To Resist, or not to Resist, that is the Question: On the Status Quo Bias of Public Sector Employees When Dealing with Technology

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Abstract. Technological innovations and new ways of working became the daily routine in German administrations at the municipal, the state and the federal level. Technology use among their employees is an essential aspect of mastering the digital transformation in the public sector. The employees' status quo bias, however, profoundly influences their perception and behaviour in technology-related settings. The critical role of cognitive biases is recognised in many disciplines, including sociology, psychology, and marketing. Against this background, the objective of our work is to expand existing acceptance models with the aspect of bounded rationality and apply them to employees in the public sector. This allows us to gain theoretical insights concerning the resistance of using technology in this domain. As technology becomes ever more ubiquitous in times of the coronavirus pandemic, and as the performance and well-being of public sector employees is more and more important to the administrative board members, including the status quo bias perspective when dealing with technology use presents increasing theoretical and practical importance.

1   Introduction

Demographic changes pressingly affect the public sector (Müller et al., 2011). In order to both fulfil legal requirements and growing expectations of citizens, to provide appropriate services and to have a productive and satisfied staff, public administrations are trying to use the advantages of digitization to make their routines more effective and efficient (Liu & Yuan, 2015; Räckers et al., 2017). Nevertheless, the implementation and the use of technologies need comprehensive change management on both a technical and organizational level (Ben Rehouma, 2018).

The employees' acceptance and motivation to use technologies is crucial in this regard. Their soft skills such as openness and willingness to learn become increasingly relevant for the success of the digital transformation in the public sector (Ogonek et al., 2016). However, many employees are sceptical or afraid to lose control and fear to be replaced due to not mastering the new tools. Their reluctance leads to the fact that the potential of available

technologies are not fully used, which in turn results in many disadvantages such as time or financial costs (Kim & Kankanhalli, 2009). Facing limited resources, it is all the more necessary to understand how to reduce the staff's resistance and how to promote the skills needed for dealing with the ongoing changes.

Technology acceptance and the intention to use information technology (IT) is at the core of Information Systems (IS) research (Venkatesh & Davis, 2000). Although there are many theories that aim to understand these concepts (e.g., TAM), the Status Quo Bias (SQB) perspective by Kim and Kankanhalli (2009) offers fruitful added value, because it integrates existing literature and well-known concepts from the bounded rationality paradigm in order to explain user resistance prior to the implementation of a technology. The traditional models did great effort to show which factors influence acceptance and use, but fail to account for the cognitive biases of the users. We want to find out which variables are responsible for the frequent technology resistance of employees within the public sector and to provide necessary skills to master the digital transformation in this domain. Against this background, we want to answer the following research questions (RQs): **RQ1:** *Which variables influence user resistance towards technologies in the public sector?* **RQ2:** *How can we reduce the user resistance towards technologies of public sector employees?*

We aim for obtaining a more holistic view of technology acceptance and use behaviour of public administration staff by reflecting on the cognitive biases they face. The goal of our work is to advance theory and to derive useful recommendations for action. The structure of this paper is as follows: Section 2 provides the theoretical background. In Section 3, we establish our hypotheses, naming the considered variables and boundary conditions. Section 4 presents the research design and methodology. Finally, section 5 contains a conclusion of our work, also pointing on promising avenues for future research.

2   Theoretical Background

Previous literature indicated different models for describing technology acceptance, from which one is used predominantly: the Technology Acceptance Model (TAM) (Davis, 1989). In contrast to this model supposing the rational decision-making of the user, the SQB perspective describes people's tendency to maintain original habits instead of accepting new circumstances by accounting for their cognitive biases (Samuelson & Zeckhauser, 1988). Next, we describe these models in more detail.

Technology Acceptance Model

In order to explain the decision-making behaviour of public administration staff when using IT, we base our considerations on fundamental technology acceptance research. Davis pivotal work in the area of technology acceptance derived two significant antecedent of technology use: perceived usefulness and perceived ease of use (Davis, 1989). *Perceived usefulness* is "the degree to which a person believes that using a particular system would enhance his or her job performance" (Davis, 1989, p. 320). A technology of high perceived usefulness has an increased use-performance-relationship. *Perceived ease of use*, in contrast, is defined as "the degree to which a person believes that using a particular system would be free of effort" (Davis, 1989, p. 320). Davis' approach aims to provide a general explanation of the determinants of technology acceptance that can explain the users' behaviour across a wide range of end-user technologies and user populations, while being parsimonious and theoretically justified (Davis et al., 1989). Moreover, it seeks to provide a basis for understanding the influence of external factors on internal beliefs, attitudes and intentions. By doing this, the model is useful for predicting, as well as for explaining why a particular technology might be unacceptable to then conclude appropriate corrective action.

Status Quo Bias Perspective

Cognitive biases happen when "human cognition reliably produces representations that are systematically distorted compared to some aspect of [...] reality" (Haselton et al., 2015, p. 968). People are unconsciously influenced in their decision-making and judgement. In this respect, the „status quo bias [SQB] theory aims to explain people's preference for maintaining their current status or situation" (Kim & Kankanhalli, 2009, p. 569). Based on this approach, we seek to explain the resistance of public administration staff.

Samuelson and Zeckhauser (1988) pioneered to describe why people tend to stick to present conditions instead of adapting to new circumstances. Their SQB perspective is divided into three categories: rational decision making, cognitive misperceptions and psychological commitment. As technology users often resist, even if technology use offers rational advantages, biases are present. Consequently, it is considered beneficial to adapt the original approach from psychology to the IS domain in general and to the public administration staff in specific. At the core of our investigation are the antecedents of user resistance, which is described "as opposition of a user to change associated with a new IS implementation" (Kim & Kankanhalli, 2009, p. 568).

Rational decision-making deals with the cost and benefit comparison of change (i.e., transition costs and uncertainty costs). Transition costs happen by adapting a new system and can occur during or after a change to a new system (Kim & Kankanhalli, 2009). Uncertainty costs occur by switching to a new system and cause that users feel unsure or anxious about the upcoming results of that action. They automatically remember similar past situations, and in most cases, make the same decisions as before, because they do not want do take any risks (Kim & Kankanhalli, 2009).

Cognitive misperception describes the perceived loss of change. One phenomena of this category is loss aversion, which results in the fact that people assess even small changes from a current situation as higher than they are (Kim & Kankanhalli, 2009, p. 569), because they tend to weigh losses more heavily than gains (Kahneman & Tversky, 1979). Another type of this category is the anchoring effect, which refers to the existing propensities and expectations of a person, which serve as the basis for an initial value to evaluate the change in the context of the initial state (Tversky & Kahneman, 1974).

The third category is called *psychological commitment*, which consists of sunk costs, social norms and efforts to feel in control (Samuelson & Zeckhauser, 1988). Sunk costs refer to the value of earlier commitments, which lead to a reluctance to switch to a new alternative, such as skills that are related to the previous way of working and are lost when switching to a new system. Social norms refer to the prevailing norms towards changing the way of work, which can influence the SQB of an individual, such as a colleague's opinion that may influence the will to accept or resist a system. Efforts to feel in control arise from the desire to control or determine situations. This can lead to a distortion in the status quo of the person, because she or he does not want to lose control over a known system or working method (Kim & Kankanhalli, 2009). In general, psychological commitments deal with the users worry about wrong decisions they cannot reverse (Lee & Joshi, 2017).

Having presented the three categories of the SQB perspective, it becomes clear that Kim and Kankanhalli developed a framework that includes the theoretical foundation of the original technology acceptance literature and additional concepts from the bounded rationality paradigm in order to explain user resistance. The authors aimed at understanding how the implementation of technologies is assessed and acknowledged that beliefs generate a favourable or unfavourable attitude towards behaviour (Kim & Kankanhalli, 2009).

3   Research Model

Now, the main categories of the SQB are closely examined and explained in the context of user resistance to technologies among public sector employees. The theoretically developed model is based on the SQB perspectives by Kim and Kankanhalli (2009) and was adapted after conducting qualitative interviews with five public sector employees in order to refine the framework. At the moment, it includes four categories and is presented in Figure 1.

The first category is *rational decision-making* and contains four variables: uncertainty costs, transition costs, perceived value and switching benefits. In addition to uncertainty costs and transition costs, we extended the model by two further variables: Perceived value indicates whether the usefulness of the new system is considered high or low. Switching benefits name the perceived resource plus (e.g., time, money) of switching to a new system.

The second category is about *cognitive misperception*. It refers to perceived losses of a change and consists of loss aversion and the anchoring effect. Loss aversion influences the perceived value of using a new system, because it acknowledges that people weigh losses greater than gains (Tversky & Kahneman, 1974). Next, the anchoring effect points at the expectation of using a new system when considering past experiences and thresholds.

The third category, *psychological commitment*, is built of sunk costs, efforts to feel in control and social norms. We deviate from Kim and Kankanhalli by moving social norms in another category to measure it more appropriately within context of the public sector.

The fourth category is about *organizational and social influences* and contains four variables. As mentioned above, we placed the variable social norms in this category and divided it into two separate parts: colleague opinion and management as role model. The aim is to account for hierarchy in the public sector and to separately measure the influence of the opinion of direct colleagues as well as of higher-ranking employees such as managers. We also added two other variables this category: organizational support and perceived value for others. The first one is about the organization providing assistance in times of change. The second one refers to the estimated benefit for others, in our case, for citizens.

We also consider several control variables, i.e., self-efficiency, habit of using technologies at work, personnel responsibility, ranking within the organization, duration of work and other demographic data (e.g., age and gender). These variables may influence user resistance in a way that people might have a greater technical affinity and are more open minded for the new. However, correlations could also go in the other direction and make employees more afraid than necessary, when it comes to digitization and technology use, due to general scepticism.
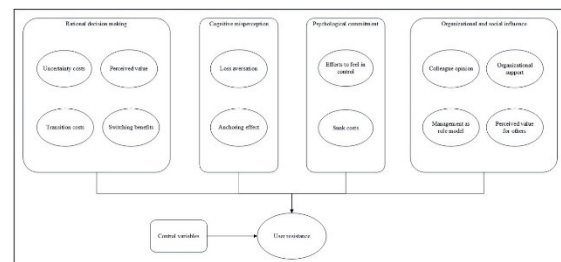

Figure 1. Research Model

4   Hypotheses Development

Based on the theoretical foundation, we derive twelve hypotheses. Pointing at the first category ('Organizational and social influence'), colleague opinion is defined as the perception that colleagues support the changes associated with a new IS implementation. We suggest that a positive opinion towards using a technology by colleagues on the same organizational level reduces user resistance, because employees directly see improvement and chances.

H1: Positive colleague opinion has a negative effect on user resistance.

Organizational support for change often appears in the form of training and resources. This can

reduce the perceived difficulty of adapting to new systems. Consequently, the higher the organizational support for change, the lower the transitions costs in terms of time and effort to learn the new way of working. Therefore, organizational support for change is expected to reduce user resistance.

H2: Organizational support has a negative effect on user resistance.

Higher ranking employees, such as the mayor herself or himself, can act as role model and thereby influence the staff. For this reason, there is a high probability that the resistance to a new system decreases if the top management uses it itself.

H3: Management acting as role model has a negative effect on user resistance.

The perceived value for others (e.g., citizens) reflects the result of one's work. On this basis, it can be suggested that the resistance to use a new technology decreases when the employee notices the positive effects, this change has on others. If, for example, the citizens' satisfaction with public sector services increases after forms of eGovernment have been introduced, the staff directly sees the benefit and is probably more inclined to embrace eGovernment technology than before.

H4: A high perceived value for others has a negative effect on user resistance.

Considering the second category ('Psychological commitment'), it is important to both ensure that employees remain in control of their own actions and to make the investments they already made (i.e. their sunk costs) as appropriate as possible, among other things, by keeping new investments to a minimum. This is achieved, for example, by making technology very easy to use to make employees quickly feel able to use and understand it. Furthermore, the learning effort and the hurdle to further training remain low.

H5: A low effort to feel in control has a negative effect on user resistance.

H6: A low perception of sunk costs has a negative effect on user resistance.

Keeping in mind the third category ('Cognitive misperception'), it is worth considering that people always remember past situations and base their current actions on them. Thus, it is important to set the anchors present in the anchoring effect are not too negative for the employees. For example, it is useful to remind them of training courses that they have enjoyed. It is also possible to familiarize them with systems that are very easy to use and then remind them that they have already mastered the introduction of a technology very well. This also reduces the fear of making mistakes and losing a lot by introducing a technology, i.e., their loss aversion.

H7: A low loss aversion has a negative effect on user resistance.

H8: Setting pleasant anchors has a negative effect on user resistance.

Finally, addressing the last category ('Rational decision making'), switching benefits refer to the perceived value of changing to a new system. Noticing one's higher performance, among other beneficial outcomes, could increase the perceived value of a change and decrease the resistance to using a new system.

H9: Switching benefits have a negative effect on user resistance.

As mentioned before, perceived value describes whether the perceived benefit of a new system is higher than its costs. If the perceived value of a new system is low, it is more likely that resistance to that system occur. The fact that the benefit of using a system must be higher than the cost, stresses the need to find ways to increase the overall perceived value of technological change. This also means that the transition and uncertainty costs that changes entail are kept as low as possible.

H10: Perceived value has a negative effect on user resistance.

H11: Low uncertainty costs have a negative effect on user resistance.

H12: Low transitions costs have a negative effect on user resistance.

5 Research Design, Methodology, and Outlook

In cooperation with a small municipality in Germany, we plan to conduct a three-stage mixed method study. In this study, we seek to combine the traditional acceptance model with the SQB perspective. To this day, we already conducted a qualitative pre-study with a focus group to derive a scenario of a typical technology implementation and to identify missing independent variables in our theoretical framework. The implementation of a document management system was selected as a typical case. Moreover, we ran a pilot survey with a small set of employees (n=5) to further revise the questionnaire. However, it should not remain unmentioned that our work is not yet complete. In the next phase, the survey will be sent to all employees of our partner municipality in an online format. The following step will be comprehensive data cleansing and analysis. Based on this, we hope to identify significant correlation and cause-effect relationships and to better understand the resistance of new technologies in the workplace by public administrations staff. The goal is to further develop our theoretical model. This potentially leads to a more condensed model and motivates future investigations of the identified factors. The overall aim is to contribute a theoretical added value on how to integrate different models stemming from the rational choice or bounded rationality paradigm as well as a practical surplus by providing recommendations for action.

In sum, our study is intended to provide a guide how public sector employees can adapt to changes caused by the digital transformation. In this context, we aim to derive promising strategies on how to counteract their scepticism and anxiety when dealing with novel processes and technologies. The results can easily be scaled in order to transfer knowledge to other municipalities and organizations.

6 References

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