of the working time regulations in force today date back to the Industrial Age and restrict opportunities for flexible working arrangements in which employees themselves have a say. New regulations regarding maximum working hours, minimum breaks, rest periods and working on Sundays and public holidays should reflect the ways that society is changing by facilitating more flexible working time arrangements that are better able to meet both individual employees' needs (e.g. in terms of work-life balance) and companies' requirements (e.g. in terms of innovation projects using agile methods). Consent procedures involving individual opt-ins to the new regulations would ensure protection by allowing people to decide for themselves. Documentation of working hours would provide further protection against abuse of the new rules.

The challenges and potential solutions outlined in this section primarily relate to knowledge workers and administrative staff. They have only limited validity for employees in an industrial workplace environment, who are, for example, involved in shift work.⁸

2.2.1.1 Challenges

German businesses face stiff global competition to attract the most innovative minds in the digital world. To succeed in doing so, they must be able to provide attractive, modern and flexible working conditions where employees can make own decisions about how to organise their work.

The provisions of the German *Arbeitszeitgesetz* (*ArbZG*, Working Time Act) on the maximum of working hours per day (§ 3), rest periods (§ 5) and restrictions on working on Sundays and public holidays (§ 9) make it difficult to work flexible hours. Compared to the European Working Time Directive, Germany's Working Time Act leaves little scope for flexibility and individual choice.

8 | Although even in industrial production, solutions are increasingly being developed that promote more individual choice and flexibility in the interests of both employees and employers. These processes can be supported by digital applications such as platforms for optimised, self-organised production capacity planning where employees can have a say in their own work schedules. One pilot scheme in this area is the "KapaflexCy" research project of the Fraunhofer Institute for Industrial Engineering IAO.



Examples from business

	Example	Vision	Areas requiring action
Focus: Innovative capability	<p>Agile project team: A short-term project assignment means that one member of the team has to work an extra eight hours a week. The additional work could be spread across two days during the week (four hours extra work per day), with the employee receiving a day off in lieu. However, the Working Time Act currently stipulates that the working day may not exceed ten hours (see Figure 1).</p>	A more flexible working day that makes it possible to respond as necessary to new requirements in innovation projects and sustain the number of hours devoted to the process.	<p>§ 3 ArbZG: Replacing the maximum number of working hours per day with a maximum of working hours per week along the lines of the European Working Time Directive (max. 48 hours), averaged e.g. over a six-month period.</p>
	<p>Research lab: A laboratory technician is able to monitor an ongoing laboratory test/experiment for longer than ten hours if required and take time off in lieu the next day, once it has been completed. The extra work does not involve a continuous activity that is highly physically or mentally demanding. It simply involves tasks such as completing the relevant documentation, analysing the results or adding the relevant substances to the experiment as and when required.</p>	More flexibility and legal clarity so that working hours can be distributed in a way that better matches the requirements of the job while allowing employees more of a say in when they work.	
Focus: Work-life-balance	<p>Family time: An employee leaves work at 4 p.m. to spend time with his family. Once the kids are in bed, he does an hour's work at home until 10.30 p.m., e.g. finishing off a document, answering e-mails or holding a conference call with his colleagues in Mexico. If he starts to work again at 8.30 a.m. the next morning he will be breaking the law, which currently states that he must have an uninterrupted period of at least eleven hours' rest after the end of each working day.</p>	More flexibility and legal clarity to make it easier for employees to decide for themselves how they distribute their working time.	<p>§ 5 ArbZG: More flexible and shorter rest periods for people working flexible hours in flexible locations; short interruptions to rest periods should not constitute a breach of the law.</p>
	<p>Mobile working: Employees are increasingly requesting the option to take time off during the week and make it up via mobile working at the weekend. One common question is whether people can voluntarily do mobile work on Sundays, for instance to prepare for a meeting on Monday that they can start to work a bit later on Monday mornings.</p>	Flexible distribution of working time/days that is not restricted to particular days of the week.	<p>§ 9 ArbZG: Allow employees to decide for themselves whether or not they wish to take Sundays and public holidays off (they should be able to take at least one day of their own choice off per calendar week).</p>
	<p>Childcare/caring for dependents: The ability to achieve a better working time balance within a family, e.g. if one spouse works alternating shifts; flexible use of both partners' days off (e.g. to care for dependents, make hospital visits, etc.).</p>	Allow partners to work more flexible hours, including Sundays, with a view to facilitating a better work-life balance and increasing the availability of one or other partner to care for dependents.	

2.2.1.2 Potential solutions

The time has come to consider changes to the Working Time Act in order to provide companies with greater flexibility and allow workers more of a say in when and where they work, more individual responsibility, and the chance to achieve a better work-life balance. The changes should, at least up to a point, aim to replace the current approach – which is too focused on providing the same protection for everyone – with the principle of opt-in based protection: In other words, in certain circumstances it would be up to employees to decide whether they still wish to be covered by the statutory regulations or whether they wish to take advantage of an exemption regulation. A double opt-in procedure could form the basis of a solution that meets the needs of both the individual and the company. Under this approach, the application of particular regulations would require not only the employer’s agreement, but also, crucially, the explicit consent of the individual employee. Moreover, this could be withdrawn unilaterally at any time.

Switching from a maximum of working hours per day to a maximum of working hours per week

§ 3 ArbZG: Eight-hour day/maximum of ten hours

The German *Arbeitszeitgesetz* (Working Time Act) should take advantage of the flexibility afforded by the European Working Time Directive to replace the current working time limit of ten hours a day with a weekly limit of 48 hours. This change would not result in people working longer hours overall – it would simply mean that they could work more flexible hours within a given week.

Protection mechanism: In order to prevent abuse of the new rules, it would still be mandatory to document any hours worked over and above the new limit (i.e. the documentation requirement would apply if someone worked more than 48 hours in any one week).

Reform of rest period regulations

§ 5 ArbZG: rest periods

The rest period regulations should not apply if an employee has voluntarily chosen to work certain hours, especially if they have chosen to leave work early in order to attend to private matters. This would be the case, for example, if an employee who spent time answering work e-mails in the evening, had left work early to spend time with their family in the afternoon (see the “family time” example above and Figure 2).

In addition, the minimum rest period could be reduced from eleven hours to e.g. nine hours for people working flexible hours in flexible locations. In practice, this would not diminish the fundamental protection provided by the Act, since mobile working reduces time spent commuting and the associated stress factors.

Finally, a brief interruption of the period of “continuous” rest should not result in the relevant minimum rest period being reset at zero. In this context, “brief” might for instance mean reading an e-mail or answering a phone call for a period not exceeding ten minutes.

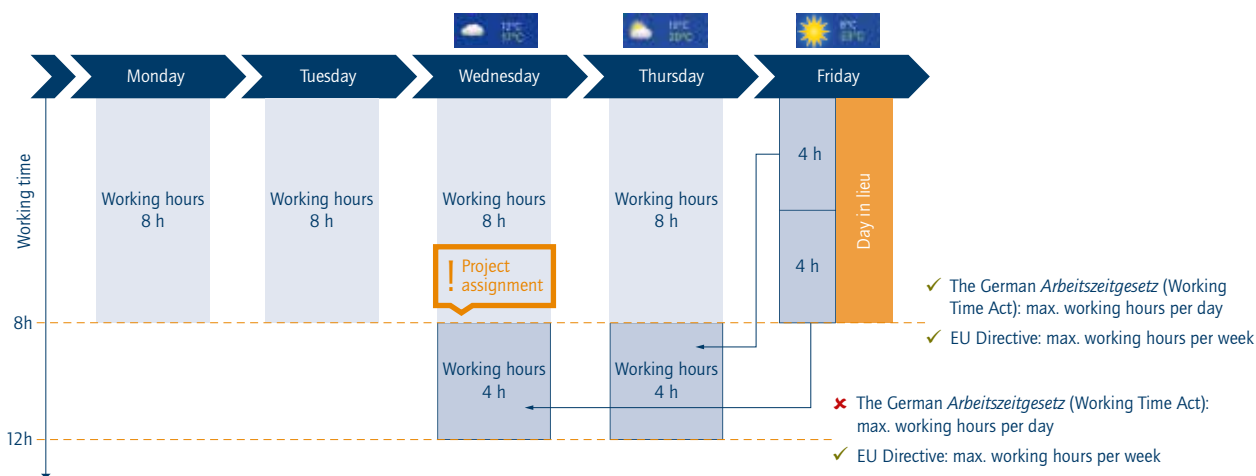


Figure 1: Agile project team: example of more flexible working (Source: BMW AG)

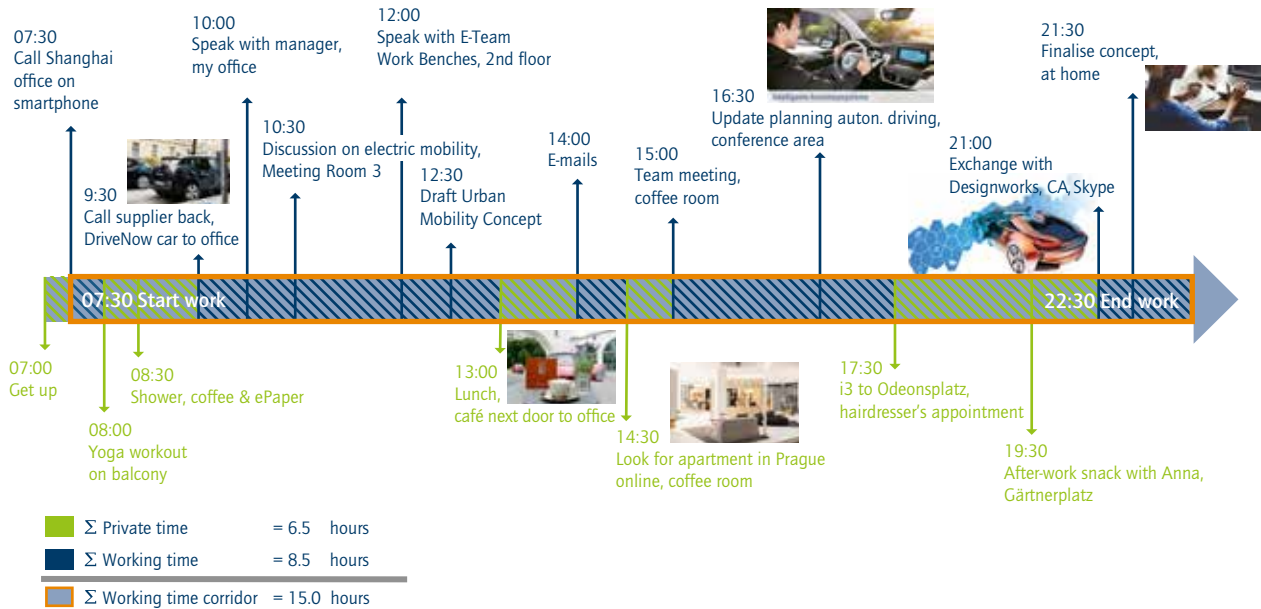


Figure 2: Example of agile working day for knowledge worker (Source: BMW AG, slightly adapted)

Protection mechanism: Alongside the established instruments for ensuring compliance with rest periods, employers and works councils could work together to create appropriate guidelines, particularly regarding the nature of short interruptions and how they would work in practice.

Allow people to decide for themselves whether they wish to take Sundays and public holidays off

§ 9 ArbZG: Restrictions on working on Sundays and public holidays

Taking advantage of the flexibility afforded by the European Working Time Directive, the regulations regarding restrictions on working on Sundays and public holidays should be relaxed so that people can decide for themselves. The EU Directive guarantees at least one day off per calendar week, but does not require it to be a Sunday. Bringing the German regulations into line with the Directive would promote international harmonisation of the rules on working on Sundays and public holidays.

Many employees have directly called for more freedom to manage their own time. It should be emphasised that this flexibility is first and foremost in the employees' interests. The current exemption regulations in fact already allow people to work on Sundays and public holidays for operational reasons. However, the practicality of the current criteria for permitting Sunday working should be reviewed in the light of digitalisation.

Opt-in based protection: Employers and employees could use a voluntary double opt-in procedure – either on an individual basis or via a company-level agreement – to decide whether people can work on Sundays and public holidays in order to facilitate a better work-life balance.

In addition, employees should receive time and self-management training to make sure that they work in a sustainable manner that does not damage their health. Management should also be trained to manage employees who work flexible hours in flexible locations.

Insight into company practice



Mobile working at BMW – “Work flexibly, switch off consciously”

A diverse workforce needs different working time instruments depending on what stage employees are at in their lives, what kind of lives they want to lead and their current work situation. The BMW Group offers its employees a wide range of flexible modules so that they can tailor when and where they work to their personal needs, enabling agile working and an optimal work-life balance. The importance of location-independent working in particular has grown significantly over the past few years.

In October 2013, following a two-year pilot project, a permanent company agreement on “Mobile Working” was signed, which came into force throughout the Group in January 2014. Mobile working means that people work the same hours as before, but have more flexibility regarding when they work. It includes all work-related activities performed outside of the office, whether online or offline. For instance, an employee’s car becomes their mobile office when they make a phone call on the way home, or they can answer their e-mails while waiting at the airport. Mobile working makes it easier for people in different countries and time zones to work together. It also makes an important contribution to improving work-life balance. If an employee has to pick up their child from daycare at a certain time in the

afternoon, they can finish off any urgent work at home later that evening.

In order to ensure that the added flexibility benefits all employees, mobile working is based on a culture of trust and a constructive dialogue between management and employees rather than on rigid regulations. Careful attention has also been paid to the issue of employee availability and unavailability. In keeping with the campaign motto “Work flexibly, switch off consciously”, employees have the explicit right to be unavailable outside of certain agreed hours.

There has been a positive response to the mobile working concept. In 2014, it won the HR Management Award of the German Association of Human Resources Managers (BPM) and a gold award at the German Works Council Awards. In an in-house survey carried out six months after the scheme was launched, 90 percent of managers said their teams made use of mobile working, while 74 percent said they did so themselves. Since then, demand has continued to grow: in 2016, almost 30,000 BMW employees (or around 55 percent of those not working directly in production) chose to work on a mobile basis either for a few hours at a time or even entire days.



Insight into company practice



The Munich Re Innovation Lab

In order to provide the best possible environment for innovation, in 2015 Munich Re augmented its existing, traditional working environment with a global innovation infrastructure comprising several different elements. The infrastructure supports the generation of ideas through a variety of formats, including the Innovation Lab. The Innovation Lab provides staff with the space, time, funding and human resources to turn innovative ideas into prototypes, working in conjunction with the customer where relevant.

One of the Innovation Lab's main goals is to create a startup-like environment where employees can focus exclusively on developing their ideas for a limited period of time. The Innovation Lab also provides a creative co-working space where teams can collaborate with customers and other external partners.

When the Innovation Lab was launched, a fundamental decision was taken to run it as a part of Munich Re – i.e. as a department within the organisation – rather than as a separate company. A number of HR issues had to be addressed and regulated for this to be possible. For instance, it was necessary to come to an agreement with the works council that allowed as much flexibility as possible in the application of the relevant statutory regulations and collective and

company agreements. In addition to an appropriately flexible approach to the performance management of employees working on innovation projects, another issue that had to be negotiated with the works council was a separate working time regulation for the Innovation Lab that differed from the existing company agreement on working time. A conscious decision was taken for the Innovation Lab to dispense with the standard devices employed by Munich Re to record working time so it would be easier for people working on innovation projects to work flexible hours. A special regulation was negotiated with the works council to this end – an “Innolab” time booking option was added to the Employee Self Service Tool, which allows employees to use apps to access and manage their personal data. In order to use the Innovation Lab to work on a project, you simply need to book the times when you will start and finish working. It is up to the employees themselves to decide how they manage the statutory breaks that are automatically included when they book the Lab for a particular period of time.

The negotiation of this pragmatic in-house solution with the works council allows Munich Re's Innovation Lab to provide an innovation-friendly environment for flexible, self-regulated working while still ensuring employees enjoy the necessary protection.

2.2.2 Remove obstacles to working with freelancers

Particularly in the digital world, a growing number of highly-skilled, high-earning and innovative talents no longer want a permanent job with a single employer. Within digital ecosystems, companies are increasingly reliant on collaboration with these freelancers, who know their own worth and are used to making their own decisions. However, the tightening of the German *Arbeits-, Sozialversicherungs- and Betriebsverfassungsgesetz* (Employment and Social Security Law and Works Constitution Act) has made their temporary recruitment (e.g. on a project basis) more difficult. As a result, companies which bring in external workers to collaborate in agile working formats designed to increase the speed and customer focus of innovation processes (e.g. scrum) are already operating in a legal grey area.

2.2.2.1 Challenges

It is becoming increasingly critical to companies' survival for them to respond even more flexibly and rapidly both to changing circumstances and to technological and market requirements. Traditional project work involving a fixed end product that has been developed and planned in advance and can be stipulated in a contract is no longer able to meet these needs. By contrast, agile working methods such as scrum and design thinking employ self-organising teams that change the basis of their work on their own initiative and may spontaneously decide to bring in external experts and freelancers. This approach requires flexible working methods and frequent coordination, since very few details about the final output are available at the time when the contract is signed. Consequently, companies that use these methods could be construed to be breaking the law on false self-employment or staff leasing. This is because the law currently classifies this form of collaboration between in-house staff and external service providers in integrated project teams as "integration". The fact that the law makes no distinction between in-house and external workers in this context has a number of serious implications: the external workers must be retrospectively registered for social security contributions, their income tax must

be paid in arrears and they become entitled to receive a company pension; under certain circumstances, the company may even be judged to have committed a criminal offence. The problem with the current legislation – which has only been exacerbated by the latest reform of the German *Arbeitnehmerüberlassungsgesetz (AÜG, Labour Leasing Act)* – is that it fails to properly take into account two key aspects of work in the real world:

The first aspect is that agile working methods are essential in a business environment characterised by increasingly complex and fast-changing problems – agile working methods' effectiveness is often based on flexible and diverse teams. The flexibility afforded by modern working methods such as crowdworking – which far from being confined to simple micro-tasks are now also used to solve much more challenging problems – should be incorporated into companies' processes so crowdworkers can be integrated into teams on a temporary basis and with the same conditions as the other team members. The way policymakers and the public think about a "normal job" and the corresponding associated perception that allegedly "atypical" forms of employment are in some way inferior are completely at odds with the modern understanding of work and the preferred ways of working of a growing number of young and highly-skilled individuals. A solution needs to be found that allows actors who have voluntarily opted for different forms of employment to work together on innovative projects.

The second aspect relates to the fact that – especially in the IT industry – there are increasing numbers of freelancers who earn high incomes and are largely able to decide for themselves how and when they work. These people have no desire to be treated like employees.

The problems inherent in attempts to regulate interactive forms of collaboration by law can also be observed in scenarios where two equal partners work on a job together. Although in this instance no-one can be accused of false self-employment or being an agency worker, the law as it currently stands would still consider one or other of the partners to be the subject of "integration", meaning that in principle they could take the other partner to court for breaching the law on staff leasing.



Examples from business

Example	Vision	Areas requiring action
<p>Collaborating with freelancers: Sebastian is a freelancer who works for various companies, mainly in agile projects based on the scrum method and as a member of self-organised teams with a well-structured but flexible way of working and frequent coordination. He is thus closely involved in in-house coordination processes. As a member of the team, he undertakes to complete certain batches of tasks on a daily or weekly basis. For example, he might spend one day analysing a stream of usage data and the next two days analysing the traffic on his customer's complaints page. The make-up of his working week is thus highly dependent on the project's requirements.</p> <p>According to current legislation, the company collaborating with Sebastian could be construed to be breaking the law on false selfemployment.</p>	<p>Freelancers and other types of self-employed workers such as crowdworkers can be integrated into the company as team members on a temporary basis and with the same conditions as the other team members. Permanent employees of the company may also join scrum teams without breaking the law on staff leasing.</p>	<p>Taking a lead from the media and culture industry, new forms of social insurance for modern ways of working should be created that do not require freelancers to give up their self-employed status.</p> <p>When company employees join teams in other departments on a temporary basis, this should not constitute a breach of the law on staff leasing.</p>

2.2.2.2 Potential solutions

There is unanimous agreement among labour market researchers that the percentage of self-employed external workers in the total workforce is set to increase, while the percentage of "normal" jobs will remain static or decline. This trend is driven by factors such as service providers' desire to work for themselves, companies' wish to flexibly incorporate specific competencies into their work processes on a temporary basis, and the fact that digitalisation and increased connectivity make flexible coordination with third parties much easier.⁹ This trend raises a number of questions with regard to freelancers' social insurance (e.g. health insurance, pensions). The lessons learned from the German *Künstlersozialkasse* (artists' social insurance scheme) in the media industry and the debates on alternative forms of insurance in other sectors could provide some pointers for potentially workable solutions. For instance, freelancers who do not only work for a company on a casual basis and who exceed a minimum income threshold could pay 50 percent of the statutory social security contributions into a social insurance scheme in order to acquire similar social security benefits to those enjoyed by ordinary employees. A further 30 percent of the contributions

could be paid into the scheme by the company, with the remaining 20 percent coming from the government. Another possibility would be to charge a limited level of compulsory social security contributions on all income from freelance work, as already is done in other countries such as Switzerland.

2.2.3 Use new feedback tools to strengthen performance management

Regular feedback between management and employees can deliver lasting improvements in the quality of agile work. However, this will require a new approach to performance management within companies. The current methods, which are geared towards individual monitoring, will need to be developed into comprehensive feedback tools for entire work and project teams. Co-determination procedures should be modified to allow greater flexibility and facilitate the use of technology-based feedback tools.

9 | See Destatis 2015; BMAS 2016.

2.2.3.1 Challenges

The individual performance of modern knowledge workers can no longer be recorded solely on the basis of traditional criteria such as quality and the time and resources used to complete their work – instead, a multidimensional approach to performance recording and evaluation is now required. For example, as long as clear requirements documents exist, it is of course possible to measure the performance of a knowledge worker (e.g. a programmer) based on the end product. However, if all that is provided at the start of the project is a broad outline of a problem that needs to be solved, and if the solution is delivered jointly by groups whose members are constantly changing, then it becomes necessary to take several additional performance parameters into account in the overall performance evaluation.

It is clear from the above that modern performance management must take a comprehensive view of employees' performance which includes qualitative peer feedback. Managers in particular should be assessed not only on the basis of objectively measurable criteria such as budget, sales and costs, but also based on their socio-intellectual skills. Static annual performance evaluations should be replaced by continuous and transparent ad-hoc feedback that incorporates peer feedback and is employee-driven rather than management-driven. This approach strengthens cooperation and acceptance within the team.

Nevertheless, there are still many unanswered questions about how to boost individual performance and address the relevant obstacles and critical aspects of performance management in agile projects and organisational units. One potential solution would be the iterative development and prototype testing of IT tools to support the process, where relevant in consultation with the works council and management representatives. If this approach was adopted, it would be particularly important to guarantee managers' and employees' privacy rights and the protection of their personal data.

Modern performance management that introduces and utilises comprehensive feedback tools such as instant feedback apps will often be subject to the co-determination regulations regarding the introduction and use of IT tools (§ 87 Abs. 1 Nr. 6 Betriebsverfassungsgesetz, see also Chapter 4.2.2). There is a danger that this could result in discussions focusing more on the technical characteristics of the IT tools used to support the process instead of on the performance management itself, potentially leading to solutions that are not fit for purpose. It is also necessary to comply with the co-determination regulations on staff questionnaires (§ 94 Betriebsverfassungsgesetz, BetrVG), which are intended to protect employees' general privacy rights and their right to informational self-determination.

Examples from business

Example	Vision	Areas requiring action
<p>Direct feedback via app: Employees are increasingly asking to be actively involved in the performance management process and to receive transparent information about their overall performance. The introduction of apps that enable instant feedback from both parties can currently be delayed due to requirement to obtain the works council's consent for the introduction of IT tools.</p>	<p>Continuous, comprehensive feedback is enabled by modern tools such as instant feedback apps. This promotes participation and transparency through networks and allows all employee groups (management, employees covered/ not covered by a collective agreement) to give and receive feedback.</p>	<p>The rules on company-level co-determination should allow employees greater freedom regarding the individual use of modern feedback tools. For instance, they should be free to choose whether they wish to use apps to communicate with and provide feedback to their colleagues.</p>



2.2.3.2 Potential solutions

The digital transformation and the accompanying requirements for modern performance management call for a new understanding of performance evaluation as a tool for supporting employees' development. This new approach should place greater emphasis on employees' ability and readiness to make their own individual choices. It will also be necessary to modify the regulations governing works council co-determination rights on social affairs, staff questionnaires and assessment criteria.¹⁰

Changes to co-determination rules

§ 87 Abs. 1 Nr. 6 BetrVG

The rules governing works council co-determination in relation to instant feedback apps or other IT-based tools for supporting feedback processes should be relaxed so that it is no longer mandatory to consult the works council about the introduction and use of these tools purely on the basis that the works council must always be consulted when any IT tool is introduced or used. If the app is only used for providing feedback and not for monitoring performance and behaviour, it should not be mandatory to consult the works council about its introduction and use.

Opt-in based protection: Employees would be free to choose whether, for example, they use apps to communicate with their colleagues or to participate in a two-way IT-based feedback process.

Staff questionnaires and assessment criteria

§ 94 BetrVG

The current regulations requiring the works council to be consulted about staff questionnaires and the formulation of assessment criteria should be clarified through the inclusion of a list of instances where the regulations do not apply. This would make clear, for example, that open feedback does not fall under the assessment criteria requiring mandatory works council involvement. This would in particular be applicable to feedback that relates solely to communication, cooperation and corporate culture issues and is not used to inform decisions about an employee's pay or career progression.

2.2.4 Promote individual employee skills management

The digitalisation of work requires employees to constantly update and develop their skills. Companies and employees are jointly responsible for maintaining both employees' ability to perform their duties and their employability. Transparency with regard to the skills which individual employees currently possess and those that they will require going forward can support the implementation of targeted, self-directed training measures that are precisely tailored to the individual's needs. The use of digital tools facilitates the rapid response times required for agile and flexible skills management.

2.2.4.1 Challenges

The changes in work and organisational processes resulting from digitalisation are accompanied by corresponding changes in requirements and job profiles. The main difference compared to similar situations in the past is the rate at which this skill shift is occurring. Lifelong learning is critical in order to translate the opportunities of the digital transformation into productivity gains and better and faster innovation within companies, as well as to maintain both employees' ability to perform their duties and their employability (see also Chapter 3).

In order to enable targeted skills development tailored to individual needs, employees must have the opportunity to individually identify and record both their current skills and any relevant skills gaps. This makes it possible to develop training content and formats that are precisely tailored to their particular requirements. In the case of managers, for example, the growing demand for hybrid skills might imply that as well as their professional and general management skills, they also need to assess and continuously upgrade their technology skills (e.g. knowledge about how the Internet of Things works) and data skills (e.g. their ability to make judgements about the usability of ever larger volumes of data). However, there are as yet no adequate co-determination provisions covering the numerous different ways in which these "skills databases" can be used (from

10 | See Haufe 2017, who states that the staff questionnaires referred to in § 94 of the German *Betriebsverfassungsgesetz* (Works Constitution Act) may be described as forms or schematic collections of questions relating to the personal circumstances, knowledge and skills of a job applicant or employee of the company. (...) General assessment criteria refer to systems for objectively evaluating employees' behaviour or performance that should be based on standard key evaluation criteria. Their purpose is to provide a standard evaluation procedure and ensure that assessments are based on standard metrics so that the results of the evaluations may be compared.

strategic HR planning to professional development and project resource planning).

Employee-oriented skills management facilitates a rapid response to the shifts in occupational and skills profiles resulting from digitalisation, making it possible to maintain both employees' ability to perform their duties and their employability. Employers and employees are jointly responsible for maintaining employees' employability (see also Chapter 3).

At present, strict regulations on the processing and use of employees' data prevent companies from creating individual employee skills profiles in order to facilitate individually tailored skills management by combining data from professional networking sites like LinkedIn and XING – employees have voluntarily and explicitly agreed to share for this purpose – with qualified data sourced from within the company.

Examples from business

Example	Vision	Areas requiring action
<p>Skills recording: An employee voluntarily chooses to automatically add/transfer skills information to their company profile.</p> <p>However, if information is added from or to an external skills profile (XING, LinkedIn), the legal situation in terms of information rights and data privacy is unclear.</p>	<p>Data and experiences can be uploaded from internal sources to (external) professional networks and vice versa.</p>	<p>Modification of the German <i>Datenschutzgesetz</i> (Data Protection Act) to allow information to be exchanged in both directions.</p>
<p>Skills-based training: A need is identified to develop an employee's skills and capabilities so they can meet the future requirements of their job.</p>	<p>Employees take the initiative by proactively creating their own training programmes.</p> <p>Insofar as employees are able to, they shape their own learning process with a greater degree of individual choice and responsibility. Their employer provides a work environment that facilitates learning and supports employees in their learning process.</p>	<p>Co-determination: The co-determination regulations regarding the introduction and use of IT tools, the implementation of in-house training and the use of online training tools should be modified to enable rapid and systematic tailoring of professional development to the needs of both the individual and the company.</p>



2.2.4.2 Potential solutions

Changes to co-determination rules

§ 87 Abs. 1 Nr. 6 BetrVG/§ 98 Abs. 1 BetrVG

Agile working calls for the ability to design specific training content for individual employees and continuously record and update their skills and any relevant skills gaps using IT tools. The co-determination regulations regarding the introduction and use of IT tools, the implementation of in-house training and the use of online training tools should therefore be modified to ensure stronger support for the rapid and systematic tailoring of professional development to the needs of both the individual and the company (see also Chapters 3.5 and 4.2.2).

A more flexible approach to data collection

In order to create meaningful skills profiles for individual employees, it is important to draw on as many different data sources as

possible, including both internal, regulated information as well as (voluntarily supplied) external information.

Opt-in based protection: The potential solutions outlined above must operate on a voluntary basis. This implies that employees would be able to decide for themselves whether and to what extent they wished to consent to the possible use of individual data for a jointly defined type of analysis (opt-in). Moreover, they would be able to withdraw this consent at any time.

Even if the data were made available on a voluntary basis, however, companies would also need to ensure a responsible behaviour towards those employees who were not willing to give their consent, or who felt obliged to do so because of peer pressure. Another issue companies would need to address would be how to ensure the quality of the employee data obtained from professional networking sites.

Insight into company practice

Strategic skills management at Deutsche Telekom

In 2016, Deutsche Telekom launched a strategic skills management pilot project focused on identifying and addressing skills gaps and the corresponding training requirements. In the first step, management defines and allocates skills profiles based on job descriptions and a skills catalogue. During their annual performance review, employees then jointly assess with their manager which skills they currently possess and discuss their individual skills gaps. As needed they agree on any necessary training measures. The skills database also makes it possible to identify skills gaps at a departmental level, so that relevant training initiatives can be implemented across the whole department.



In addition, since the beginning of 2017 Deutsche Telekom has been using individual skills management for employees of its communications business, both for project- and task-based resource allocation and for their individual professional development. The new model builds on an existing skills management system that uses employee profile data for specific purposes. This resource-based skills management tool is currently used voluntarily for approximately 200 employees. The fact that employees' experiences while working on projects are entered into the database and that they engage in an ongoing dialogue with their superiors makes it possible to continuously update their existing skills/skills gaps and develop any new skills they may require. The system facilitates both individual employee training and professional development and efficient recruitment and staff deployment planning.

2.3 Summary/Key Messages

- **Use agility to improve companies' competitiveness and productivity**

Digitalisation offers companies new opportunities to respond to changing circumstances and customer requirements and to remain both innovative and competitive. Flexible, agile working where employees can make own decisions about how to organise their work will be key to increased productivity and employee satisfaction.

- **Don't work more, work more flexibly – facilitate new flexible working time arrangements**

Most of the working time regulations in force today date back to the Industrial Age and restrict new opportunities for flexible working arrangements in which employees themselves have a say. New regulations regarding maximum working hours, minimum breaks, rest periods and working on Sundays and public holidays should facilitate more flexible working time arrangements that are better able to meet both individual employees' needs (e.g. in terms of work-life balance) and companies' requirements (e.g. in terms of innovation projects using agile methods). Consent procedures involving individual opt-ins to the new regulations would ensure protection by allowing people to decide for themselves. Documentation of working hours would provide further protection against abuse of these new rules.

- **Remove obstacles to working with freelancers**

Particularly in the digital world, a growing number of highly-skilled, high-earning and innovative talents no longer want a permanent job tied to a single employer. Companies are increasingly reliant on collaboration with these freelancers, who know their own worth and are used to making their own

decisions. However, the tightening of the German *Arbeits-, Sozialversicherungs- and Betriebsverfassungsgesetz* (Employment and Social Security Law and Works Constitution Act) has made the temporary recruitment of freelancers (e.g. on a project basis) more difficult. As a result, companies which bring in external workers to collaborate in agile working formats designed to increase the speed and customer focus of innovation processes (e.g. scrum) are already operating in a legal grey area.

- **Promote individual employee skills management**

The digitalisation of work requires employees to constantly update and develop their skills. Companies and employees are jointly responsible for maintaining both employees' ability to perform their duties and their employability. Transparency with regard to the skills that individual employees currently possess and those that they will require going forward can support the implementation of targeted, self-directed training measures that are precisely tailored to the individual's needs. The use of digital tools facilitates the rapid response times required for agile, flexible skills management. In the next chapter a closer look at lifelong learning will be taken.

- **Use new feedback tools to strengthen performance management**

Regular feedback between management and employees can deliver lasting improvements in the quality of (agile) work. However, this will require a new approach to performance management within companies. The current methods, which are geared towards individual monitoring, will need to be developed into comprehensive feedback tools for entire work and project teams. Co-determination procedures should be modified to allow greater flexibility and facilitate the use of technology-based feedback tools.



3 Lifelong learning

3.1 Status quo

The digital transformation is changing our understanding of work, ushering in a shift towards data-based business models, digital ecosystems and a platform economy. The changes taking place in our society are also making themselves felt in the business world, where companies are transforming themselves into agile organisations. These developments imply that employees and employers need to adapt and keep learning. In general terms, this trend will lead to a major skill shift – the digitalisation of businesses will create new roles and jobs, while existing roles and jobs will change and in some cases become significantly more demanding. Knowledge and skills will have shorter and shorter half-lives and will need to be continuously and flexibly upgraded.

The digital transformation will increase the availability and accessibility of knowledge in many different ways. This will result in a greater requirement for autonomy, individual responsibility, cooperation and solution-oriented ways of working. At the same time, the transformation will create numerous new opportunities for people to learn and further their own development in and through their jobs. As a result, “lifelong learning” will acquire a broader meaning: with the employer’s support, learning will be more closely integrated with people’s work; it will have to be continuous, and has to be supported by feedback mechanisms and thus ultimately more targeted.

Lifelong learning is one of the most important keys to maintaining both employees’ ability to perform their duties and their employability over the longer term, as well as successfully translating the opportunities of the digital transformation into productivity gains and faster and better innovation within companies.

The vision: In order for lifelong learning to become the norm, companies must provide a work environment that facilitates learning and actively support individual learning processes. There are no generic, one-size-fits-all solutions – self-directed, needs-based learning will increasingly need to become standard practice. Employees will engage in systematic, continuous

on-the-job and on-demand learning (informal learning), use traditional further training and professional development methods (formal learning) only as and when necessary, and take advantage of new, digital learning opportunities on their own initiative (e.g. Massive Open Online Courses, MOOCs). All employee categories – and in particular all age groups – will benefit from individually tailored skills and a high level of personal learning fitness. Corporate and management culture will provide overall support for these developments. Lifelong learning is a shared responsibility. Accordingly, employers, employees and society as a whole will all do their bit to strengthen lifelong learning and deliver one of the digital transformation’s main “promises”: that it can be made into a win-win for everyone.

The challenge: People in Germany – especially the over-50s – show little interest in professional development.¹¹ This is in spite of the fact that learning new knowledge and skills – especially in the context of digitalisation and diversification – and promoting employees’ long-term health against the backdrop of demographic change are increasingly key to individuals’ employability and ability to perform their duties.¹² Teaching all employees to think more about their own development and encouraging employers and employees to share the responsibility for the latter’s employability and fitness to perform their duties are thus of central importance. Financial incentives are rarely effective in this context, since at best they have only a short-term effect and may even harm employees’ own interests over the longer term.

3.2 Promoting learning motivation and success through individual choice and self-management – what the research says

Lifelong learning is one of the most important things that people can do to maintain their employability. This has been demonstrated both through research and through widespread practical experience. Nevertheless, for many employees it would appear that this knowledge is not necessarily enough to persuade them to engage in learning themselves. Even though they may recognise the value of lifelong learning in theory, they are either not willing to take the initiative and change themselves (lack of motivation), or they are motivated but fail to take the appropriate action (implementation gap).¹³

11 | According to the EU Labour Force Survey, in 2015, 8.1 percent of people in Germany between the ages of 25 and 64 said that they had taken part in some form of professional development training during the previous month. The figure was just 3.1 percent for people aged 55-64 (see Eurostat 2016).

12 | See Schulz et al. 2017; Storm et al. 2016.

13 | See Lippke/Steinkopf 2017; Lippke et al. 2011.

This points to a need to provide employees with support so that they can self-manage their own learning process. Doing so will facilitate personalised professional development and is the most effective means of promoting learning motivation and success. Research findings provide clues as to how companies can effectively address both of these points. The following observations are based on an internationally recognised model for promoting learning motivation that has been successfully tested in the field.¹⁴

3.2.1 Learning motivation: more than just a response to incentives

In order to promote learning motivation, it is not enough simply to create incentives to learn and provide employees with transparent learning goals. It is also necessary to understand the reasons why some people choose not to take advantage of learning opportunities.¹⁵ The way that individuals weigh up the pros and cons of learning is central to their motivation to learn and their willingness to make the corresponding changes in their behaviour. For this to happen, all three of the following conditions must be met:

1. The employee must believe that learning will have concrete **benefits** for them (e.g. it will bring them new skills and capabilities that fill gaps in their current skills profile, leading to more responsibility and recognition).
2. They must be confident that they will receive the **support** they require to achieve these benefits (from their superiors, colleagues, team and/or the overall climate in the company). Moreover, they must believe that they will actually have the chance to use their new skills (e.g. to perform new, more challenging duties with appropriate agreed objectives).
3. They must believe that they are actually **capable** of achieving the benefits (perceived self-efficacy/belief in their own ability).

There are a number of critical things that companies can do to positively influence employees' expectations in all three areas. They should of course meet their traditional "obligations" to provide suitable resources and learning opportunities, create a work environment that facilitates learning and build a corporate and management culture that activates employees' expectations

with regard to the relevant benefits and support. However, another thing they can do which is in practice often still neglected is to strengthen employees' ability to access these opportunities through measures to promote their individual learning fitness, i.e. their general learning skills.

3.2.2 Learning fitness: a question of training, not age

Learning fitness means that employees understand the opportunities and limitations of learning. Based on this understanding, they set themselves learning goals that are specific, measurable, ambitious/attractive, realistic and time-bound (SMART) and manage their learning process themselves. Learning fitness is a competency that can be developed through targeted training and maintained through practice.¹⁶

Nevertheless, research carried out by the Jacobs University reveals that up to 40 percent of employees across all age groups wrongly believe that older people are not as good at learning as young people.¹⁷ In the over-50s group, this figure rises to more than 70 percent. One of the first things that learning fitness training seeks to do is debunk these stereotypes.

How can employees improve their learning fitness?

The fundamental purpose of learning fitness training is to develop skills that allow people to self-manage their own learning. Employees use personal examples from their own everyday training experiences to formulate strategies for analysing their reservations about learning and finding ways of addressing them. Targeted learning experiments show that they have far more potential to learn than they previously suspected and that they could leverage this potential in the future. Participants also try out self-commitment and learning planning and monitoring strategies.

Learning fitness training delivers improvements in learning efficiency that can reduce the amount of time spent on learning by up to 20 percent.¹⁸ This also holds true for the over-50s and for

14 | See Beier/Kanfer 2009.

15 | See Stamov Roßnagel 2016.

16 | See Stamov Roßnagel 2015.

17 | See e.g. Stamov Roßnagel/Richter 2014.

18 | See Stamov Roßnagel/Richter 2014.



industrial employees doing comparatively low-skilled jobs. In addition to less time spent on learning, participants become more self-confident at learning and develop a more positive attitude towards making use of professional development opportunities and towards the workload involved in learning.¹⁹ Empirical research has shown that it is possible to create a positive attitude towards learning and develop comprehensive learning fitness across all age and occupational groups. However, this requires a management and team culture that is supportive of learning.²⁰

3.2.3 Supporting employees' self-efficacy

Companies should not attempt to regulate and control their employees' learning activities through a one-size-fits-all approach. Instead, they should facilitate and support learning and ensure that training and professional development provision also caters to the interests and needs of their employees. The priority should be to help them develop their learning fitness and thus empower them to increase their self-efficacy (i.e. confidence in their ability to achieve the desired goals).

Government can make an important contribution to promoting employees' self-efficacy by providing appropriate support for the efforts of companies and employees where it is able to do so. For example, a cross-industry national skills monitoring scheme could serve to rapidly identify promising new technology areas with value-added potential and make it easier for employees and employers to develop precisely tailored training measures for delivering common learning goals and visions. Ensuring that the theme of learning fitness is already addressed in schools and higher education institutions will lay the foundations for successful lifelong learning.

In contrast, the suggestion that the Federal Employment Agency should be converted into a lifelong learning agency is impractical and unlikely to succeed. Continuous development of the workforce is a core responsibility of every company – they know their

business's specific learning requirements better than anyone else and are therefore best placed to provide targeted training. On the other hand, the transition to employment as well as supplementary training services provided by the Federal Employment Agency both play a crucial role in securing employability.

How can companies help their employees to develop their learning fitness, empowering them to learn autonomously and strengthen their self-efficacy?

- Address individual reasons for not wanting to learn – e.g. through individual coaching, time management, a range of learning options and compensating time taken to participate in or deliver (formal and informal) learning.
- Strengthen self-efficacy – by giving people greater freedom to make their own decisions, as well as through role models and coaches, positive reinforcement/feedback, and wide-ranging experiential learning including successful experiences (mastery experience).
- Individual support for the learning process – tailored to the employee's personal needs and interests and focused on successful learning outcomes.
- Provide a wide range of different professional development and learning options with individually appropriate access methods – for self-directed and peer learning
- Constantly highlight the value of lifelong learning – at the individual, team and organisational level (intrinsic motivation/learning should be fun, employability and incentives/benefits).
- Create a climate and environment that support learning – across all operational and management levels.

19 | See also Stamov Roßnagel/West 2014.

20 | See e.g. Stamov Roßnagel 2016; Linnenschmidt et al. 2015; Schulz et al. 2017.

3.3 Promoting lifelong learning for specific target groups: three case studies

Future lifelong learning will be shaped by three overarching trends that will be simultaneously driven and enabled by the digital transformation.

These trends are primarily an expression of a more systematic tailoring of learning to employees' individual needs and of the new requirements for companies resulting from the digital transformation.

The following section will use three personas to illustrate some examples of the challenges involved in lifelong learning and to present potential solutions for specific target groups.

Future lifelong learning trends

1. Flexible learning

Learning can take place anytime and anywhere, on a mobile device and just-in-time basis.

Principle: "I decide when and where I learn."

2. Participatory learning

By focusing less on "me" and more on "we", learning will increasingly become an expression of cooperation, co-creation and co-working.

Principle: "I learn, teach, network and work with others."

3. Learning in networks

Networks will complement or even replace institutions as the learning environment of choice.

Principle: "I decide how and what I learn depending on the specific needs of my job. This involves close collaboration with a group of peers both inside and outside of the company."



3.3.1 The Manager

Sebastian – head of production and maintenance in the automotive industry



Age: 51
Occupation: **engineer**
Professional experience: **25 years**
Training: **qualified mechanical engineer**

"I can achieve all my career goals without wasting my valuable time on seminars."

My duties

As head of production and maintenance, I am responsible for planning and supervising all aspects of the production of our innovative light and sensor systems. I maintain a constant overview of the economic, quality and safety aspects for both machinery and materials and for our human resources. My team comprises 62 specialists working in several different countries.

My job

Responsibilities: Disciplinary and functional management responsibility for four teams

Type of work: Project-based, multitasking, conference calls at midnight, highly complex, calls for a lot of quick decisions

Company: Global enterprise, >100,000 employees

Previous professional development initiatives

- Transition training following appointment to (new) management position
- Awareness-raising about digitalisation (workshops, discussion groups, social networks)
- Wide range of learning opportunities, different learning formats
- No reduction of daily workload through delegation of duties
- Nominated for initiatives by supervisors
- Ownership culture with regard to skills development
- Establishment of networks for peer-to-peer dialogue

Vision for lifelong learning

- Superiors set (top-down) example with regard to lifelong learning
- Merging of work and learning environments
- Managers become participants rather than users
- New career structure/job rotation
- Use of coaching
- Learning opportunities also targeted at older employees
- Work in teams comprising a range of age groups, especially for complex problem-solving
- Increase availability of digital/viral learning nuggets
- Ownership culture is the norm
- (Learning) experiences and exchanges in new environments (immersive learning journeys)
- Strengthen feedback culture

3.3.1.1 Specific challenge

Sebastian doesn't believe that he personally has a need for lifelong learning. He hasn't done any professional development training for years, mainly on the grounds that he is simply too busy with his work. He keeps using the tried-and-tested methods that have served him well in the past without ever reappraising them. He is proud of his practical and highly detailed knowledge of all the processes that he is responsible for. He doesn't find it easy to delegate. He has a sceptical attitude towards production process innovations and thinks that Industrie 4.0 is all hype.

3.3.1.2 Potential solutions

Sebastian's superiors must set a **top-down example** with regard to lifelong learning. Sebastian needs role models within the company to show him that professional development training can in fact be extremely valuable to managers, too. Sebastian's superiors also need to make him understand that professional development can help to deliver the company's business goals. Skills requirements based on the corporate strategy must be systematically and openly communicated and compared against managers' current skills profiles. An open feedback culture and individual coaching are thus essential to personal development. Sebastian's "learning skills" should form part of his performance review.

Sebastian's employers need to offer him training opportunities that he regards as a valuable use of his time and that can be

smoothly **integrated into his work**. **Participatory learning and learning in networks** could be particularly suitable in his case, since these methods not only promote a peer-to-peer dialogue on professional matters but can also increase acceptance of professional development training. Competition within his peer group could potentially also increase Sebastian's motivation to learn. An immersive learning journey where Sebastian does a short-term placement at another company could give him an insight into how his peers are addressing the challenges of the digital transformation and provide him with new ideas for his own work. As a result, he may also acquire a much more positive attitude towards changes and innovations in his work. Regular job rotation for middle managers could provide them with the motivation to improve their learning fitness – after all, if you have to familiarise yourself with a new role and prove yourself in a new job every five years or so, then you are almost certainly going to have to learn new skills. Successful experiences reinforce people's expectations of self-efficacy ("I can put what I have learned to good use.") and strengthen their future learning motivation.

In Sebastian's case, **regular motivation to learn** is the key to lifelong learning – he needs to engage with lifelong learning on a regular basis. A professional development bonus in the form of time credits for his lifetime working time account could serve as an additional incentive.



Insight into company practice

BERTELSMANN

Expanding horizons – the Bertelsmann Exchange Initiative

The Bertelsmann Exchange Initiative was launched to promote cooperation and knowledge-sharing between different divisions. It provides employees and executives with the opportunity to work in a different division for up to three months so that they can further their development outside of their usual

workplace. Bertelsmann is very keen for its employees to gain experience in different parts of the business and different countries, regardless of their position in the company, current division or geographical location.

Insight into company practice



Talking to the academics – learning on campus

The Jacobs University provides companies with a learning environment for training courses lasting several days where employees are temporarily released from their work and given the chance to immerse themselves in life on campus. The workshops include elements such as:

- Motivational talks by young academics and experienced professors
- Language training with role play and personalised training units
- Interactive technical sessions in English
- Exercises and case studies with students from all over the world
- Motivational lunch sessions with academics and students

Training course participants regard both the environment and the interactions with students and academic experts who share the latest ideas in the joint workshop discussions as particularly valuable and forward-looking. The workshop groups intentionally have a diverse mix of participants, both in terms of age and in terms of nationality or cultural background. Targeted use is made of this diversity for communicating knowledge, acquiring skills in specific areas and improving participants' general learning skills. Participants feel that they "can learn something new again after all, and try it out in a safe environment to see if it will work in practice in the workplace" (56-year-old female workshop participant).

3.3.2 The Call Centre Agent

Joséf – customer service advisor at an insurance company



Age: 39
 Occupation: **customer service advisor**
 Professional experience: **16 years**
 Training: **insurance salesman**

"I enjoy my job as a customer service advisor. But I'm worried about my future because a lot of jobs at our company are currently being replaced by standard IT solutions."

My duties

As a customer service advisor, I deal with our end customers and their issues on a daily basis. Even though much of my work involves handling complaints, I find it fulfilling to help people by solving their problems as quickly as possible. Unfortunately, I only have limited scope to make my own decisions and am often forced to follow rigid standard procedures.

My job

Responsibilities: Handling customer complaints, rigid standard procedures, limited scope to make my own decisions

Type of work: Highly organised, transactional, process-oriented, customer issues mostly dealt with sequentially

Company: 13,200 employees, locations throughout Germany, 236 customer centres, >10 million customers

Previous professional development initiatives

- Wide-ranging training initiatives ("scattergun approach")
- Training in and on new systems in his or her specific area of responsibility
- 70:20:10 model: 70 percent of skills are acquired through new challenges, 20 percent through the people you work with/your managers and 10 percent through traditional professional development training
- Learning mostly on the job
- Annual performance and development reviews

Vision for lifelong learning

- Systematic early identification of individual needs
- Systematic development of learning fitness
- Different learning pathways
- (Professional development) training with low entry barriers
- Employability advice/individual coaching
- Establish coaching arrangements
- Expand mobile/flexible learning
- Digital learning nuggets, MOOCs, small learning units integrated into daily work



3.3.2.1 Specific challenge

Joséf's work involves clearly defined, repetitive tasks that are increasingly being automated; he is worried that he may lose his job. Consequently, his main focus is on continuing to be "good" at his job. He sees no immediate need for additional training – the last time he did any professional development training was six years ago and even then he already had the feeling that he was no longer used to learning. He hardly ever receives any feedback from his boss and feels that he is poorly informed about the ways in which digitalisation will change his company and his job.

3.3.2.2 Potential solutions

As a result of the digital transformation, companies are having to realign their strategies and formulate the corresponding new job and skills profiles. Consequently, Joséf requires **individual coaching** to ensure that his learning strategy focuses on the specific changes to his job and his individual skills. This in turn calls for systematic **early identification of his individual learning needs** which should then be transparently communicated to him. Importantly, this personalised approach also addresses Joséf's expectations regarding the benefits and implementation of the training, which will be key to his learning motivation.

In Joséf's case, the most suitable professional development tools will primarily involve **online training** formats such as practical learning nuggets that can be integrated into his daily work and MOOCs. It is extremely easy and relatively low-cost to tailor these tools to the individual's specific requirements. The learning content should focus on skills that can be acquired through computer-based learning. These include creativity, problem-solving,

collaboration and conflict and customer management skills that can be developed e.g. through online games, online video courses, avatars, video tutorials, online training courses, blended learning and self-learning materials. Coaching, regular feedback throughout the learning process and gradually increasing his scope to make his own decisions in his work will help to increase Joséf's self-confidence in terms of his expectations of self-efficacy and belief in his own abilities, which will in turn make an important contribution to improving his learning fitness.

As part of his **coaching**, Joséf and his coach should agree on criteria for assessing whether he has actually benefited from the available lifelong learning opportunities. His manager could act as a coach in this respect. For instance, the employer should be informed if Joséf passes a test or obtains a certificate for successfully completing a MOOC, even if he did the training with an external provider. The company would not be breaching the German *Datenschutzgesetz* (Data Protection Act) by collecting this data as long as the training was connected with his job.

Since there is a high probability of Joséf's job being affected by automation or rationalisation measures, the professional development training should prioritise his **employability** and productivity. He and his employer have a **shared responsibility** to maintain his employability. The employer must provide the requisite learning infrastructure/apps and create an environment that motivates Joséf to learn, while Joséf must also do his bit by being prepared to learn during his spare time. Greater individual responsibility and choice should increasingly replace the strict maxim that "learning time is working time".

Insight into company practice

BERTELSMANN

Flexible learning – E-learning opportunities at Bertelsmann

Digitalisation makes it possible to provide more efficient, effective and flexible professional development opportunities. Accordingly, Bertelsmann offers its employees a range of e-learning options. Since 2015, the company has been cooperating with providers such as lynda.com, which is owned by the LinkedIn business network. All Bertelsmann employees around the world who have access to the group's HR IT platform "peoplenet" can access more than 10,000 on-line video courses in four languages (German, English,

Spanish and French) completely free of charge and at any time, for professional or private purposes. The range of subjects covered is extremely wide, while the individual learning units are intentionally kept short.

The possibility to make all E-learning opportunities available to all employees is dependent on the approval of the group works council, while the conditions of usage are determined by the individual local companies.



3.3.3 The Digital Native

Céline - IT developer at a large SME



Age: 32
Occupation: **application engineer**
Professional experience: **8 years**
Training: **BA in Information Technology**

"I enjoy analysing all kinds of data streams and always discovering something new. I couldn't bear to be stuck always doing the same old thing."

My duties

As an application engineer working in IT development, I face exciting challenges every day. I specialise in neural networks, so I'm perfectly at home working with large volumes of data. In this age of big data, I have a variety of different projects where I support our customers.

I enjoy logical, abstract thinking. My main interests are web and application development and all kinds of apps.

My job

Responsibilities: Realising customer projects, especially in the fields of big data and mass data analytics
Type of work: Parallel projects, on-the-job learning, extensive networking with other specialists
Company: SME, >500 employees

Previous professional development initiatives

- Digital learning
- Extensive range of professional development opportunities
- Creative bootcamps
- Principle of self-motivation/recognition of personal motivation

Vision for lifelong learning

- Freedom to use agile working and new methods
- New learning methods for specific target groups
- More opportunities for unconventional career paths
- Learning by means of competitions (e.g. gamification)
- Participation in networks/social learning
- Virtual communities

3.3.3.1 Specific challenge

Céline is one of her company's young talents who are completely at home in the digital world and who the company expects to come up with key ideas for innovative solutions. She has made her hobby into her work, possesses extensive expertise and expects her job to provide an environment that supports creativity and learning. She has no interest in attending standard professional development seminars. She prefers mobile, flexible learning, although she thinks that the opportunities that her employer provides for this type of learning have room for improvement and feels that the regulations on the use of online training tools are rather outdated. The question of whether learning time should count as working time doesn't even occur to her – she does not regard her work, learning and private life as completely separate areas. Ideally, she would like to have much more flexibility in terms of how she divides her time. She feels that the way working time is recorded and the corresponding working time regulations aren't flexible enough.

3.3.3.2 Potential solutions

Céline already has high learning motivation and wants to learn autonomously. Her motivation mostly comes from the challenging tasks that she wishes to perform in her job, the expectation that she will be given more responsibility in the future and the recognition and networking within her peer group, both inside and outside of the company. In her case, support for lifelong learning primarily means providing her with as many **flexible learning** options as possible and making opportunities available to her for **participatory learning** and **learning in networks** (virtual communities).

Additional incentives for Céline to learn can be provided through **competitions** and new forms of informal and applied learning certification such as so called **Nanodegrees** (degrees obtained after completing online courses) or **digital achievement awards/badges** (digital certificates for acquired skills and

achievements). Certification requires a degree of transparency with regard to personal data, for instance in order to prove that someone is taking part in a programme. Once the course has been successfully completed, this data is no longer needed – it is not necessary to have complete transparency regarding a person's education record in order to provide them with high-quality learning support. However, it is important to be able to compare Nanodegrees, and this will require greater transparency in the certificate market regarding the content and quality of different programmes.

The best way to support Céline's development is in a working environment that facilitates **agile** working, for example an innovation lab. Many companies are currently trialling new forms of work organisation and culture in experimental arrangements of this type, in which the employees themselves usually have a direct say in how their work is organised.

Management should continuously support Céline's learning process in order to maintain her learning motivation over the longer term and prevent her from becoming over-saturated. It is especially important for them to ensure that she can acquire business skills as well as technical skills. In many companies, the technical staff often lack these **hybrid skills**. Céline also needs to develop her **social skills**. The more closely she works on innovative new solutions with colleagues from other parts of the business, customers, freelancers and researchers – as part of a digital ecosystem – the greater the importance of her collaboration, conflict management and foreign language skills.

Given the high proportion of informal learning, indicators such as the number of completed professional development courses are of limited use for supporting Céline's learning process. The company needs to develop more innovative criteria for her and her peer group in order to evaluate the individual suitability of the learning opportunities it provides for them.



Insight into company practice

Digital Booster development programme at innogy



innogy's 15-month Digital Booster programme offers top digital talents the opportunity to develop their skills and specialise in digital business areas. Assignments to digital projects and continuous project work in their own startups

allow employees to build networks with digital initiatives inside and outside of the company and gain experience as change agents for the digital transformation.

Insight into company practice



Start-up culture at a traditional company – Siemens Digitalization @ Mobility

The digital transformation is opening up great opportunities for the mobility sector. New digital rail and road transport solutions are providing ever better ways of meeting customers' requirements in terms of availability, speed and travel comfort. For example, new train and interlocking control tools enable optimised capacity profiles. Smart analysis of vehicle data and preventive maintenance via digital services deliver higher availability for customers, while on-board broadband and entertainment services and passenger information and assistance systems make for a more comfortable journey.

In order to promote targeted innovation in connection with the digital transformation, Siemens has established a start-up-style data lab at its Munich locomotive plant that provides an agile working environment for data analysts and digital talents. This working environment also makes Siemens a more attractive employer to data experts, most of whom are recruited externally. Features that are key to the data lab's success include wide-ranging freedom to experiment with different forms of work organisation, extensive networking (with partners inside and outside of the company), challenging work and continuous staff development.

3.4 Professional development initiatives for the digital transformation – examples from practice

According to statistics from the Confederation of German Employers' Associations (BDA), German companies invest approximately

33.5 billion euros a year in their employees' continuing professional development.²¹ It is of course very much in their own interest to promote high-quality, productive learning, not least in the context of the digital transformation. Four examples of professional development initiatives at German companies are outlined below:

Insight into company practice

BERTELSMANN

Bertelsmann: digital language training and Nanodegrees

In order to help its employees around the world develop their foreign language skills, since 2016 Bertelsmann has been working with its partner Learnship to offer flexible, individual online language training in 14 languages. Professional coaches are available to participants via virtual classrooms. These coaches are selected according to the learner's requirements and create individual training plans for them. Course-related homework assignments and individual online learning materials help deepen the level of learning. Whether individually or in a group, participants benefit from direct contact with native speakers, and save time and money.

In order to drive digitalisation of the company's products and services, at the end of 2016 Bertelsmann introduced the opportunity throughout the group to obtain Udacity Nanodegrees in specialist technology-related fields such as data science, Android programming and others. Udacity's learning content is developed in partnership with leading companies like Amazon, Google and IBM in order to ensure the content's relevance and recency. Depending on the programme, these modular courses can last between four and twelve months and involve around ten hours a week of learning time. Knowledge is communicated through learning videos, interactive learning units, projects and coaching from teaching staff. The courses are taught in English and a (Nanodegree) certificate is awarded upon completion.

Insight into company practice



Deutsche Bahn: communicating development pathways

Deutsche Bahn's HR strategy focuses on securing new talent as early as possible and the (continuing) professional development of its employees. The group ensures that its employees have the necessary skills and motivation through a strategic career development programme that places particular emphasis on the in-house training of technical staff and executives. Documented development pathways provide employees and executives with transparency and guidance for their professional development. The *DB Entwicklungswege* development pathways Web tool lists the available development opportunities and assists the different departments with their succession planning. It also provides information

about development pathways that span more than one business area. The *DB Weiterbildungskompass* (professional development compass) provides executives and employees with a useful overview of the training and study courses recommended by the company – from certificate courses and the chambers of commerce and industry *IHK-Meister* qualification to Bachelors and Masters courses. It also gives details of the professional development programmes available within the group or the different divisions. The employee and manager dialogue constitutes an appropriate basis for assessing performance, skills and potential.

21 | See BDA 2017.



Insight into company practice

innogy: facilitating learning anytime, anywhere



innogy provides a learning portfolio throughout the company for teaching employees and executives basic “digital mindset” skills through a variety of (continuing) professional development activities. The aim is to help them develop the skills, behaviours and knowledge that they need to improve in the performance of their day-to-day duties and to ensure that they are optimally prepared for future challenges. Learning formats such as video tutorials, online training courses, blended learning and selflearning materials (e.g. wikis, e-books, innogy YouTube videos) cater to individual learning requirements. Either through self-study or learning with others, employees are able to learn flexibly, with all the significant benefits that this confers. For example, they may opt to learn on demand, anytime, anywhere. As the boundaries between work and leisure become increasingly blurred, the growing opportunities to learn anytime, anywhere must be

supported by allowing people to work in their free time and by concepts such as “Bring Your Own Device”. These developments must furthermore be endorsed by the works council.

innogy supports its employees in a variety of ways so that they can proactively address changes in their profession and actively shape their own career development: For employees and executives who either want or have to change careers, the *Jobkompass* (job compass) provides individual job coaching, support during reorganisations and workshops on career changes and employability. Instruments providing the opportunity to obtain confidential, independent advice have been up and running for the past two years and are helping employees to achieve a lasting improvement in their employability and to take more individual responsibility for their own professional development.

Insight into company practice



Siemens: Learning World

Siemens offers its employees and executives throughout the world a range of diverse opportunities to develop their skills. Topics include Siemens products, specialist knowledge and methodology, and business-specific and process-specific expertise. In addition to providing traditional classroom courses and workshops, Siemens is increasingly digitalising the learning environment. Employees can reach agreements with their managers to access learning programmes via Intranet portals while they are at work. They can also use Siemens’ in-house Social Media Platform to contribute their own knowledge (“user- and expert-generated content”) and access the knowledge available within the company. The platform supports global knowledge sharing and learning from each other in open and closed communities.

The pool of knowledge and experience is growing very quickly, especially in this era of digitalisation. This means that Siemens must design its learning portfolio more dynamically

and make new content available faster. The goal is to offer employees the best possible guidance and support for choosing the right learning content. The new Siemens Learning World web platform provides employees with a central access point for a wide range of selected learning modules from inside and outside of the company, enabling them to rapidly find the learning content that is relevant to them personally. The platform offers access to specific courses, knowledge modules, training videos, e-learning measures, learning communities, etc., which are compiled and bundled into context-specific learning recommendations by in-house learning curators. The platform also employs search and filter algorithms to generate custom learning recommendations for specific job profiles and individual user enquiries. In the platform’s personal area, users can define their own filter settings so that they are continuously supplied with relevant learning content. The learning modules can be rated, shared and recommended to others.

3.5 Summary/Key Messages

- **Lifelong learning is one of the most important keys to maintaining employees' ability to perform their duties and their employability over the longer term. It is also the means of choice to successfully translating the opportunities of the digital transformation into productivity gains and faster and better innovation within companies.**

- **There are no one-size-fits-all solutions for lifelong learning. Self-directed, needs-based, and on-demand learning will increasingly need to become standard practice.**

As a rule, lifelong learning is at present not systematically tailored to the individual's needs. Neither companies' requirements nor employees' needs are adequately met by the one-size-fits-all approaches to professional development. Providing employees with support so that they can self-manage their own learning process is the key to personalised professional development and the most effective means of promoting learning motivation and success.

- **Companies are already doing a lot in the field of ongoing professional education and development and are working with employees to develop innovative lifelong learning solutions. Political demands for one-size-fits-all statutory regulations are counterproductive.**

One-size-fits-all regulations in the form of statutory entitlements to professional development training or extensive time off work are at odds with the need to promote targeted lifelong learning focused on companies' specific requirements and employees' individual needs. Unless the relevant instruments remain in the hands of the company, there is a risk of adverse impacts, not least on employees' employability. Companies already assume a lot of responsibility in this area – ultimately, it is very much in their own interest to do so.

The suggestion that the Federal Employment Agency should be converted into a central lifelong learning agency is impractical and unlikely to succeed. On the other hand, the transition to employment and supplementary training services provided by the Federal Employment Agency play a crucial role in securing employability.

- **Companies and employees are jointly responsible for maintaining both employees' ability to perform their duties and their employability.**

Companies should of course meet their traditional obligations to create a work environment that facilitates learning, support individual learning processes that are tailored to their employees' needs and promote employees' learning fitness, i.e. their ability to access these opportunities. For their part, employees should help to maintain both their ability to perform their duties and their employability by learning more autonomously and self-reliantly, insofar as they are able to do so. Digitalisation offers people more freedom to decide for themselves when and where they learn. Companies must trust in employees' ability and desire to make use of this freedom. In view of the coming skill shift, employees must also be prepared to do carry their load, for example by investing some of their spare time in professional development. This should form an accepted part of their shared responsibility as both employer and employee seek to maintain high skill levels and secure employability.

However, giving employees more individual responsibility doesn't mean that companies should simply leave them to their own devices. On the contrary, they should provide extensive support for the learning process and promote employees' learning fitness and self-efficacy in order to strengthen their employability both within and outside of the company. By doing so, they will also be indirectly helping to make the digital transformation a win-win for society as a whole. They should not be put off by the potential "threat" of a brain drain. Instead, they should be guided by an approach that can be summarised as follows: "We want people who are intellectually curious. It is better to train and have them leave than not to train and have them stay."²²

- **More flexible regulations on working time, co-determination and data privacy can also help to promote lifelong learning that is better tailored to individual requirements.**

More flexible regulation regarding how individuals' working time is organised (especially the maximum number of working hours per day and rest periods) would not only facilitate agile working (see also Chapter 2.2.1), but would also contribute to better integration of learning into people's work routine, particularly in the case of participatory learning and learning in networks.



In-house training and the use of online training tools are both subject to co-determination. One should be open to re-considering the relevant regulations (principally § 98 Abs. 1 BetrVG and § 87 Abs. 1 Nr. 6 BetrVG) in order to simplify and speed up the procedures for changing certain types of training content and introducing certain types of tools without jeopardising the protection against abuse.

In order to assist with the provision of individual learning support, the collection of limited personal data – for instance data about the progress being made by an employee in an online training course – might in some individual cases be mutually beneficial to both parties. A regulation that allowed employees to voluntarily consent to the potential analysis of individual data in a jointly defined area would facilitate more targeted coaching. In addition, company agreements could for instance regulate which types of data cannot be analysed; technical solutions could be employed to prevent management from accessing these types of data.

▪ **Government can make an important contribution to promoting lifelong learning by providing appropriate support for the efforts of companies and employees where it is able to do so:**

- A cross-industry national skills monitoring scheme²³ could help to anticipate when new technologies will make the breakthrough into widespread use, so that

companies and lifelong learning providers can develop targeted professional development measures more quickly. Benchmarking could be carried out to establish the current technology status (i.e. the position of different countries with regard to different technologies) and to provide information/allow conclusions to be drawn about the regulatory frameworks for lifelong learning created by the leading nations.

- Central and regional government should strengthen higher education institutions in their “third mission” and in the field of executive education in order to support knowledge transfer, particularly for SMEs, on issues connected with the digital transformation and to develop the relevant lifelong learning provision.
- Higher education institutions should make more targeted use of the digital transformation’s potential in order to make their academic expertise available in digital lifelong learning formats.
- Ensuring that the theme of learning fitness is already addressed in schools and higher education institutions will lay the foundations for successful lifelong learning.
- The federal government could support scientific research targeted at identifying new approaches in the field of lifelong learning in the digital transformation. The programme could provide robust information about the effectiveness and mechanisms of action of the relevant measures and ensure that they were widely disseminated.

23 | acatech, the Federation of German Industries (BDI) and the Hans Böckler Foundation are currently working together on a pilot national skills monitoring scheme. The initiative is funded by the Federal Ministry of Education and Research.

4 Employers and works councils in changing times

4.1 Status quo

On the whole, co-determination in Germany operates in a very constructive and responsible manner. It is one of the factors that have contributed to the success of the social market economy, which has recently shown itself to be a robust model during times of economic crisis, not least compared to Germany's European neighbours. Cooperation with the social partners is characterised by a high degree of reliability in a system geared towards the collective representation and enforcement of employees' rights. Works councils are important partners for companies, playing a valuable role in the business. By providing input on and helping to shape the company's business strategy and the decisions that follow from it, they ensure that the organisation's business imperatives are compatible with fair and sustainable employment. Company-level employee representation and co-determination enable employees to participate and have a say in the business and can help to increase acceptance of planned measures among the workforce. They also build trust during innovation and change processes and promote harmonious industrial relations. Furthermore, companies with works councils have lower staff turnover rates.²⁴ The German company-level employee participation model is not found in the same form anywhere else in the world.

Germany's co-determination system today – from the establishment of the first works council bodies to its legislative manifestation and the definition of specific breaches of co-determination law – is largely based on laws that have seen little change since the 1970s. Even after the most recent reform of the German *Betriebsverfassungsgesetz* (Works Constitution Act) in 2001, the current regulations on company-level worker participation continue to be based almost entirely on the original model of (large-scale) enterprises during the German economy's industrial era. The vast majority of amendments are the product of the labour courts' fundamentally pro-co-determination interpretation of the law. As a result, the changes associated with the digital transformation – such as economic globalisation and interconnectedness – often clash with companies' existing co-determination structures and the way that their mechanisms are interpreted

and implemented. New business models, modern forms of work and work organisation (e.g. the matrix organisation) and the digitalisation of existing processes frequently come into conflict with co-determination's more process-oriented, formal and inflexible regulations. This can stand in the way of faster and better innovation, the need for more flexible ways of working and companies' freedom to take the necessary measures.

4.1.1 Challenges

The working group identified the following challenges in this area:

- Based on a broad understanding of responsibility, the German co-determination system has always served to ensure that companies' interests remain compatible with the interests of employees. At a time when the challenges are greater than ever, it is therefore necessary to safeguard the instruments of co-determination while at the same time making sure that they can be adapted so that they can continue to be effective in the future.
- Especially during times of crisis – but by no means exclusively – all the stakeholders stand to benefit from fair agreements that result from this.
- As far as digitalisation and changes in the workplace are concerned, the future will also be radically different during innovation phases. As a result, co-determination too will face new challenges – just like the companies of tomorrow, as society changes, co-determination will also have to prove that it still has a role to play. In other words, co-determination will need to adapt to the changing requirements of the world of work.
- The main challenge for everyone involved is therefore to work towards an appropriate co-determination model that is fit for the future, in which the tried-and-tested methods of the past coexist alongside new approaches that can meet the growing need for greater flexibility. This will require a form of cooperation between employers and employees that reflects this transformation in our society and the growing pace of change. It will, for example, need to facilitate disruptive changes in businesses without leaving people at the mercy of the "power of algorithms". At the same time, it will help to ensure greater compatibility between technological and social progress.
- Germany's current co-determination culture is characterised by an exclusively collective approach to worker participation that dates back to the era of industrial mass production. However, modern forms of employment demand greater autonomy, creativity and responsibility of employees. This

24 | See e.g. Frick et al. 1999.



includes the need for workers to assume more individual responsibility than in the current co-determination culture, where they hardly ever have to do so. It is important to understand that the greater autonomy and individual choice called for by employees – which are both desirable and necessary in the context of flexible working models – go hand in hand with greater individual responsibility. After all, it is the employees who are the real experts on the work that they do. Young talents in particular are increasingly calling for this individual responsibility and often find it hard to understand what they see as the “protective attitude” of many of the regulations established through co-determination.

- At present, co-determination in Germany overlooks these changing needs and continues to be geared towards the “typical employee” at the time when the co-determination system was first introduced. As a result, it fails to adequately reflect the growing differences in the needs that employees have in this area, even within the same company. Incidentally, this very real need to differentiate between different types of employee can be seen in the increasing efforts of the major trade unions to appeal to new groups such as academics. However, the way that co-determination is currently implemented and the make-up of the elected representatives and the bodies that they sit on does not properly reflect these differences in the workforce. In practice, many organisations now have parallel structures where modern organisational models sit alongside more conventional ones. For instance, although many large enterprises still retain their traditional product and service businesses, in response to huge competitive pressure they are also investing heavily in start-up-like organisational units that are explicitly charged with producing different products with different people using agile processes and structures.
- Particularly in transformation and change processes, it is necessary to take a fresh look at how business requirements can be met without harming employee interests. Consultation procedures should be restructured in a way that allows both sides to devote more time to working together on targeted regulations aimed at specific groups rather than rigid formal procedures that take up a lot of time and resources. An additional challenge is that the court rulings that are traditionally required before any changes are made to the co-determination regulations are increasingly based on extreme scenarios and therefore frequently lose sight of the original “spirit” of the law. One example is the way that Article 87 of the German *Betriebsverfassungsgesetz* (*BetrVG*, Works Constitution Act) is interpreted – it has now become purely a question of whether it is technically possible to use a given IT system for

employee surveillance purposes, rather than what the system is actually used for in practice. The current depth of regulation only serves to reinforce this tendency.

In summary, a reform of the German co-determination system is required so that it is better able to respond to competitive requirements and cater to employees’ changing values. This reform should address the following points:

- its ability to provide different solutions for an increasingly diverse workforce,
- its procedures and the structure of its various bodies,
- the IT tools that it employs and the associated regulations, e.g. with regard to document authenticity, signatures, circulars, etc.,
- enabling co-determination bodies to keep up with the constantly growing IT know-how requirements, and
- its basic attitude towards individual employee choice, responsibility and direct participation rights. This also raises the question of how the existing employee representation system can be supplemented with opportunities for more direct employee involvement. In this area, too, it would be useful to break new ground without unnecessarily throwing out all the tried-and-tested methods.

New forms of work and organisation have different requirements, all of which must be catered to. The one-size-fits-all approach of the current co-determination system is no longer suitable for the diverse ways of working that will exist in the future. The changes taking place in our society mean that if companies wish to attract and retain employees, they have no option to offer them more individual choice with regard to their working conditions (where and when they work, how they are paid, etc.) and to ensure that industrial relations are handled in a pragmatic manner.

4.1.2 Potential solutions

- **Working together as partners in the company’s interests:** In the future, co-determination culture should be based on a more tangible understanding of the need to work together creatively as partners. Both parties should see each other more as partners who share common goals, in a relationship based on cooperation rather than confrontation.
- **Constructive cooperation:** The current co-determination culture all too often focuses on reactively solving conflicts of interest as and when they arise. Constructive, forward-looking cooperation, on the other hand, concentrates on jointly initiating and facilitating initiatives that look to the future and are in the interests of both employees and the company.

- **Framework regulations and remembering the regulations' original purpose:** A modern social partnership should be characterised by greater flexibility in the areas traditionally regulated by co-determination and a shift in focus away from highly detailed regulation and towards more general framework regulations. These should concentrate on a themed approach. Thinking in terms of themes rather than in terms of participation procedures will create space for innovation and allow the necessary flexibility in highly dynamic phases and areas of transformation.
- **Individual responsibility and self-reliance as counterparts to the greater flexibility and freedom to organise their own work that employees are calling for:** Modern co-determination must do more to empower the individual, giving them both greater freedom to make their own decisions and more responsibility. At the same time, it must also afford individuals appropriate scope to implement measures on their own initiative, without reducing employees to mere productivity factors in the process. This means that it will need to constantly strike the right balance between established collective protection mechanisms and modern, responsibly framed individual freedoms.
- **Create opportunities for joint creativity and experimentation from an early stage:** In order to meet the digital transformation's need for flexibility, co-determination culture must evolve so that the early involvement and active engagement of works councils becomes a matter of course in their partnership with management. Since one of the requirements of the digital transformation is a significant increase in individual freedom and choice, over-regulation can often hinder the necessary changes and the ability to adapt to local requirements and local organisational structures. Rather than confining experimentation to new business ideas and products, it should also be encouraged for new ways of putting co-determination into practice.
- **Allow employees to actively manage the way they work – more direct participation:** Work 4.0 requires active engagement, cooperative partnerships and more transparent discourses. Co-determination must allow more space for genuine participation and self-organisation. In this context, participation refers not only to involvement in the final decision but also to the entire process of improved information, communication and knowledge sharing leading up to the point where a joint decision is taken.

The following section takes a closer look at some aspects of these issues using the example of works councils' co-determination rights concerning the introduction of IT tools and workplace equipment.

4.2 Shaping co-determination procedures – from preventing abuse to monitoring for abuse

Modern workplace equipment with IT tools that enable higher productivity is critical to successful cooperation and communication in interdisciplinary teams with members in different locations. Co-determination procedures need to be modified in order to allow new software-based tools to be introduced and used more flexibly and rapidly. In an agile working environment, co-determination should concentrate on the introduction of tools that are specifically intended for monitoring employees' behaviour and performance rather than on any IT tools that are technically capable of being used for this purpose. In the event of these tools being abused, the works council would naturally still have all the usual protection instruments at its disposal.

The Workplace Ordinance (*Arbeitsstättenverordnung*) must also be modified so that employees who voluntarily request to work from home (some or all of the time) are at least partly responsible for their own health and safety when using the equipment provided by their employer (e.g. teleworking stations).

4.2.1 Challenges

In many business areas, digitalisation makes it possible to add value anytime, anywhere. In order to do so, it is absolutely essential to have access to the relevant IT equipment and a connection to the company's systems. Despite already being a reality, this new way of working is constrained by the current statutory regulations (*Betriebsverfassungsgesetz*, *Datenschutzgrundverordnung*, regulations on false self-employment) which hamper innovation and productivity in all sorts of ways for employers and employees alike.

A wide range of IT systems can now be provided and downloaded (often at no cost) in order to facilitate efficient and modern ways of working. However, before these systems can be used, they must first comply with a regulatory process designed to protect workers against performance and behaviour monitoring, even when the IT systems are not intended for this purpose at all. According to the current regulations, before IT tools can be



used by a company they must first be approved by the works council. This acts as an obstacle to the use of shared communication and collaboration tools for specific situations and tasks when working with external partners or in projects.

The current co-determination system fails to cater to the growing calls from employees for more individual responsibility and freedom to organise their own work, and for their own individual interests to be taken into account (data autonomy, "Bring Your Own Device"). The preventive approach of many of the rules established through co-determination (protection against surveillance, data protection, protection against behaviour and performance monitoring) can sometimes stand in the way of employees' individual autonomy and choice. This approach only serves to significantly complicate and delay the deployment of software solutions that are individually available to and used by employees (in their private lives) and that they are familiar and comfortable with. Before the use of such solutions is "approved",

they must first be regulated in the same level of detail as matters that apply to the entire organisation.

As a result of digitalisation, the place where employees perform their work is becoming less important than the results that they deliver. As long as they have access to the relevant information and communication technology, this means that employees can work flexibly without being tied to a particular location. However, the German *Arbeitsstättenverordnung* (Workplace Ordinance) makes no distinction between the official office workplace stipulated in an employee's contract of employment and a workplace that they have freely chosen themselves. This means that the employer is still responsible for ensuring that the relevant ergonomic standards are met in the employee's freely chosen (mobile) workplace. The resulting requirement for the employer to provide ergonomic equipment for wherever the employee chooses to work and to regularly inspect and carry out a risk assessment of the location in question only serves to hamper flexible, autonomous working.

Examples from business

Example	Vision	Areas requiring action
<p>Flexible use of IT tools: Andrea would like to work on some data together with the other members of her project team. But Martin is an external worker who does not have access to the company's systems, while Mehmet is out of the office. Since the company can only use IT tools that have been approved by the works council and no suitable solution is currently available, Andrea uses Dropbox for exchanging data, together with a free version of the SLACK collaboration tool. However, by doing so she is in breach of the company and statutory regulations.</p>	<p>All members of the project team can use a shared platform that can be accessed from both inside and outside the company. In addition to data exchange, the platform fully facilitates all the activities involved in the project (communication, collaboration, etc.). Data retention and privacy are clearly regulated.</p>	<p>Co-determination: The co-determination regulations regarding the introduction and use of IT tools should be modified so that they can be introduced faster and in a targeted manner. In particular, this means that co-determination procedures should concentrate only on the introduction of tools that are designed to monitor employees' behaviour and performance rather than on tools used for communication or collaboration.</p>
<p>Working from home: Martin would like to work more flexibly and work from home more often. The company has a collective agreement on working from home, but this restricts his freedom to choose where he works rather than strengthening it. Moreover, Martin doesn't want office furniture from his company standing around in his house and would rather not have the health and safety people coming round to carry out an inspection. However, he has heard that if he doesn't accept this he may not have accident insurance cover.</p>	<p>Employees have extensive flexibility to choose where they work. Their contract of employment does not stipulate that they must be in their official workplace to benefit from adequate accident insurance cover. The company's responsibility to ensure appropriate ergonomic standards in the workplace is confined to company premises.</p>	<p>Arbeitsstättenverordnung (Workplace Ordinance): The employer's duty to carry out risk assessments should be confined to locations that are under the company's direct control.</p>

Example	Vision	Areas requiring action
<p>Modern workspace concepts: The sales team led by Andrea wins a new customer who wishes the company to develop an innovative IT solution for them. The project team – comprising employees from different parts of the company – needs to be able to work together in a focused manner. To this end, Andrea organises a creative room where the team can work over the next three weeks. The current regulations make no provision for working in project or creative rooms on a long-term basis. Since the demand for project-based work is set to increase, collaborative spaces will gain in importance compared to fixed workplaces. Modern workspace concepts include desk sharing, lounges for informal discussions and project and creative rooms designed to facilitate productive working. Even though the introduction of desk sharing and flexible room modules is not subject to co-determination, the company-level employee representatives must still be involved in the setting up and use of different workspace concepts. If several organisations belonging to one or more companies share the same building, the situation may be further complicated by the involvement of different company-level employee representation bodies (works council, central works council, group works council). In addition to the delays that this causes, it can also make it impossible to establish a single regulation.</p>	<p>The law permits the long-term use of “future work” room modules (e.g. creative rooms, lounges and open spaces) for carrying out every day work.</p> <p>Clear and easy-to-understand regulations exist regarding the assignment of (local) co-determination responsibilities to the various works council bodies.</p>	<p><i>Arbeitsschutzgesetz/Arbeitsstättenverordnung (Safety and Health at Work Act/Workplace Ordinance): precise interpretation and clearer wording</i></p> <ul style="list-style-type: none"> ▪ Wider definition of the term “workplace” to include e.g. “project and creative rooms”. ▪ Clearer wording of vague legal concepts, e.g. § 4 of the German <i>Arbeitsschutzgesetz (ArbSchG, Safety and Health at Work Act)</i>: “Employers should ensure that health and safety measures reflect the latest technology and occupational medicine and health advice, as well as any other evidence-based ergonomic recommendations.” <p>Clearer and more precise wording of the German <i>Arbeitsschutzgesetz</i> and <i>Arbeitsstättenverordnung</i> (Safety and Health at Work Act and Workplace Ordinance) along the above lines would mean that companies would no longer need to adopt separate regulations for modern workspace concepts – all of them subject to separate co-determination procedures – concerning the prevention of accidents at work and occupational diseases and for the protection of health (§ 87 Abs. 1 Nr. 7 BetrVG). The health and safety authorities would continue to monitor compliance, just as they do at present.</p> <p>Responsibilities of works council, central works council and group works council (§ 50 BetrVG/ § 58 BetrVG): Where central and/or group works councils also exist, it is recommended that the regulations should be expanded to include clear statutory assignment of responsibilities to a single body.</p>



4.2.2 Potential solutions

In order to enable flexibility and the availability of modern workplace equipment – including the rapid and targeted introduction and use of agile IT tools – it will be necessary to modify both the co-determination regulations and the German *Arbeitsstättenverordnung* (Workplace Ordinance), whilst retaining the relevant social checks and balances to protect employees and monitor for abuse.

Changes to co-determination rules on IT tools

§ 87 Abs. 1 Nr. 6 BetrVG

In general terms, there is no reason why the introduction and use of IT tools or technical equipment should be subject to more extensive co-determination rights than any other type of tools and equipment. The only case where additional protection is required is when the data acquired or processed with these tools is used to monitor employees' performance and behaviour. In other words, co-determination should focus on how the tools are actually used in practice rather than on whether they could potentially be used to monitor performance and behaviour.

Accordingly, co-determination should concentrate on the fundamental design of IT tools, the purpose for which data is collected, processed and used, data security, and the establishment of a general framework, and not – as is usually the case at present – on individual tools and IT systems even when these are not in any way intended for monitoring employees' performance and behaviour. The focus of co-determination needs to shift away from preventing abuse and towards monitoring for abuse. Businesses should therefore have the freedom to experiment with new technologies and IT tools and be able to introduce them rapidly if the trials are successful.

Protection mechanisms: If it proves impossible to reach an agreement on the introduction of IT tools, the final decision will continue to rest with the company arbitration committee in order to ensure that the tools will not be abused. In addition, the works council will still have the legally enforceable right to apply

for an injunction from the labour courts in the event of an employer being in serious breach of its obligations under the German *Betriebsverfassungsgesetz* (Works Constitution Act).

Changes to the German *Arbeitsstättenverordnung* (ArbStättV, Workplace Ordinance)

§ 3a Abs. 1 ArbStättV

Mobile working calls for greater flexibility in the shape of flexible working time models and the corresponding strengthening of employees' freedom to make their own decisions via a double opt-in. This would involve obtaining the explicit consent of both employers and employees which could furthermore be withdrawn at any time. Potential solutions might include employers agreeing to transfer decision-making responsibilities to employees and project teams so that they can decide for themselves whether they wish to individually opt out of the established regulations on workplace design and IT equipment. The greater freedom that employees gain from digital working in any location must be accompanied by greater individual responsibility that also encompasses matters relating to their health and safety.

Especially in cases where employees voluntarily request to work from home (some or all of the time), the Workplace Ordinance should be modified so that they are partly responsible for their own health and safety when using the equipment provided by their employer (e.g. teleworking stations). In order for employers to ensure that mobile workers (also) enjoy a level of protection comparable to the standards that are required in-house, they must keep employees informed about the potential health hazards in their (mobile) workplace and the relevant ergonomic requirements, for instance through training courses. Whether and how the employees implement this information in their mobile workplace would then be up to them.

Opt-in based protection: A voluntary opt-in consent model enables employees to decide for themselves where they work (at least some of the time). They can be provided with the necessary health and safety know-how for mobile working through training courses, for example.

Insight into company practice



Innogize Our Work (IOW)-Werkstatt at innogy

innogy has established the *IOW-Werkstatt* to trial relevant agile working scenarios. This factory is a physical space where teams can experience different work surroundings and agile methods in an experimental environment for a limited period of time. Its aim is to jointly trial the different scenarios with the teams (under expert guidance), focusing on the following four dimensions: "Working Environment", "People Behaviour", "Technology" and "Principles & Regulations". The scenarios can then be evaluated in terms of their impact on factors such as productivity, health and flexibility. The IT tools are selected to facilitate an agile working culture based on the principle of Activity Based Working. This means that instead of resources being allocated in a hierarchical fashion, employees are provided with the relevant tools and equipment and an appropriate working environment for whatever their current activity may be.

The factory provides a "safe" test room where the social partners and the company can jointly test how agile working formats (collaboration and communication) and methods and situation-specific IT tools work under "operating conditions". The resulting insights are used to develop scalable solutions for innogy that are explicitly based on the company's own experience and best practices ("learn and scale"). The results of this joint learning process can be scaled up to the rest of the company and provide the basis for any necessary regulations.

As for the employees themselves, workshops, discussions and training sessions not only provide them with greater freedom and individual responsibility but also serve to raise awareness (e.g. about IT security) and teach them methodological skills.



4.3 Innovation-oriented co-determination – examples from practice

Insight into company practice



Mitbestimmung^{PLUS} at Deutsche Bahn – shaping the future of work through new forms of cooperation between employer and employee representatives

In order to bring co-determination up to date with modern ways of working, Deutsche Bahn has established a group-wide project called *Mitbestimmung PLUS*. The project's aim is to establish an equal partnership and dialogue in order to shape the future securely and appropriately on the basis of jointly agreed principles. To this end, the group works council and the Member of the Management Board for Human Resources jointly called on the company's employees to put forward proposals for new forms of cooperation between employer and employee representatives.

A jury comprising equal numbers of employer and employee representatives assessed the submitted proposals and created a working group in which both sides are also equally represented. The proposals were divided into different priority themes and a set of criteria formulated for the development of prototypes. Each prototype focuses on one concrete measure (clarity) that is legally and practically feasible (practicability), will deliver lasting results at reasonable cost (effectiveness) and addresses several related issues (transferability).

The priority themes are the digitalisation of co-determination procedures, the establishment of new co-determination formats (including agile participation models, for example), a new understanding of the roles of employer representatives and works councils, direct employee participation/involvement, and personalisation. A format allowing the proposers of the ideas to participate in the development process was also created. Academic support for the project is provided by the Hans Böckler Foundation, while an external facilitator is assisting with the individual development stages.

Carried out in a spirit of openness and trust, this process is enabling employer and employee representatives to develop together in a structured manner so that the company's social partners and its entire workforce can benefit from a DB group that is fitter for the future. Preparations are currently underway for testing the first prototypes under "real operating conditions".

Insight into company practice

DAIMLER

Mobile working at Daimler – a participatory initiative between management, the general works council and IG Metall

Flexible – and in particular mobile – ways of working are an important issue for companies' HR policy and organisational structure. With the intention of reaching an innovative, open-ended Group-wide agreement covering the whole of Germany, Daimler's top management launched a highly participatory joint initiative in 2015 together with the Group's General Works Council and the IG Metall. The design, methodological implementation and expert support for this extensive participatory process were carried out by the Fraunhofer Institute for Industrial Engineering IAO.

The initiative was triggered by the results of an IG Metall employee survey in 2013 which revealed that the workforce regarded mobile working as an extremely important issue. The Group's General Works Council interpreted this finding as a mandate to negotiate a new fundamental approach to this question. Management was also keen to create innovative, modern working conditions that meet the needs of both employees and the business.

The participation process began with a written survey of more than 80,000 employees and executives throughout Germany. This was followed by 37 workshops covering all the company's sites, where the concrete content of the Group-wide agreement was discussed with more than 1,000 employees. The process was supported by extensive communication within the company, including an open

discussion between employees on the company Intranet. It was notable not only for the strong employee engagement but also for the consistently positive cooperation between the employer and employee representatives during the drafting of the survey and organisation of the workshops, with both sides working as partners throughout the entire process. Moreover, employees were given extensive opportunities to contribute their own experiences.

This representative process provided a sound basis for the subsequent negotiations. It was clear that the content of the new Group-wide agreement would differ from the collectively agreed regulations on working time and would therefore also have to be signed by the parties to the collective agreement. In addition, it should also provide a benchmark for other companies. As a result, the IG Metall was involved throughout the entire participation and negotiation process.

The close cooperation continued after the Group-wide agreement was adopted in 2016. Meetings were held at almost every site so that the HR managers and works councils could explain the agreement to interested members of staff. Once again, there was huge interest among employees and the meetings were quickly booked out.

The Group-wide agreement will expire after two years, at which point it will be re-evaluated.



Insight into company practice



Munich Re – innovation-oriented development of in-house regulations in partnership with the works council

Empowered employees are the real experts when it comes to shaping the way they work. In keeping with this principle, over the past few years Munich Re has worked with the works council to systematically develop its own in-house regulations. In addition to the agreements on working conditions in the Innovation Lab (see Chapter 2.2.1), the following company agreements have also been concluded:

Company agreement on mobile working (2015)

This agreement permits occasional working outside of the office, generally using mobile devices. Mobile working time is recorded and booked using the Employee Self Service (ESS) tool. Mobile working can be combined with working in-house.

Company agreement on working from home (first adopted in 2005, updated in 2015)

The goal of this agreement is to allow Munich Re employees to regularly work from home for up to four designated days a week, on a contractual basis. This makes it possible to combine working from home and working in-house. Munich Re provides its employees with the necessary IT infrastructure

Company agreement on flexible working models (2015)

This company agreement provides for four different working models. Its aim is to help employees balance their work commitments with the challenges that they encounter at different

stages of their lives and to cater for individuals who wish to take a lengthy break from work, whilst at the same time giving consideration to the company's workflows and processes:

- Three-yearly sabbatical: This can be accrued by carrying over non-statutory holidays to subsequent years and means that employees do not have to forgo part of their wages.
- Conversion of 13th and 14th salaries into time off: Employees can take a full calendar month's leave if they choose to forgo one of their 13th and 14th salaries. In practice, this means that they can take up to two full calendar months off a year if they forgo both their Christmas and holiday allowances. This takes the form of an advance from Munich Re – the employee's salary continues to be paid during their period of leave and they accrue their entitlement to the 13th and 14th salaries that they have forgone once they return to work.
- Part-time work where the hours owed are made up afterwards: Employees can take a maximum of three months' partial or complete leave and make up the extra hours that they owe when they return to work. They receive a part-time wage for the entire duration of this period.
- Unpaid leave: A leave of absence agreement may be concluded between the company and an employee for a period of between three and six full calendar months. The employee's salary is not paid during this period of leave.

Insight into company practice



Deutsche Telekom – the first sectoral collective agreement on mobile working

The combination of advances in modern information and communication technology and a far greater degree of independence and individual responsibility among employees is increasingly making it possible for people to work in locations outside of their company. In 2016, Deutsche Telekom and the public services trade union ver.di concluded the first sectoral collective agreement so called *Telearbeit* for the telecommunication and IT industry, having reached agreement on a series of goals and regulations for mobile working. The parties to the collective agreement wish to provide a pragmatic framework for enabling greater flexibility with regard to where people work, in the interests of both employees and companies.

The goal of mobile working is to enable greater flexibility with regard to where work is performed, in order to:

- improve the quality and productivity of the work,
- increase job satisfaction and achieve better results by giving employees more freedom in relation to when and where they work,
- help employees to achieve a better work-life balance,
- improve companies' customer focus and competitiveness, and
- help to protect the environment.

Mobile working requires, promotes and enables a new level of flexibility on behalf of management and employees when it comes to deciding where people work. Accordingly, the collective agreement provides the basis for a dialogue between equal partners concerning company requirements and flexibility for employees, without patronisingly spelling everything out for them.

It also demonstrates that employers and the social partners can find constructive solutions and are prepared to work together in order to put people at the centre of the digital transformation and meet the associated challenges for employment and individual rights. It gives employees more freedom to decide for themselves where and when they work, a key factor in the successful transformation of the world of work.



4.4 Key messages

Companies cannot allow the methods that brought them success in the past to hamper their prospects of continued success going forward. Consequently, they must adapt and transform themselves so that they can meet the challenges of the future. The same applies to company-level co-determination. It has been a successful model for the German economy in the past, and it is for this very reason that it must continue to be developed so that it can remain effective in the future, in the face of major changes in the competitive environment and society as a whole.

- **A modern social partnership calls for a modern understanding of co-determination**

A modern social partnership should be understood as a secure and stable framework that strengthens autonomy, provides safeguards and thus fosters flexibility in the stakeholders' minds and in the relevant procedures. At the same time, future co-determination culture must also learn to "let go of the reins". This transformation can only be achieved through constructive cooperation between company-level employer and employee representatives and the social partners, who will have to stop thinking in terms of their traditional roles and abandon factionalism.

- **Company-level co-determination must be capable of adapting to the requirements of different organisational forms, employee groups and real-world cultures.**

In view of the growth in dualistic corporate structures that encompass both agile and more traditional organisational forms and require "ambidextrous" management, co-determination should consider adopting different regulations for different parts of a company. Innovative parts of the business could have a different co-determination culture to the more traditional parts; this ambidextrous approach would enable targeted co-determination that meets the needs of different organisational forms and ways of working. The goal should be to ensure that different personnel structures are properly represented in the relevant bodies – in other words, co-determination bodies should reflect the actual structure of the company's workforce.

- **Create co-determination procedures that promote the rapid and flexible introduction of IT tools and agile workplace equipment.**

As far as the introduction and use of technological equipment is concerned, company-level co-determination should concentrate only on those tools which are explicitly used to

monitor employees' behaviour and performance rather than on any tools that could theoretically be used for this purpose. Modern co-determination should not simply focus on the introduction and use of all IT tools, regardless of whether behaviour and performance monitoring actually takes place. Instead, it should concentrate on how the data obtained through these tools is employed and take a more nuanced approach to determining which other purposes it may subsequently be used for. This will require modification of the relevant co-determination legislation.

Furthermore, flexible value creation which is not tied to a particular location will necessitate changes to the German *Arbeitsstättenverordnung* (Workplace Ordinance), so that employees who voluntarily request to work from home (some or all of the time) will be at least partly responsible for their own health and safety when using the equipment provided by their employer (e.g. teleworking stations).

- **Allow experimentation to facilitate controlled reform and changes to the co-determination system.**

The openness to change that is so important to the success of the digital transformation cannot be achieved without processes that make this openness possible. Accordingly, it is necessary to develop a more targeted co-determination culture and create more flexibility with regard to experimentation in the relevant collective agreements and legislation; genuine company-level co-determination should be strengthened and there should be fewer new regulations. Spaces should be created to try out experiments with different target groups that act as large-scale field tests for alternative forms of co-determination. It is also important to ensure that the results have the potential to serve as a model for others. This is critical to the development of a new co-determination approach that is not framed by the traditional confrontations between powerful employers and weak employees. Models that create genuine freedom should be trialled.

- **Combine the work of elected representatives with increased direct employee participation in decision-making processes, in response to the growing calls for this type of involvement.**

The existing social partner structures should be supplemented by strengthening existing forms of direct employee involvement in formulating demands and in decision-making processes, for example through project or group work. This will require a greater readiness to delegate responsibilities to the relevant groups.

- **Encourage a greater focus on the big picture among the public and employees – successful companies are essential for everyone.**

The current statutory regulations and co-determination obligations are standing in the way of both the flexibility demanded by the digital transformation and of innovation. As well as striking a balance between companies' commercial success and employees' interests, future co-determination culture will also need to recognise that the new market conditions, constantly changing competitive environment and fundamentally faster rate of change all form a key part of the big picture.

- **Accelerate processes and be bolder about using agile methods.**

Existing voting procedures and process sequences require modern digital IT support. They also require widespread digitalisation and mobilisation of the necessary tools, together with a bolder approach towards the use of agile, iterative

co-determination procedures and regulations that are only temporarily applicable. This includes reviewing the requirement in the German *Betriebsverfassungsgesetz* (Works Constitution Act) for concertation to take place in the presence of the social partners. Furthermore, works councils should be allowed to take decisions electronically, either by e-mail or via the Web, and the use of videoconferencing should be permitted for committee meetings.

- **Establish a legal basis for significantly faster decision-making processes.**

In an increasingly dynamic business environment, there is more pressure on companies to respond and take decisions as quickly as possible. In order to help safeguard the position of German industry and ensure efficient cooperation, company-level co-determination procedures should also be accelerated. To this end, a general regulation on accelerating procedures should be incorporated into the German *Betriebsverfassungsgesetz* (Works Constitution Act).



Glossary

Arbeitnehmerüberlassungsgesetz
Arbeitsschutzgesetz
Arbeitsstättenverordnung
Arbeitszeitgesetz
Betriebsverfassungsgesetz
Datenschutzgesetz
Künstlersozialkasse
Sozialversicherungsgesetz

AÜG
ArbStättV
ArbZG
BetrVG

Labour Leasing Act
Safety and Health at Work Act
Workplace Ordinance
Working Time Act
Works Constitution Act
Data Protection Act
Artists' Social Insurance Scheme
Social Security Law

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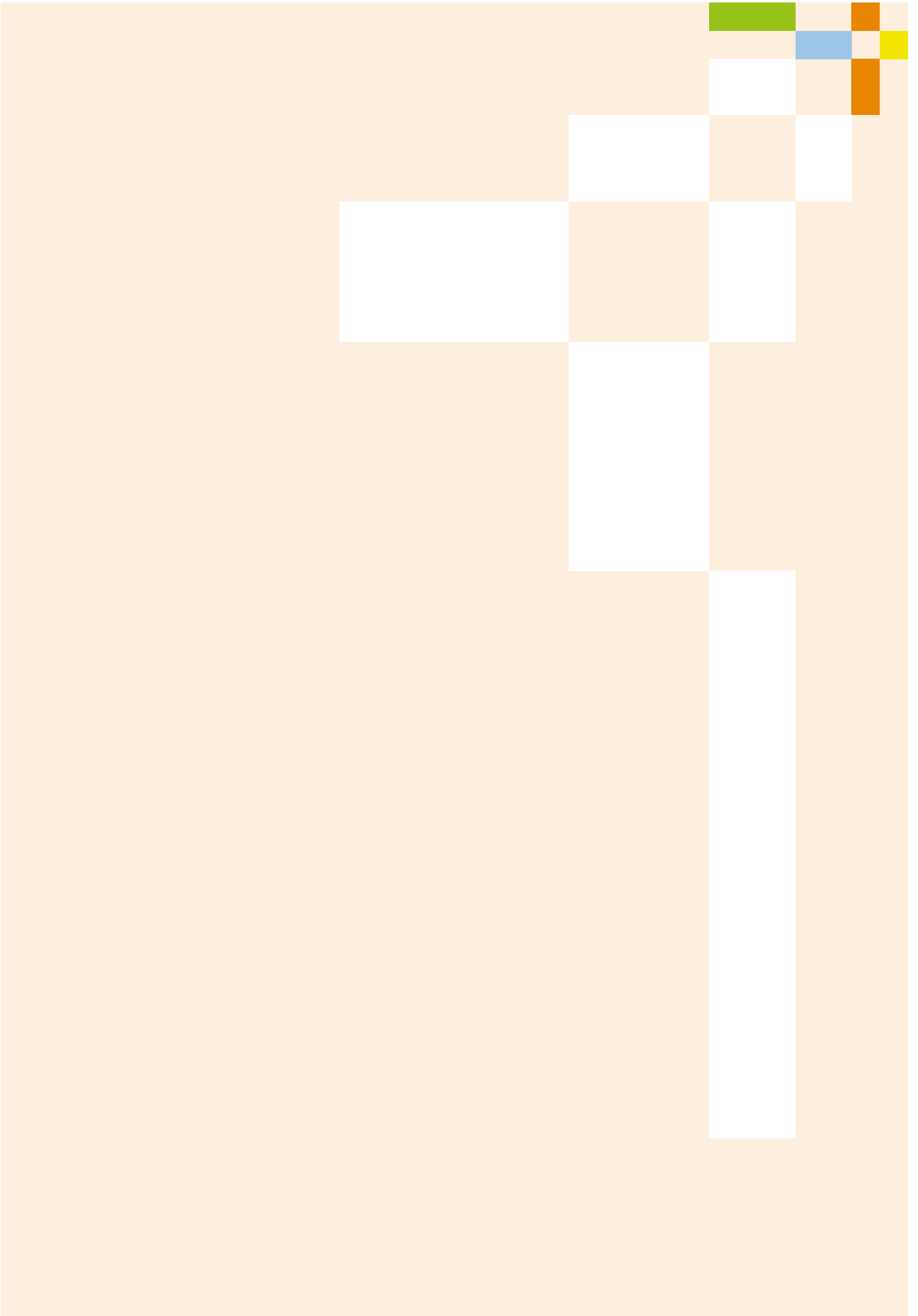
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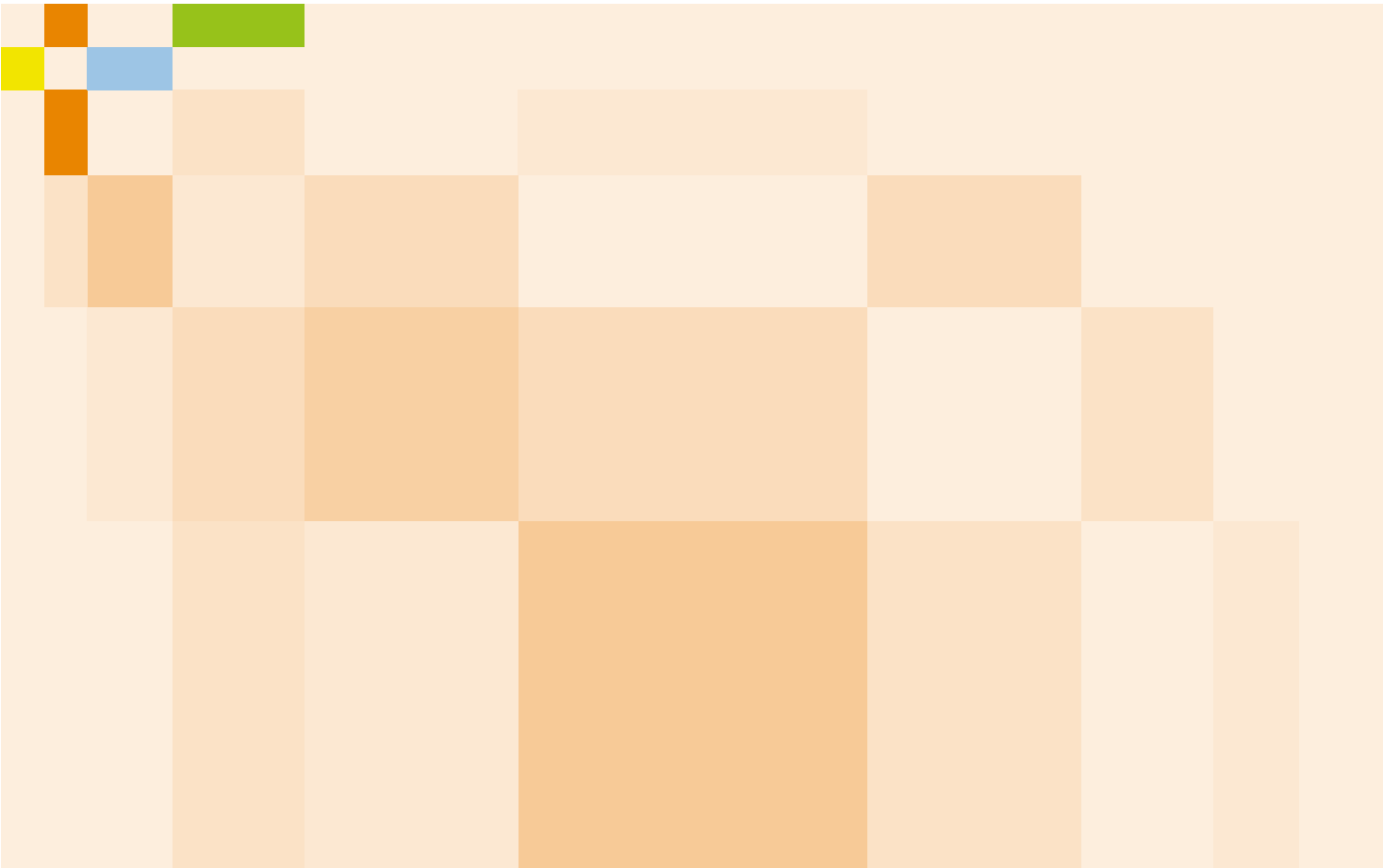
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The digital transformation will result in fundamental changes to work and organisational processes within companies. These changes must be shaped in a way that benefits businesses and employees in equal measure. The *HR-Kreis* (HR Working Group) – a forum for Human Resources Directors and academic experts created in 2014 by acatech and the Jacobs Foundation – identified three aspects that are critical to this goal: organisational agility, a wider understanding of lifelong learning and the innovation-oriented development of company-level co-determination.

In this acatech DISCUSSION, the HR Working Group sets out the key challenges in these three areas and formulates proposals as to how corporate policy, statutory regulations and co-determination procedures can be developed in order to achieve a successful transformation. The observations in this report are based on the belief that employees should have their own individual say in shaping the digital transformation. This will require a new form of governance that promotes a willingness to embrace change and creates the freedom to experiment.