

Measures for Human Design of Mental Stress Factors of Digital Work in Public Administrations

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ABSTRACT

In the working world, major changes and challenges are becoming apparent because of the advancing penetration of information and communication technologies (ICT). With the implementation of new technologies and digitalized work processes, the stress and strain situation of employees are possibly changing, which is also evident in public administration. Based on an interview study of administrative employees, this article highlights the challenges of the digital transformation in administrations at the municipal as well as state level and identifies measures for a human work design. The results suggest that, above all, employees' time resources should be expanded in their day-to-day operations for the introduction process of new technologies.

Keywords: Human work, Mental stress factors, Digital transformation, Digital work, Public administration, Work stress

INTRODUCTION

The rapid pace of technological development is having a fundamental impact on the working world and may result in an increase of work stress for employees due to the digital transformation (Gimpel et al., 2018). As a result, impairments can occur, e.g., in the form of an increased sense of stress among individual employees. Public administrations are under pressure, not only because it is facing a digitalization-driven transformation, but also because employees are facing an increased workload in their day-to-day work due to legislative requirements in connection with the digital transformation of the public sector, as can be recognized for example in Germany (e.g., the implementation of the Online Access Act (Onlinezugangsgesetz, OZG) by the end of 2022).

The technological changes may bring a change in the requirements of work activities and even in the job profiles (Schlicher et al., 2020). To minimize possible risks of the digital transformation in the working world as well as to use the potentials for a human design of work through new technological developments, a fundamental understanding of the effects of digital work on employees is necessary (Adolph et al., 2020). Currently, there is little research

on how digitalization in public administrations affects employees (Bogumil et al., 2022) and how work tasks can be designed according to the criteria of human work design in a working environment in which people increasingly work with digital tools. The aim of our actual research is to find out how employees of public administrations participate in the progress of digital transformation and thus how the mental stress factors of digital work can be designed in a human-oriented way. For this purpose, qualitative interviews were conducted in the first step among employees in public administrations in Germany. In a second step, the results of the interview study serve as the basis for the development of a quantitative online survey.

METHODICAL APPROACH

This paper presents the results of an interview study, which was conducted in the form of a qualitative preliminary investigation. It is reasonable in this context because it allows for an in-depth exploration of the subjective experiences of employees, identifies potential measures to improve their well-being, and is more flexible and adaptive to the specific context and research question.

To find out what effects the stress factors of digital work have on employees in public administrations and to identify possible measures for the participation of employees in the implementation process of new technologies, 19 semi-structured expert interviews were conducted with a total of 20 participants (18 individual interviews and one with two interviewees). 17 participants are employees in public administrations who deal with digital transformation in administrations (8 participants at the local-authority level, 9 participants at the state level). Three interviews were conducted with experts in research and consulting who support public administrations in the transformation process.

Data collection took place between August 2022 and November 2022, with interviews lasting between 24 and 54 minutes. To get started and to later deepen into the topic, in advance of conducting the interviews, the participants were asked to rank the following stress factors of digital work according to their subjective assessment (rank 1–7 with 1 as stress factor applies most to our administration, to 7 as stress factor applies least to our administration). The stress factors of digital work are defined in line with Gimpel et al. (2019) and provided with the following examples:

- **Invasion of privacy and performance monitoring:** Performance data can be more easily collected through technological means. Concerns about invasion of privacy and a sense of constant surveillance may arise.
- **Modification and complexity:** Constant change and the increasing complexity of ICT can trigger a feeling among employees of insufficient competence to use the new technologies.
- **Automatic inflow of tasks:** The use of ICT can make it more difficult to assess completed tasks, since new work tasks are constantly being induced by the system. This can lead to a lack of sense of achievement and the feeling that less work progress is being made.

- **Interruptions in the workday:** Spontaneous notifications and information generated by ICT can lead to interruptions in the individual's daily work routine. This can lead to concentration problems.
- **Unavailability and unreliability:** Organizational restrictions, e.g., the prohibition of new technologies or the increase of workload due to unstable systems. As a result, employees can feel impaired in their work.
- **Information overload:** The workload increases due to the greater or other structured quantity of information provided. A feeling of overload can arise.
- **Omni- and permanent presence:** The use of ICT blurs the boundary between work and private life. The perception arises of the necessity of perpetual availability and reaction at short notice.

The result of the survey shows that, in the subjective perception of the interviewees, primarily the two stress factors "Modification and complexity" and "Information overload" take effect in public administrations. These factors will be discussed further in this article.

Table 1 presents the evaluation categories. The evaluation of the transcribed interviews was carried out according to the qualitative content analysis by Mayring (2022). Inductive subcategories were added to the deductive categories that emerged from the interview guideline. The assignment to the categories was done using MAXQDA 2022. The focus was on explorative research, the quantification of the statements was not part of this analysis.

The results will be discussed further in the paper, after an explanation of the understanding of 'digital transformation' in public administration.

Table 1. Evaluation categories of the semi-structured interviews.

| Question | Main category | Subcategory | Examples of coding units |
|---|----------------------------------|--|---|
| Mental stress factors of digital work | Perception of the stress factors | Modification and complexity | "Insecurity and excessive demands despite training" |
| | | Information overload | "Faster and quicker pace", "increasing e-mail flood" |
| Involvement of the employees in the processes of change | Conducive framework conditions | "Pick up" at the workplace | "Helping to shape the workplace", "individual approach" |
| | | Accompanying and transparent implementation | "Accompanying implementation process" |
| | | Support from colleagues | "Peer-to-peer learning" |
| | Implementation barriers | Making decisions together | "Implementation proposals", "team decisions" |
| | | Lack of time resources | "Not enough time for training" |
| | | Skills and knowledge | "Still basic work has to be done" |
| | | Way of thinking and slight willingness to change | "Not open minded", "little willingness to change" |
| | | Communication | "Poor communication" |

CONCEPTUAL UNDERSTANDING OF DIGITAL TRANSFORMATION

For a uniform understanding of the term, it is first advisable to make a conceptual distinction between the dimensions of administrative digitalization. Mergel et al. (2019) differentiate between the terms digitization, digitalization and digital transformation:

- Digitization of administration: the 1:1 transfer of analogue data into digital storage formats and providing a digital medium for viewing (Mergel et al., 2019).
- Digitalization of administration: Refers to the transformation of analogue processes into adapted digital processes. Digital networking among administrations and across organizational boundaries is promoted and can lead to the establishment of new organizational models (Mergel et al., 2019; Heuermann et al., 2018).
- Digital transformation of the administration as comprehensive institutional change: cultural, processual, and organizational change is sought. This leads to changes in staff and qualification structures as well as job and requirement profiles, employee participation, interaction with stakeholders, and long-term performance change in service provision (Mergel et al., 2019; Bogumil et al., 2022).

The first question in the interviews was about understanding what digital transformation in the public administration means, the interview participants were asked the question: “What does ‘Digital Transformation’ mean for public administration from your point of view?” Since the answers were very heterogeneous, they were grouped for evaluation into the above-mentioned conceptual dimensions. The numbers of mentions per dimension are shown in Figure 1. In some cases, there were multiple answers within one interview.

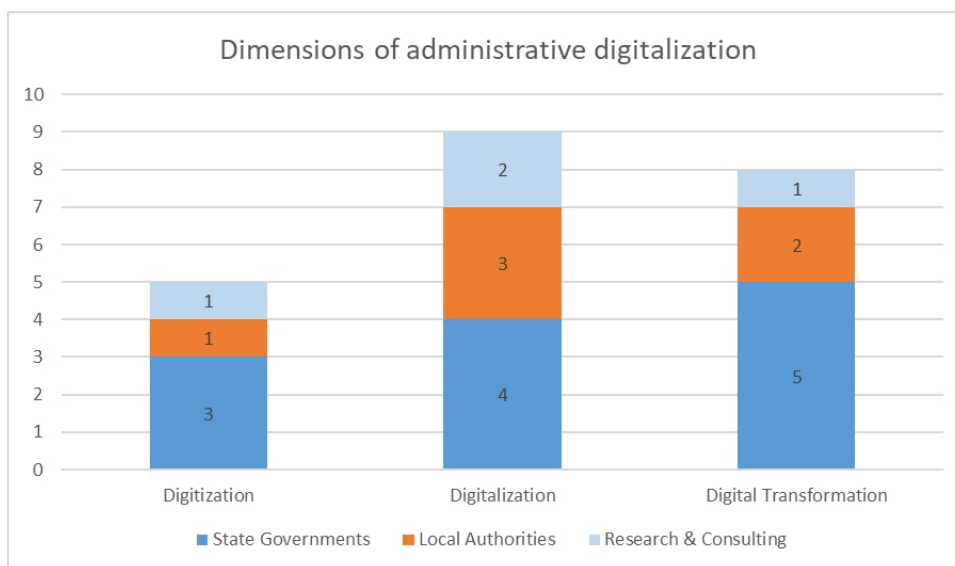


Figure 1: Grouping of mentions to the question: “What does ‘digital transformation’ mean for public administration from your point of view?”.

The interviewees described perceiving the dimension of digitalization in the administrations rather than that is already possible to speak of a comprehensive institutional change. In some administrations, the focus was still on transferring analogue data to digital storage formats. At the local-authority level there was still more talk of digitization and digitalization than of the implementation of new digital technologies as part of an extensive change.

It is obvious, that increasing digitalization will affect nearly every workplace in public administration. In the following, the challenges due to this development and specific to public administration are highlighted and measures for a human design of work tasks are identified.

RESULTS FOR THE HUMAN DESIGN OF WORK

Stamer (2021) investigated the extent to which employees are considered in the process of digitalization from the perspective of HR managers. The results show that mental illness tends to increase when employees are not given sufficient consideration in the digitalization process (Stamer, 2021). Therefore, the question arises as to how employees can participate in the change process to shape the mental stress factors of digital work in a human-oriented way.

According to the interview participants, the increasing complexity and ongoing development of ICT in particular trigger uncertainty among public administration employees. They may feel that they have insufficient skills in dealing with (new) ICT. This is accompanied by the need to constantly develop their competencies or learn new skills, which can be associated with a high expenditure of time (Gimpel et al., 2021). Furthermore, the stress factor “Information overload” was mentioned. The use of digital technologies can lead to a stressful experience since, e.g., the amount of information provided increases and there is a feeling of acceleration and increase in work (Gimpel et al., 2021). In the following, the results are classified according to the essential criteria for human-centred work design in the digitalized working world for public administration according to Weber et al. (2022).

Variety of Requirements

According to Mergel (2020), administrative processes will be partially automated in the future so that tasks can be completed with less human intervention and proactively by machines (Mergel, 2020). The increasing demands in connection with work tasks are seen as a challenge for public administration employees, as these will adapt to the possibilities of digital work design. It will therefore become increasingly unimportant, for example, to handle the processing of the applications in a traditional way. It will be much more about optimizing work processes and acquiring the knowledge of how ICT can support this. This also means that routines need to change. In the case of public administration, for example, it may be the introduction of the ‘e-file’ at workplaces that leads to a change in routine working practices and initially causes uncertainty in administrations. This often arises from the fact that work in the administration was ‘analogue’ for a very

long time. In addition, there is a very great deal of constancy in administration. Employees are rarely confronted with a change of positions or working environments.

For the establishment of new ICT in the workplace, a central point that emerges from the interviews is that transparency and a structured implementation process is an essential factor in being able to deal with the unfamiliar variety of requirements. It is important to have structured support during the implementation process and to be able to make decisions together based on the individual needs at the workplace. In the run-up, employees wish a transparent communication about the process. Employees should be appropriately prepared for the new requirements and given an appropriate familiarization phase. The amount and complexity of the provided information should also be workable for each employee (Weber et al., 2022). Consequently, individual interaction and learning opportunities are needed for personal, resource-dependent handling.

Promotion of Interaction and Learning

The frequently changing use of digital work tools requires different forms of learning at work (Weber et al., 2022). A further necessity that interviewees consider as very important is that managers should ‘pick up’ employees at the workplace. This includes that employees want to be actively supported and feel that they are being paid attention to. Moreover, managers are also required to look at the competencies of the individual and offer appropriate development measures. A suitable learning environment, which can be created by the manager, helps to support work-integrated learning processes, and counteract to permanent underload or overload (Weber et al., 2022). To push digital work forward and increase the willingness to learn, it therefore makes sense, within the framework of human resources development, to provide individual training measures that fit the learning behaviour of the individual employee. It is important to the interview participants that there is a variety of learning opportunities, so that the individually different ways of acquiring knowledge can be considered.

In addition to the various learning formats that should be offered for individual continuing education and training, it is also useful to promote internal exchange among the employees. In some administrations, there are so-called ‘power users’ who have been intensively introduced to, e.g., new software and thus have specialist knowledge that they can pass on to their colleagues. According to Hasenbein (2020), learning and development also take place through exchange with other people. Especially in today’s world, where people learn and interact more and more digitally, peer-to-peer learning, i.e., the structured learning between colleagues, will become more important (Hasenbein, 2020). This assessment is also evident from the interviews. Interaction and support among each other help employees to acquire new skills and abilities ‘uncomplicated’ and at short notice, which they need for their work with digital work tools. Time Resources should be created in the daily work routine for such new learning and interaction pathways.

Elasticity of Time

In the interviews it became clear that there is still little awareness at the individual level of the fact that the implementation of new technologies requires additional work at first before work proves to become easier.

The additional requirements (including familiarization with new technology, participation in training courses) can often not be met due to a lack of time resources at the workplace. The interviews made clear that the lack of time to deal with innovations in addition to everyday tasks is seen as an obstacle to the implementation of new technologies. The introduction of the 'e-file', for example, was often introduced 'on-top' during regular working hours. There was usually training provided, but time to consolidate what had been learned in the workplace was rarely guaranteed.

The criterion of time elasticity, i.e., the integration of time buffers in work and time schedules, plays a central role in this case. To minimize hazards due to excessive workload, the relationship between the amount of work and working time should be balanced (Weber et al., 2022). The awareness that the implementation process of new technologies is perceived as an additional workload and requires additional time resources from the side of the individual employee should be raised in public administrations. The interviews reveal a desire to be given more time for employees in their day-to-day work to deal with new task. More time should also be invested in preparing employees for these new working tasks.

CONCLUSION

Overall, there are many challenges to be overcome in the digital transformation process of public administrations. If the structures and mindsets that have evolved over time in public administrations are recognized and additionally the willingness to change them, there is a good chance to bring about positive changes. These changes will take time in two respects. On the one hand, the digital transformation is not a project that can be completed after a certain amount of time. Rather, a new variety of work task requirements will become established and work methods will constantly evolve to keep up with technological progress. This makes it clear that employees should continuously develop their competencies (in process thinking, media handling, didactics, project management, readiness for change and problem solving). On the other hand, the transformation process also requires capacities in addition to the everyday tasks of the employees. Innovations and additional workload should not negatively impact employees' health and consequently the administrations' performance.

Based on the qualitative interview study, hypotheses will be developed in the further course of the research that are supposed to illustrate which measures for involving employees in the transformation process are significant for a human design of the digitalized working world. To this end, a quantitative online survey will be conducted amongst public administration employees in summer 2023.

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