Change in competence requirements due to the pandemic-related change in work organisation

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1.   Initial situation

As the worst global crisis since World War II, the COVID-19 pandemic is affecting public health and causing unprecedented damage to economies and labour markets (ILO Monitor, 2020, p. 2). The BMBF-funded research project "COVID 19 LL Lessons Learned" aims to address the work organisation challenges that have arisen because of the changed working conditions. Through a systematic analysis, successful solutions and measures to ensure the ability of companies and organisations to work are to be identified, which have crystallised in three different German federal states. The regions of Bavaria (TU Munich), North Rhine-Westphalia (RWTH Aachen) and Saxony (TU Dresden) were considered as examples.

Already a few weeks after the outbreak of the pandemic[1], measures based on regulations were taken by the company/organisation managements to slow down the course and spread of the virus. Contact restrictions, also called social or physical distancing, and home office regulations were demanded and implemented in the official environment as effective measures (Alipour et al., 2020, p. 34). The topic of home office and the associated change in work processes came into the focus of labour science at the same time and plays a central role in this paper.

To analyse the change processes, a total of 52 expert interviews were conducted in companies and organisations from different sectors.

This article is dedicated exclusively to the measures and procedures of the Saxon service sector, which were identified and based on nine interviews with experts.

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1 Restrictions from March 2020 by the Federal Ministry of Health (2021)

2.   Objective

The aim of the COVID19-LL project was to identify the problems that, due to the pandemic, companies and organisations are confronted with. In addition, the new ways of working learned through the change processes were analysed in terms of their impact. The aim was to find out whether the innovative and digitally supported forms of work initiated by the pandemic had a positive impact on the working world in medium and long term. Another point of investigation was the change in competence requirements due to the pandemic-related change in work organisation.

For the empirical analysis, the MTO approach (Figure 2) was chosen as a starting point and decided research questions (Figure 3) were developed. The systematic and methodological approach is shown in Figure 1. Based on the analysis and evaluation of the material, recommendations for action could be generated. Finally, these were placed in the context of occupational science in a critical discourse and further fields of research were identified.
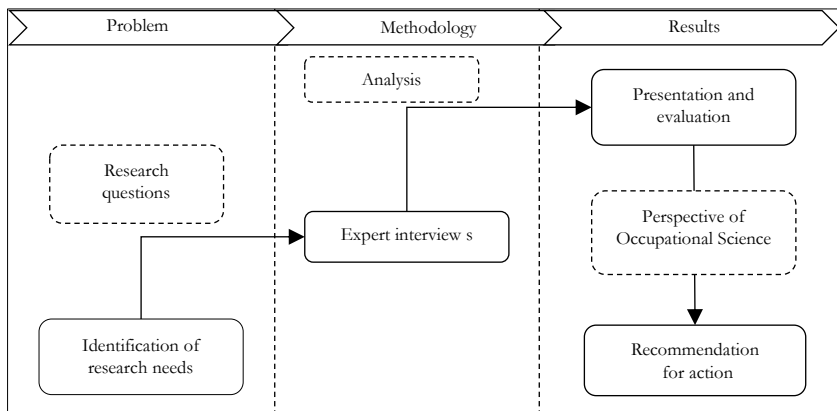

Figure 1: Methodological approach (own representation)

2.1.   Problem

Due to the lack of digitalisation in large parts of the service sector (Alipour et al., 2020; Heuermann et al., 2018; Statista, 2021) the pandemic catalysed the digitalisation process considerably. The insufficient technical equipment, especially networking, lack of digital skills and the sudden shift of the place of work away from the workplace posed major challenges for companies. To date, there is a lack of theoretical and empirical findings on the evaluation of the implemented flexible working models, the advancing digitalisation and the technical equipment in companies in the Saxon tertiary sector.

Using the data material, the status quo ante pandemic, the status quo and the status quo post pandemic were determined and analysed by means of research questions.

Using the process model "Human-Technology-Organisation", which is shown in Figure 2, the interdependence and influence of the three factors becomes clear, which had to be particularly considered in this project. Due to the changed external conditions, the work technologies, the individual working methods of the employees and the process organisation developed furtherThe interaction of the three factors within the work organisation during the implementation of the measures could not be analysed due to the time restrictions. However, it will be derived in chapter 5basis of the further results how and whether the process model has changed sustainably.
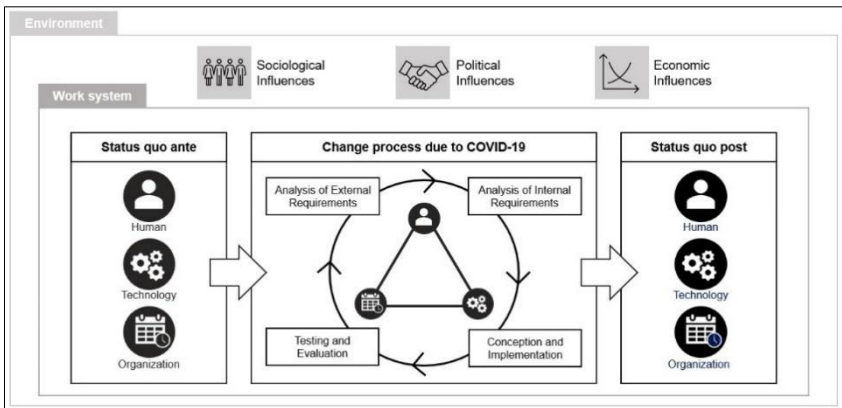

Figure 2: MTO process model of the COVID19-LL project
(own representation)

2.2.   Research questions and hypotheses

This paper focuses on four problem areas that are closely related to the crisis and are particularly relevant for the service sector: the aggravated customer contact in times of "social and physical distancing" (Koren & Pető, 2020), the (lack of) digitalisation in the service sector (Heuermann et al., 2018), the securing of results of work processes in home offices (Landes et al., 2020) and the subjectively perceived insecurity of employees (Grömling & Matthes, 2019). The research questions, listed in Figure 3, consider this tense relationship of the tertiary sector holistically. The fifth research question aims at the pandemic-related improvements and bundles the results into further recommendations for action.
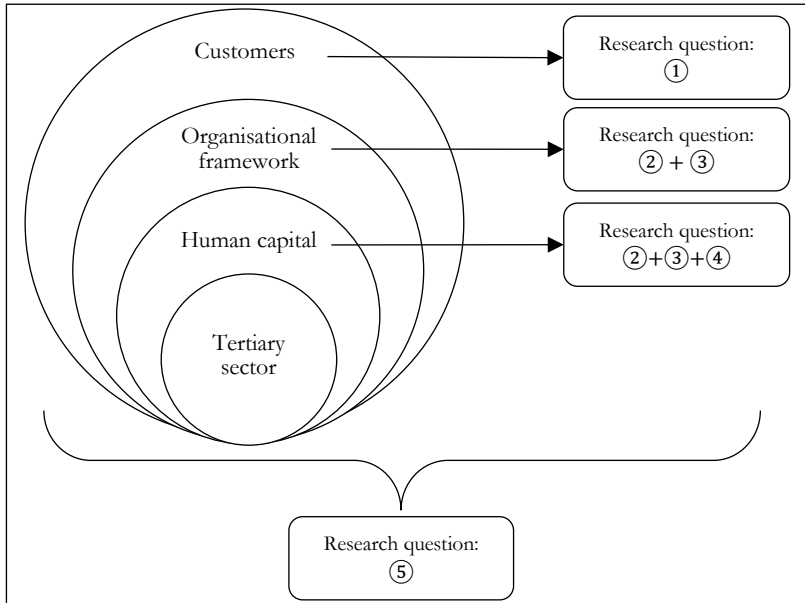
Figure 3: Derivation of the research questions (own representation)

The research questions and hypotheses are explained in the following and subsequently answered after the methodology approach.

1. How can good customer care in the service sector be ensured despite "social and physical distancing"?
    Hypothesis: Through social and physical distancing, the personal contact between customer and employee deteriorates considerably.

2. What technical equipment and know-how must have been available before the pandemic in order to successfully master the rapid implementation of measures?
    Hypothesis: The rapid switch from face-to-face work to home office can only work with already existing mobile devices, data protection concepts and digital competences of the employees.

3. What are the possibilities and challenges of performance monitoring/assurance of results when working in home office?
    Hypothesis: Performance monitoring and securing results in home office require the teaching of competences for "leading from a distance" as a skill for managers.

4. What subjectively perceived concerns and uncertainties do employees feel
    during the pandemic and to what extent does a manager have an influence on
    this?
    Hypothesis: The manager can directly influence the concerns and insecurities of
    his/her employees with the help of targeted communication.

5. What improvements have occurred as a result of the measures and how can
    these be carried over into a post-pandemic period?
    Hypothesis: The improvements that have occurred imply long-term changes in
    the overall organisation of work.

3.   Methodical approach

The project as a whole aimed to investigate and describe the complexity of
pandemic-related changes as comprehensively as possible. Therefore, the focus
was less on the representativeness of the study than on identifying as many
different approaches as possible.

Due to the theoretical considerations that preceded the data collection, the
sampling was based on the criteria-driven and conscious selection of the target
group. (Akremi, 2014, p. 273). Various characteristics were worked out according
to which people were eligible for the sample and which enabled the targeted
contacting of people from the service sector. The criteria and characteristics were,
on the one hand, the location in the service sector according to the classification
of economic sectors (2008), the geographical location in Saxony and the direct
impact of the pandemic on everyday working life. The interest was directed at both
managers and employees without personnel responsibility to show the respective
perspectives of both groups of people. These criteria for selecting the sample
legitimised the classification of the participants as experts.

Out of a total of 92 interview requests, nine expert interviews could be conducted.
Due to a lack of capacity, most of the requests were rejected. The nursing sector,
for example, received alone 24 interview requests, which were not accepted
because of heavy overload, which was due to the massive effects of the pandemic.

Due to the COVID 19 pandemic, seven interviews were conducted by telephone
and two interviews by web-based communication medium. Despite the omission
of the visual component in telephone interviews, the advantages of the rapid
accessibility of the participants and the low time, organisational and monetary
expenditure for conducting the interviews outweighed the disadvantages.
Furthermore, the accessibility of groups of people from different social,
professional and hierarchical strata by telephone was better than personal contact.

On average, the interviews lasted about 55 minutes and were transcribed with the help of the QDA software f4transcript and according to the transcription rules of Kuckartz and Rädiker (2019, S. 449) and analysed with the f4analysis program. In the end, the expert interviews were conducted in three areas of the service sector: public administration, social services and social insurance. In order to guarantee the anonymity of the interviewees, the geographical location cannot be assigned to the respective institutions and the interviewees. They are located in the districts and cities of Bautzen, Chemnitz, Dresden, Leipzig and Reichenbach. Among the interviewees were seven managers with personnel responsibility, including district councillors, mayors, a head of department and a state representative of a health insurance company. Two employees who did not have personnel responsibility worked as consultants. Seven interviewees were male two female. The distribution of persons per service area and personnel responsibility can be seen in Figure 4.
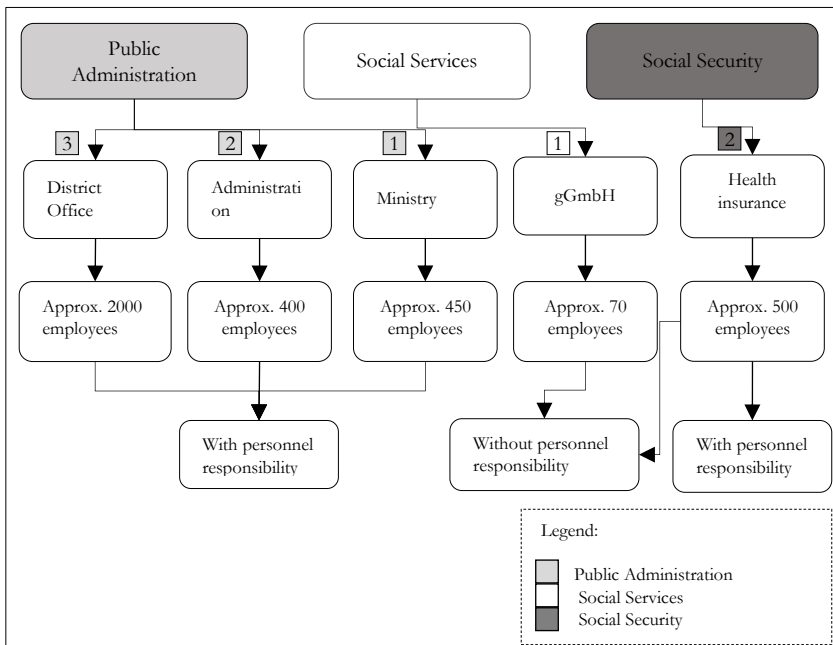

Figure 4: Typification and specification of the interviewees (own representation)

By analysing the expert interviews using content-structuring qualitative content analysis according to Mayring (2010), it was possible to achieve the goal of the survey instrument, namely intersubjective comprehensibility and understanding of the experts' subjective constructions of reality (Misoch, 2019, p. 3). After the

material had been processed, it could be systematised through inductive and deductive category formation before it was evaluated on the basis of the research questions. Taking into account the research questions and the questions of the interview guide, main categories were formed. In the next step, corresponding subcategories were assigned to the main categories step by step (Niederberger & Ruddat, 2012, p. 8). This followed the exact provisions of the developed category definitions and coding rules (Fenzl & Mayring, 2017, p. 637), which were summarised, modified or eliminated in feedback loops after a conscientious review (Mayring, 2010, p. 603), so that arbitrary category formation was excluded. In order to answer the research questions and to form categories in a meaningful way, an interview guideline was developed, through which inductive category formation in particular was made possible. Table 1 shows an excerpt of the interview guide for the first research question. For each research question, the status quo ante pandemic, the changes in work organisation and the status quo were asked in order to obtain standardised and differentiated results for each research question.

Research question 1: Customer contact with social/physical distancing	
Guiding questions (opening, narrative-generating questions)	Memo for follow-up questions (Control questions)
1) Please describe your administration / company to me?	Your person, workforce, qualifications…
2) Please describe how you worked before the pandemic?	With customers? Stakeholders?
3) What central effects have you been able to feel?	General, specific?
4) What measures have been taken to respond to the impact of the pandemic?	When did which changes occur?
5) How did customer contact take place before/during the pandemic?	Was there any feedback on this?
6) How was physical distancing implemented?	On what premise?
7) What permanent changes will there be in this regard?	Are there any requests from employees/leaders?
8) What does the future work with clients look like?	Additions?

Table 1: Extract from the interview guide (own representation)

4. Results

All interviewees confirmed that the COVID 19 pandemic has significantly changed work in the factories. The need to reduce physical contact is the main driver for changes in working practices. In the majority of cases, this has led to far-reaching hygiene concepts, team building with spatial and/or temporal separation and a drastic reduction in business trips.

The greatest changes and drastic measures were the comprehensive introduction of mobile working. In the survey period November 2020 - February 2021, home office work was carried out in eight out of nine companies. Although home office

is legally considered mobile work, it must be seen as quasi-stationary work from the perspective of labour science. It could not be conclusively determined whether the companies investigated offered mobile working or home office. Neither could it be determined whether the ergonomic conditions outside the office could guarantee optimal working conditions. Possible consequences in health management or of a financial nature are expected in long term.

In addition to the introduction of mobile working, the interviews conducted revealed an enormous digitalisation push within the companies. The technical equipment and the technical/digital know-how improved considerably in all interviewees. The initial supply bottlenecks of technical equipment were not a major problem, as employees were willing to use their private devices. The situation was different when it came to data protection. In order to ensure the ability to work, in seven cases employees had to take paper files and personal data home for processing, which does not comply with the valid rules of data protection. One person had to rely on the assistance of colleagues on site who scanned documents to send them by email. To ensure data protection, legal principles had to be implemented in the first weeks of the home office. The switching of tokens by the IT departments of the companies helped to ensure data protection-compliant work. The two companies that were already using mobile working before the pandemic were sufficiently digitised and were already working in a data protection-compliant manner, so there was no need for action.

Figure 5 summarises the main results. These lead to further recommendations for action for the respective companies, which were developed from a work organisation perspective and are explained in detail below.
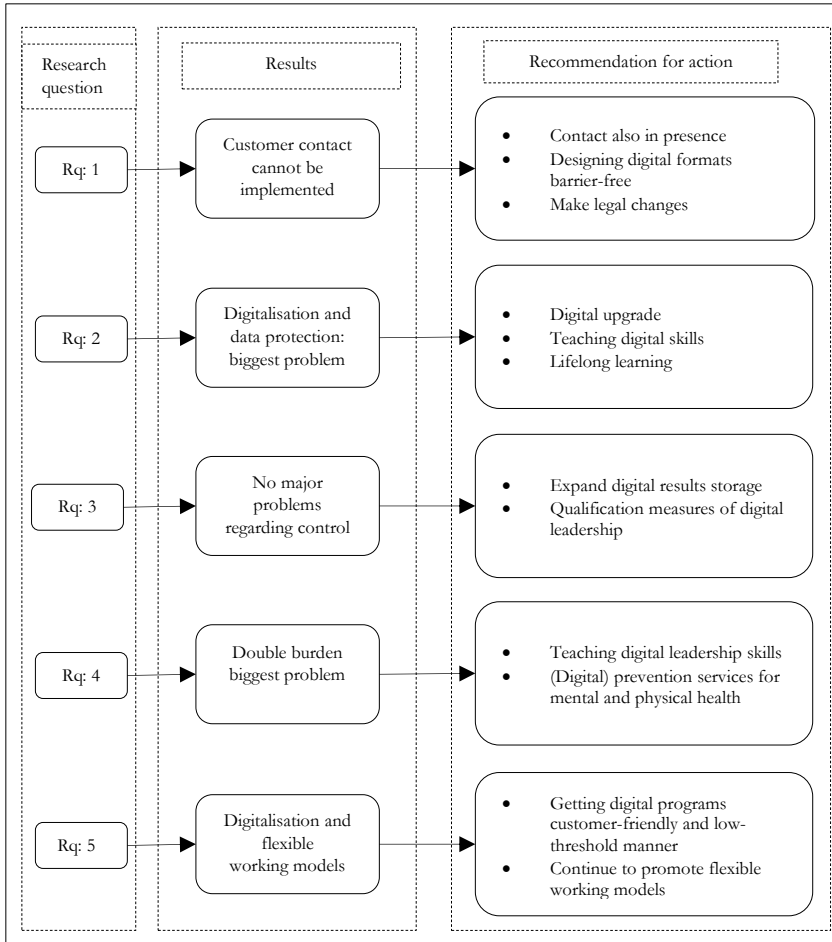
Figure 5: Summary of the results (own representation)

On the first research question: Customer contact in physical distancing

Not all groups of people (clients) had access to administrative services that took place digitally and without personal contact due to mobile work. Three administrations named this as the main problem of customer contact. The negatively affected clients can include people with disabilities, without sufficient German knowledge or people who are educationally disadvantaged. The hypothesis for the first research question can therefore only be partially confirmed. Although a large part of the population perceives digital formats positively and

sees them as an improvement despite physical distancing, there is a small part of society that is dependent on physical encounters. As a consequence, physical contact should be maintained for those who cannot participate through digital formats due to their disposition. Another possible course of action is to make administrative services barrier-free. For this purpose, this group of people should be included in the creation of digital formats.

On the second research question: Technical equipment and know-how

The importance of technical equipment could be answered comprehensively. Six of the nine people interviewed stated that they had been insufficiently digitally equipped before the pandemic. The restructuring caused by the SARS-CoV-2 occupational health and safety standard hit the industry with full force. This meant that an orderly, phased introduction of home office was not possible. For example, this meant that mobile working, which was implemented at short notice, initially meant that there was no access to the company network, which was the case for three interviewees. Many employees had to use their private computers, which hindered work and posed an additional high security risk. New software programmes for digital communication had to be introduced overnight. This in turn put everyone's technical know-how to the test, which was described by five people as "highly variable". One person linked the lack of technical affinity within their team to the advancing age of the staff. The actual implementation of technical changes depended not only on age but also on the willingness of the employees. For this research question, too, the hypothesis can only be partially confirmed. It was not the already existing end devices that were decisive for a rapid changeover, as private end devices could be used. However, digital skills were needed to use the new software, such as virtual communication programmes, quickly and securely. One recommendation for action that can be derived from this is the establishment of lifelong work-integrated learning. Digital skills can be developed through the teaching of digital competences, which are a prerequisite for the rapid introduction and use of new software and new communication platforms.

On the third research question: performance monitoring and securing results

Surprisingly, no major difficulties were found with regard to monitoring performance and securing results in the home office. Without exception, all those interviewed stated that they trusted their employees or were trusted by their respective managers. The process of change from face-to-face work, to work away from the workplace was quickly made possible through relationships of trust within the companies, so that the work done was recorded in transparent and digital programmes and made quantifiable. Communication between employees

and managers on results-oriented and self-directed work was positively received by all persons. All interviewed managers supported the trusting relationship with employees and were confident that they would continue to work with each other at this level in the future. However, two interviewees noted that leadership had changed. Some managers had insufficient digital leadership skills. Thus, the third research question identifies the teaching of digital leadership skills as a need for qualification, which is supported by the hypothesis of this research question.

On the fourth research question: uncertainties and concerns

The fourth research question related to employees' insecurities and concerns and how managers influence them. In all interviews, the double burden of childcare and working from home at the same time was mentioned. This concern particularly affected those who were not entitled to emergency care for their children due to their job. To overcome the challenge of the double burden, the implementation of individual and accommodating solutions was mentioned by all interviewees. Partial leave, taking leave, accumulating less hours and reducing working hours for a certain period of time were pragmatic, unbureaucratic and quick solutions and helped to reduce the burden. This approach was rewarded by the employees. As one manager put it: "We took a leap of faith, which was repaid to us by the staff with double and triple interest. As the quotation makes clear, it could be noted that the empathy of the manager to support the employees was received in a positive and appreciative way. The subjective assessments in Figure 6, at least for the internal climate, show this. Despite the assumption of a deterioration due to the prevailing stress, the opposite is the case. Cooperation has deteriorated for four people due to the physical distance and the discontinuation of informal conversations. This was mainly caused by the video conferences that were introduced. For three people, on the other hand, cooperation improved due to digital communication. They were able to concentrate better on their own work due to the elimination of informal conversations and were less distracted. In addition, one manager allowed 10 minutes for informal conversations in all video conferences in order to replace the "hallway conversations" that had been eliminated. No trend is discernible in the assessment of job satisfaction.
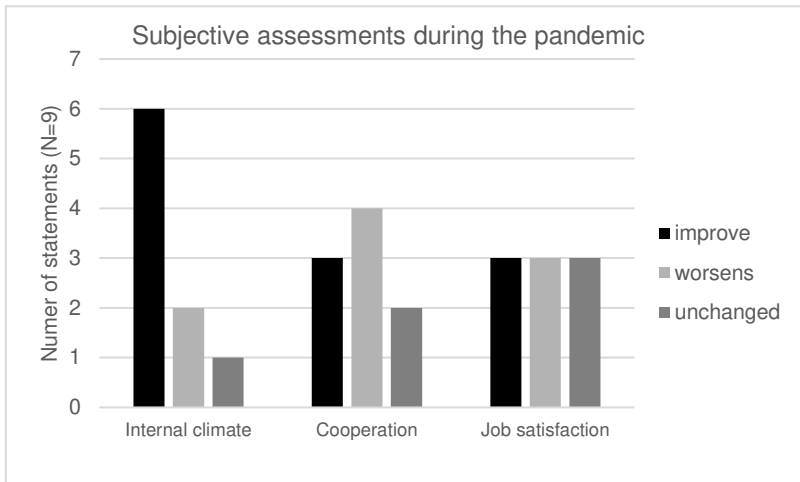
Figure 6: Interviewees' assessments of the change in internal climate, cooperation and job satisfaction during the pandemic (own representation)

The hypothesis that managers have a direct influence on the concerns and uncertainties of their employees with the help of targeted communication can be confirmed at this point.

On the fifth research question: Improvements

The fifth research question deals with the resulting improvements. These consist of the advanced digitalisation with the new work opportunities. This is accompanied by the expansion of flexible working models and the reduction of business trips. Due to the positively perceived change in the established communication processes with superiors, all restructuring within the work organisation could be implemented quickly. The own increased flexibility, as shown in Figur 7, leads to an overall flexibilisation of the work organisation. Through digitalisation and the improvement of digital communication, increased productivity was recorded by four people, which underlines the relevance of digitalisation.
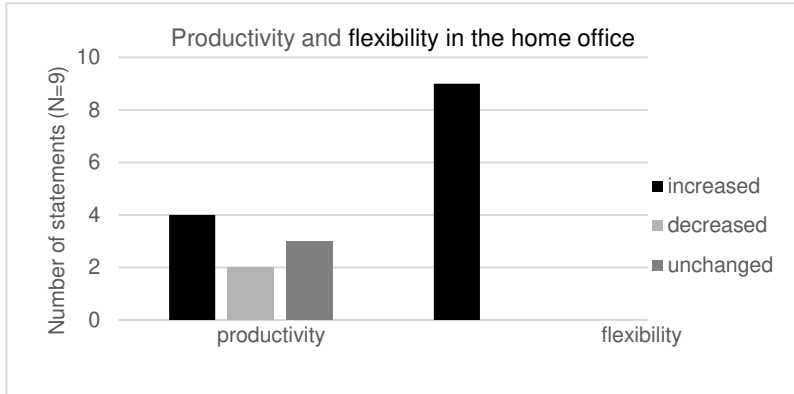
Figure 7 : Interviewees' statements on productivity and flexibility during the pandemic (own representation)

The hypothesis that organisations need to change in the long term is confirmed by the fifth research question and further elaborated in chapter 5

5. Conclusion

It can be deduced from the research results that almost all of the interviewed companies and organisations are in a phase of change. More than a year after the outbreak of the pandemic, most of the interviewees have found a way to deal with the new situation in the best possible way. Experiences have been gained and lessons learned, which are now to be used in the long term to improve work processes and competences. Nevertheless, appropriate framework conditions still need to be created to consolidate the changes.

For example, Figure shows the benefits of mobile working, such as increased flexibility, which has led to an improvement in group dynamics. Another achievement is the increase of innovations within the work organisation, such as holding virtual job interviews, which not only saves time and monetary resources and benefits the work-life balance, but also has a positive impact on environmental sustainability.
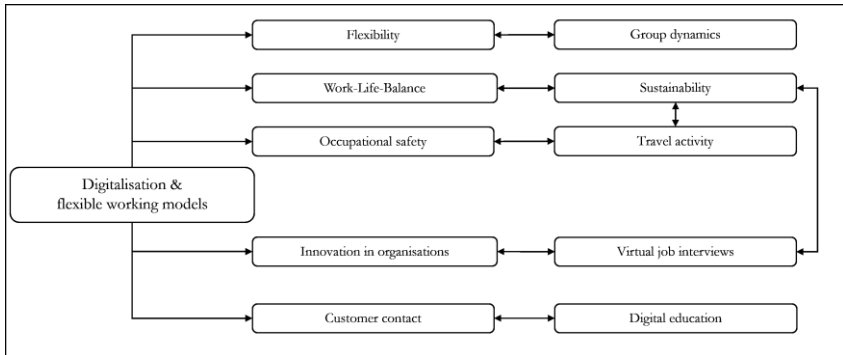
Figure 8: Improvements brought about by the pandemic
(own representation)

At the same time, the disadvantages, such as the danger of increased work volume, increased pressure to perform, unclear separation of work and private life, should be minimised through results-oriented communication. (Stowasser et al., 2019, p. 5) . To this end, it is important to give greater importance to preventive health protection than is currently the case and to pursue this proactively. In addition to creating optimal ergonomic conditions away from the workplace, emerging psychological impairments such as symptoms of stress, overwork or underwork must also be recognised from a distance. With the help of counselling and training services, these potential causes of illness can be addressed and eliminated. Even though the health risk in the home office was only recognised by one interviewee, this recommendation for action should apply across all sectors.The human resource as the most important factor in the service industry must be the focus for every business. At this point, the reference back to the MTO process model can be made. Despite the equal interaction of people, technology and organisation, people will be the ones to decide on the speed of progress. The process model will change in the future so that the three factors will be even more closely interlinked. As a result, digital opportunities and physical contact will have to be combined in a meaningful way.

Another finding of the studies is the importance of a trusting working relationship. In addition to increased autonomy and self-direction, this leads to an economic promise of success and should be (Breisig, 2020, p. 190) and should be expanded beyond the service sector. Seven interviewees confirmed the positive influence on the internal climate, which was created by the trusting working relationship.The recommendations for action for further training measures in the areas of trust-based digital leadership and management competences for executives build on this. The keyword of lifelong learning applies here not only to employees who are trying to remain employable, but also, if not especially, to managers. Even though these competence requirements were only mentioned by three people, from the research

point of view they are an elementary component of good employee management, which has been given a current dynamic and importance by the COVID-19 pandemic. A management that is capable of learning is very likely to get through the volatile period of the pandemic more safely, to outgrow itself and thus to achieve a longer-term improved resistance to crises.

Efficient work design that is free of impairments and conducive to learning and personal development, combined with contemporary digitalisation, is the prerequisite for building crisis resilience. This is where the competence requirements of today differ from those of recent years. The tertiary sector must accept these new conditions in order to increase not only competitiveness but also employee satisfaction, which is essential for the future world of work. (Mustapha, 2021, p. 7) .

In summary, it should be noted that in addition to the obvious competence requirements, those were also identified that were hardly mentioned in the interviews but are extremely relevant from an occupational science perspective. The advancement of digitalisation, data protection and the sensitisation for trust-based working relationships could already be recognised as opportunities for companies. Now it is a matter of making visible the subliminal need for competence, such as leadership from a distance with the demand for a healthy, satisfied and innovative working relationship. This will form the basis for meeting the new demands of managers and employees on the world of work with suitable offers. The comprehensive changes within work organisations were forced by the pandemic. Now it is a matter of using them not only locally and regionally, but also globally and in the long term, and of understanding them as opportunities.

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