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Departing from the beaten track – trends of working in the digital transformation

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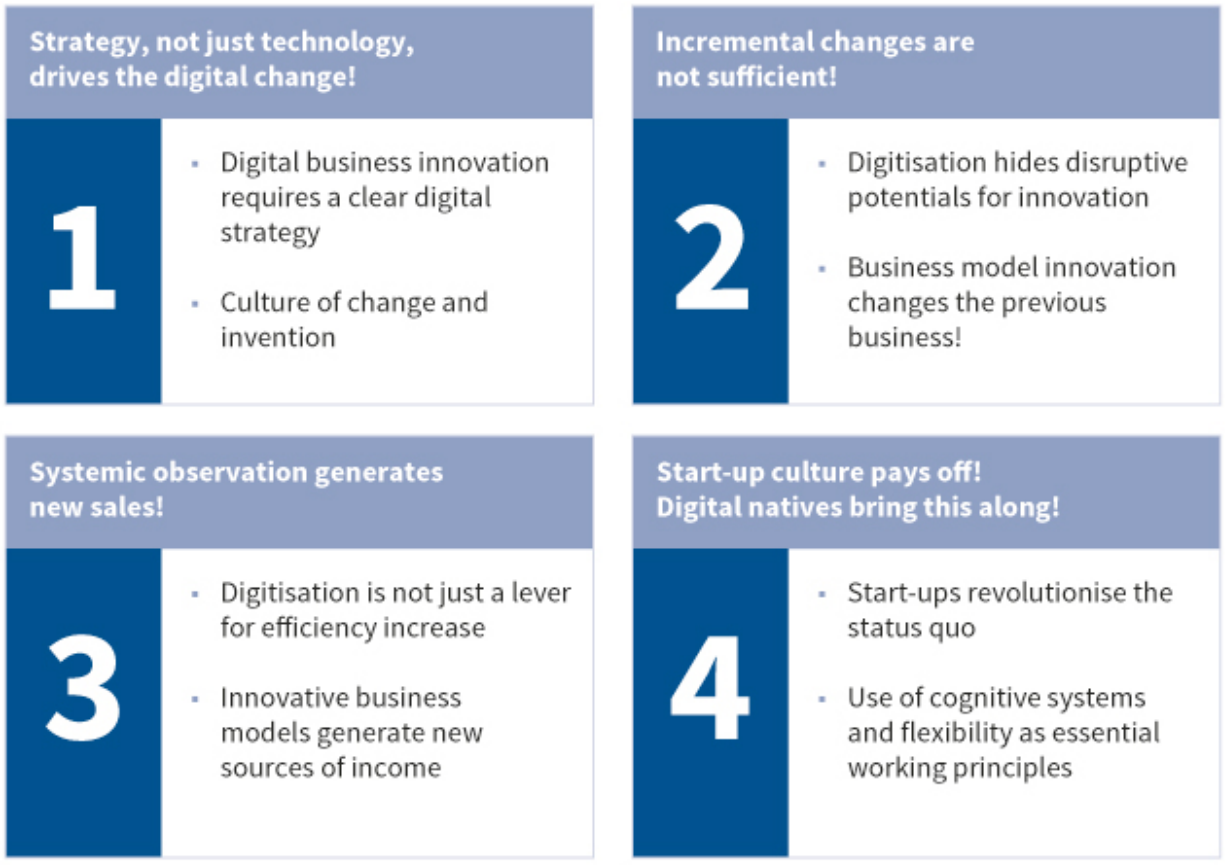
GUEST CONTRIBUTION Our economy and society are facing major challenges in times of digital transformation, demographic change and increasing globalisation – developments which are increasingly gaining momentum. Everything is becoming more volatile, many things are changing at an incredible pace – this holds many opportunities but also risks. This will also significantly change the way we live and work in years to come. For this reason, it is essential for all of us to deal with developments in this area. Frequently, we ourselves are the drivers of this development – whether as consumers, employees or entrepreneurs.

We are right in the middle of the process of digitisation of the real world surrounding us. Machinery, equipment, materials and product components are consistently interconnected – in 2015, the number of interconnected devices already exceeded the world population by a factor of three. In addition, technology is becoming increasingly data-based, intelligent and self-learning – and thus substantially and sustainably changes the way we work and live. Established methods, processes and structures are put to the test, and digitisation modernises and revolutionises them.

Digital data as the asset of the future

Digital data is a key driver of these developments. Although they are not physically tangible, they gain importance in mission-critical processes, for example, by ways of visualisation or by automated decision-making and controls. At the same time, digital data opens up a variety of opportunities to create and implement new business ideas – provided that the companies wade into this in good time. New digital platform solutions and business models rapidly increase the dynamics in traditional and new markets. The technologies, products and services developed in this context in turn lead to extensive, partly disruptive, changes in practically any industry. Companies and organisations are therefore well-advised to question and re-adjust their behaviour at all levels of value creation. In many companies the realisation has long since dawned that fundamentally new – especially radical – innovations outside of the old structures may not be compatible with the existing staff, and especially not in the traditional culture. Real innovations only arise in new contexts and in a different corporate culture. Companies must therefore become faster and more adaptable, and successfully establish innovations on the market in ever-shorter cycles. To this end, managers and employees must completely rethink, reinvent themselves time and again, overcome limitations, be closer to the customer and interact with many unfamiliar actors. In order to successfully take these transformation steps, the management must, however, first of all, make the right decisions and answer the following key questions (see Figure 1): How and where do you want to drive your business? How much would you have to invest in technology and IT and when? And where and with whom should you start?

Fig. 1: Levers in the digital age



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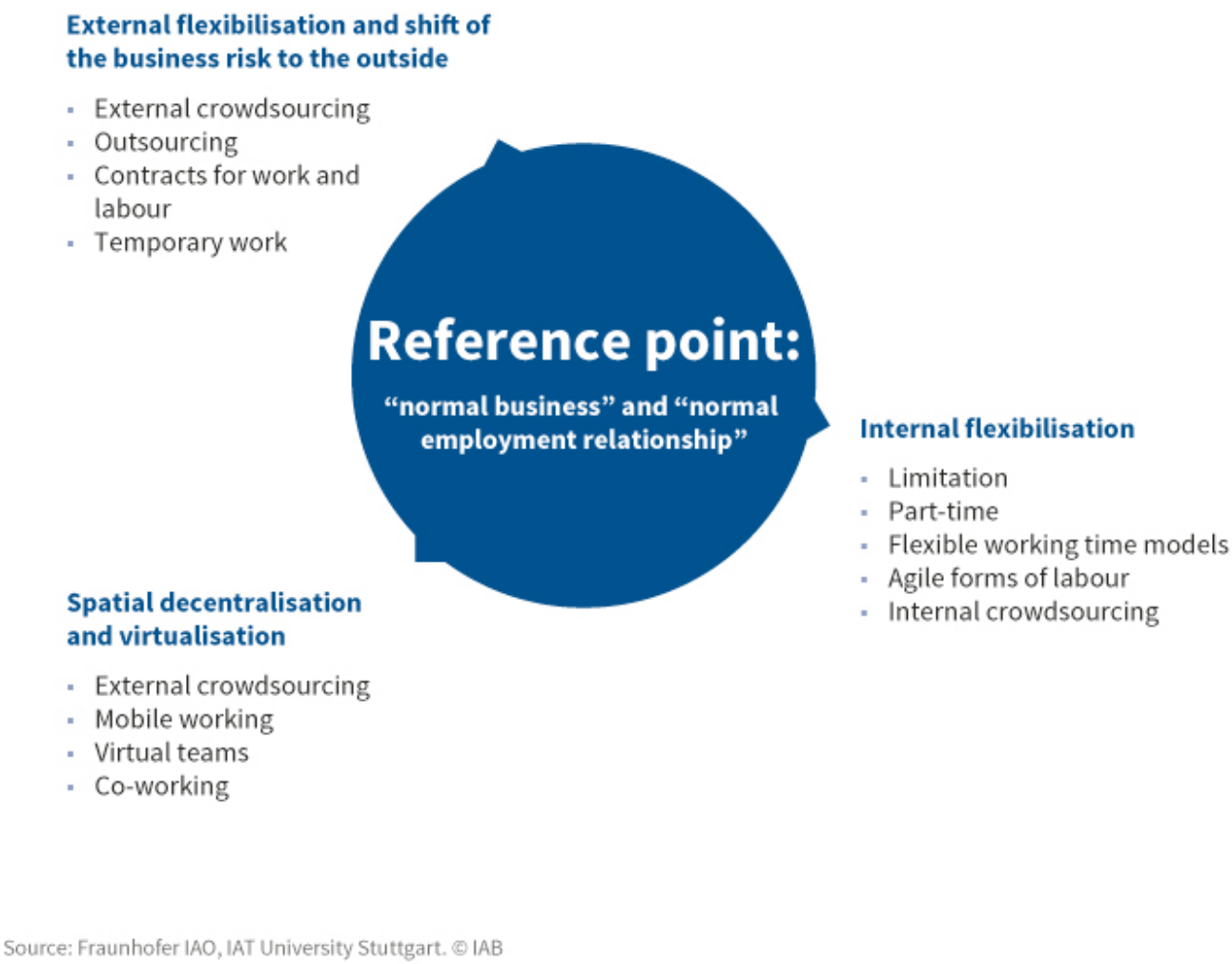
Artificial intelligence and flexibility as preconditions of work 4.0

These significant changes in the business of companies and in innovation and value creation also change the working world of the future. Two major trends are particularly relevant in this context: the increased use of cognitive systems and further flexibilisation of work (see Figure 2). On the one hand, data-based intelligent systems will continuously optimise our work.

Cognitive systems will intelligently support the staff in the factory and logistics. Hence, the digital “enablers”, for example, reduce the cost and effort for routine activities in production. With the further development towards cyber physical systems (CPS), machines, equipment, products, warehouses, tools and company IT will learn to communicate with each other and with employees.

Fig. 2: Dimensions of the flexibilisation of work



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Another example is the use of assistance robots in geriatric and patient care, which will greatly facilitate work in the wards of nursing care facilities and hospitals. However, the way

we work will also radically change in offices. Intelligent applications and systems assume more and more jobs, both in processing and highly qualified knowledge work. For example, the dissemination of intelligent, autonomously operating software systems ("bots") will skyrocket. On the other hand, businesses and administrations have an increasing demand for flexible labour capacity – geared to the needs of customers and citizens. They have an increasing demand for work being performed more flexibly – both in terms of working time and place of work. Balancing family and career but also work and leisure are becoming increasingly important, and there is a need for greater individual scope for a better work-life balance. It is therefore important to create a flexible framework in which employees and their superiors can agree on the best solution for both sides: working from one's home, working with varying times, also in the evening when this makes sense, sometimes on the weekend – and this not necessarily within a fixed working relationship but also as a freelancer. A real win-win situation can arise from this: for organisations due to motivated and creative staff, for employees themselves thanks to more freedom in the design of their work, their private life or even their further development in terms of lifelong learning. Working where, when and with whom you want? The technical prerequisites are already available.

The future needs (free) space

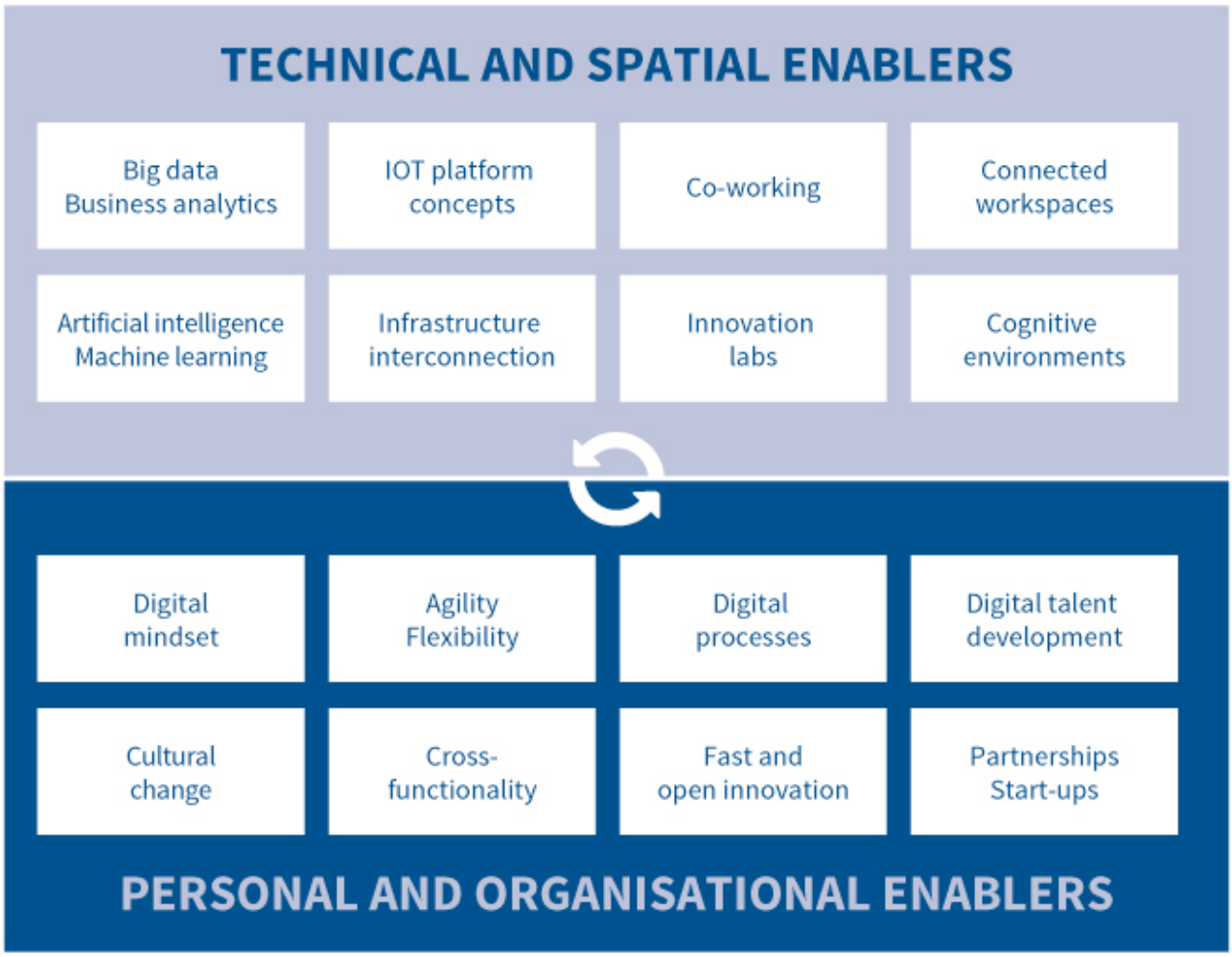
To shape the future, we need space – free space for individuals and teams, creative and experimental spaces for new ideas and developments, and learning spaces to acquire new knowledge, new methods and skills. These free and future spaces have to be funded but also organised. Important elements of this cultural change are experimenting with "being different", working in different places and in cooperation with representatives of other companies or research institutions – for example, in co-working centres, maker spaces and on- or off-campus innovation labs –, testing of cooperation via crowd work platforms or cooperation with companies from completely different industries. Whether new innovation formats such as hackathons, design thinking or other agile methods are used – what is essential in all of these forms is the intensive interaction with people from all walks of life providing their knowledge on selected topics and participating in creative processes – whether as a citizen or as a customer. Access and proximity to the customer are crucial – not only to understand the requirements which they themselves cannot yet formulate, and turn them into ideas for new business models, products and services, but also to be the one decisive step ahead in terms of customer access through portals and platforms. Free space does not mean chaos and total freedom, but the creation of appropriate conditions for creative processes. The resulting innovations, however, should not be random products but the result of consistent and sometimes quite controlled processes. In the course of the transformation, it is thus important to evaluate, try consciously, and implement

systematically and efficiently. When developing so-called cognitive labour environments, individual work settings through automated adjustment of, e.g., lighting situations or climatic preferences, will come about in the future. The aim is to stimulate the “digital nomads” in their work and increase their motivation, performance and sense of well-being.

Holistic concepts as a guarantor of success

In this case, the automation of routine processes and intelligent algorithms in some cases even allow new approaches and perspectives. For example, the analysis of big data and the visualisation of data make previously hidden correlations visible, which can give new impetus to our work. According to a recent study by the international personnel service provider Hays, for example, conceptual working is often still superimposed by routine activities in the area of knowledge work – activities that can be automated in the future. By using new technologies and methods, also the tasks and jobs will change in the future, qualification requirements will transform, previous jobs will be lost and new job profiles and job descriptions will emerge. The demand for highly qualified staff will greatly increase. Especially digital competence will be in more demand than ever as will be the ability to control complexity and human creativity. There is also a need for new offers and forms of training and further training on the part of the state and the companies. The individual employability will depend even more on the willingness to lifelong learning, for example, by using massive open online courses. To actually realise the desired advantages, we need holistic and individual concepts connecting technical, spatial, personal and organisational aspects in a sensible way (see Figure 3).

Fig. 3: Components of holistic digital transformation



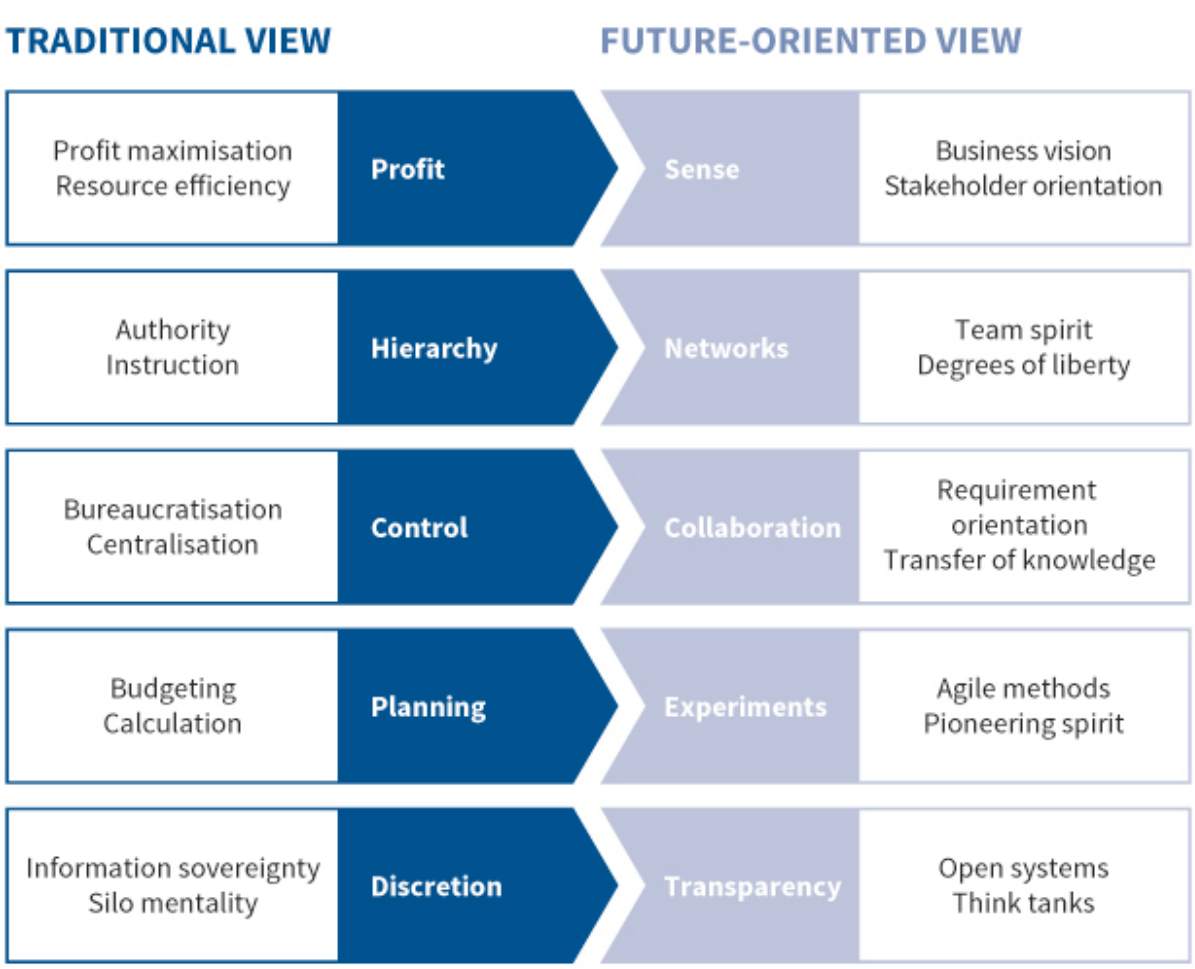
Source: Fraunhofer

Ambidexterity as revolution in organizational development

In the digital age, companies but also other organisations face the great challenge true to the motto “digital mindset matters” to develop, test and live a new culture of work (see Figure 4). This does not mean completely abandoning proven procedures and structures, but – in accordance with the success principle of organisational ambidexterity – complementing them

with agile elements in a targeted manner.
In a study published in 1996, Michael Tushman and Charles O'Reilly define organisational ambidexterity as the ability of an organisation to pursue radical and incremental innovations between the conflicting priorities of exploitation (expansion of the existing business, incremental innovation) and exploration (pioneering, radical innovation) at the same time.

Fig. 4: Reinvention of the working and business environment



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In the future, organisational structures will thus often be "ambidextrous" and unite tradition and innovation. In her 2016 study on this topic, Julia Duwe mentions the three basic forms

and strategies of sequential, structural and contextual ambidexterity. They aim at managing the conflict of objective between exploitation and exploration by temporal or organisational separation and contextual balance. In addition to the increasing use of cognitive systems and further flexibilisation of place of work and working time, the competitive challenge of digitisation, therefore, at least in part leads to the establishment of agile organisational structures. Agility is thus becoming a central mission-critical factor of changing organisational development the economy and society are undergoing: dynamic, complex, globally interconnected and highly dependent on technological and business model-related as well as social innovations. The work of the future within agile structures therefore requires great openness to adapt quickly to changing framework conditions and to try something new. This also requires letting go of established, often lengthy and hierarchical co-ordination processes, and instead relying on the general activation of the drive and ideas of as many stakeholders, employees and customers as possible. This principle is precisely what start-ups are practising. It is in their DNA so to speak. Larger companies typically practise such agile principles in individual areas or in specific project groups first – mostly in conscious spatial separation. From a labour- and organisation-scientific perspective, we will prospectively have to find out whether this separation can and has to be permanent, and how coping with this ambidexterity and the associated different speeds within an overall organisation also by the management can be accomplished. Agile organisational forms thus lead to new working conditions for all parties involved which require more intensive communication and coordination processes. Employees and managers enter into a new relationship with each other due to the change from the principle of hierarchical control to team-based self-organisation. The reshaping of labour and organisational forms will therefore have to be promoted proactively – closer to the managers in order to support them in their task of developing the workforce and to provide them with the right understanding of roles. In the future, all parties will therefore have to deal with significantly shorter planning rhythms and much more flexible change patterns to make both culture-building and value-promoting contributions promoting the success of the transformation process.

Conclusion

The transformation of companies in the era of digitisation poses a great challenge in terms of development and implementation. It does not only require technological but also cultural development, ideally accompanied by moderation of neutral external parties for the digital transformation itself also is not a ready-to-use technology concept which can simply be transferred. It is rather a continuous development every company and every employee must address individually. Work of the future will be much more flexible, more fluid in its form and more interconnected than today – true to the motto: established things produce established

things, innovations produce innovations.