

A Reference Framework for Agile Transformation in Public Administration

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Abstract

Times of crisis increase the workload in public administrations due to the requirements of citizens or short-term changes in legislation. Public administrations must have the ability to react flexibly to changes. Furthermore, digitization projects are being implemented and these are leading to an increasing focus on project work, which confronts public administration employees with a different kind of working and corresponding challenges. The introduction of agile process models and agile practices can reduce these problems. For an agile transformation, public administrations need support based on agile values towards a targeted implementation of agile methods. The designed artefact is a reference framework that supports agile transformation in the context of public administration.

Keywords

reference framework, agile transformation, public administration, project work, dimensions of agility, continuous improvement

1. Motivation

The past has shown that public administrations have to adapt their working methods in order to remain capable of acting in crisis situations, such as the prevailing Covid-19 pandemic or refugee crises. Digitalization is also increasingly becoming a focus in public administrations in order to maintain a certain ability to act in these situations. The implementation of corresponding digitalization projects means that public administration employees increasingly have to organize themselves in projects and a different type of cooperation is emerging. The work of public administrations is often characterized by strong hierarchies, a lack of communication and a lack of transparency [1]. In order to overcome the prevailing challenges in public administrations, flexibility is needed, which can be achieved with the introduction of a more agile way of working. Adopting agile practices promises improvements in skills, such as handling changing priorities or increasing productivity [2]. Furthermore, agile values promote a culture of continuous communication [3].

Agile process models, such as Scrum [4] or Kanban [5] are known from software development and are increasingly being used (in an adapted way) in other areas, such as marketing, human resources, and sales [2].

Agile transformation is seen as highly promising for the implementation of e-government projects in public administration, as the paradigm shift from a plan-oriented to a human-oriented approach enables a much more user-oriented development of digital products. Through a high level of communication and a high affinity for change with regard to requirements, the agile paradigm could reduce the risk of e-government project failure [6]. An introduction of agile working methods is thus accompanied by a change in the value system within an organization. In a plan-oriented environment, the focus is on processes and the success of a project is then measured on the basis of compliance with a previously defined plan. This way of working is nowadays often found in public administrations. In

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contrast to the plan-oriented approach, agile is a value-oriented way of working in which the focus is on people. In this environment, cooperation takes place at eye level and hierarchies are less important; rather, the focus is on common success.

This paper gives an overview of the research goals of my PhD thesis and presents the further steps to develop a reference framework to support an agile transformation in public administration. The paper is structured as follows: Section 2 presents the objective and research questions proposed for the thesis. Section 3 deals with the preliminary research and Section 4 outlines the research methodology and the associated individual steps in the research process.

2. Objective and Research Questions

The main research objective of the PhD thesis is to develop a reference framework for an agile transformation of public administration. Based on the reference framework the public administrations will receive support in the implementation of an agile transformation. The development of a reference framework for public administration to support the agile transformation requires knowledge about the work of public administrations, the current implementation of digitization projects and the challenges public administrations face in project work. In previous research, we were already able to gain some insights in this regard, which form a basis for further research.

For the development of a reference framework, different steps were defined, guided by the research questions presented in the following:

RQ1 - What are the challenges in project work in public administration?

RQ2 - What factors do exist that support an agile team in public administration to be successful?

RQ3 - What dimensions do exist to capture the agility based on agile values?

RQ4 - What approaches do exist to support the agile transformation?

RQ5 - How can a reference framework be developed to support the agile transformation of public administration?

RQ6 - How can the developed reference framework be applied in the real world?

3. Related Work and Preliminary Research

The analysis of related work reveals that there is a need for support in agile transformation. So far, we have not been able to find any work that focuses on supporting the agile transformation of a public administration in a targeted way and based on agile values.

In 2018, Mergel et al. [7] conducted a systematic literature review on agile management and identified four areas of agile application (agile software development, agile project management, agile acquisition, and agile evaluation) in public administration and identified that the category of agile evaluation is widely unexplored.

Torreçilla et al. [8] were already able to present the successful use of agile methods by presenting the experience of applying an agile framework based on Scrum [4] to software development in public administration in Spain. Karaj and Little [9] also showed how the introduction of Lean and Kanban [10] changed the way of working in a public administration in Canada.

In our preliminary research, we conducted surveys in Germany in 2018 [1] and 2021 (paper under review) with employees of public administration to determine the project approach to digitalization projects in public administrations. The survey results showed that there is currently a low level of user participation in the implementation of e-government and digitization projects. In both surveys, participants named “insufficient communication” and “unclear requirements” as reasons for the failure of projects. Furthermore, we defined six dimensions of agility based on the agile values by comparing the agile values with the traditional values. Based on the agile expression of the defined value pairs, there were six dimensions: communicative, change-affinity, iterative, self-organized, product-driven and improvement-oriented were developed [11]. We were already able to show that the challenges from the survey [1] can be assigned to the six dimensions of agility [11], [6] and that an agile way of working is suitable for this context to overcome the challenges [6].

Based on these dimensions, a questionnaire was developed to measure the current state of agile transformation at the team level in these six dimensions and to take into account the user-specific context of the participants [11].

Based on an expert survey in three iterations, we were already able to show that the questionnaire can be adapted to the context of public administration (paper under review). Subsequently, in a first case study, we used the questionnaire in three teams of a public administration and were able to show that the six dimensions of agility we defined are measurable; but at the same time, dysfunctionalities within the teams can be uncovered that have an influence on the agile transformation.

We have increasingly recognized in our preliminary research that public administrations need to be supported for a cultural change based on agile values and a start to agile transformation. The agile culture leads to a transformation of the traditional organizational principles of bureaucracy, as it values individual team members and teams and requires responsible discretion and great flexibility in organizational procedures and principles [12]. Therefore we have already developed a prototypical 7-step process model to support the agile transformation in public administrations [13], [14].

4. Research Methodology and Progress

This PhD thesis is inspired by the Design Science (DS) research methodology of Peffers et al. [15]. The Design Science method is suitable for the creation of the artefact “reference framework for an agile transformation of public administration” due to its iterative approach. Figure 1 presents an overview of the steps that are to be conducted within the PhD thesis.

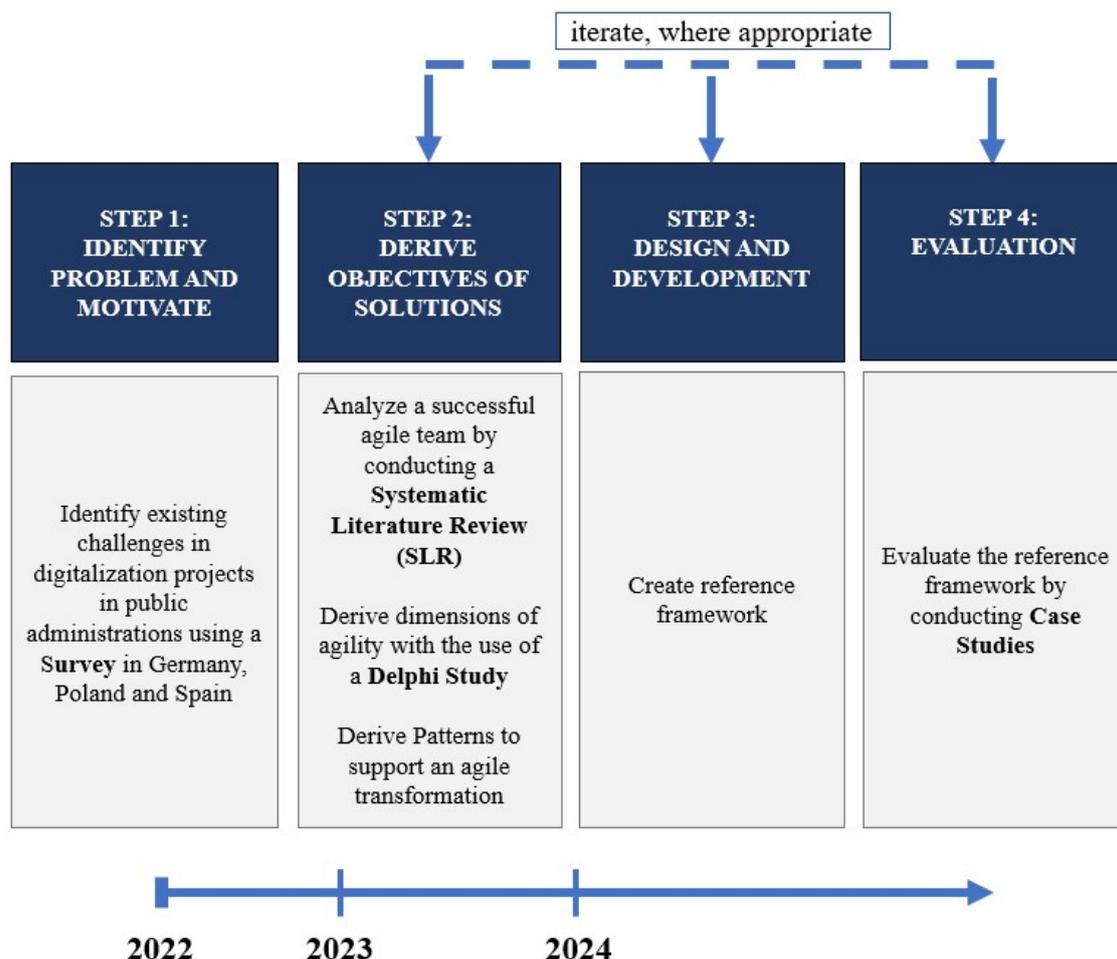


Figure 1: Design science research methodology and progress

Step 1 identifies the problem by conducting a survey in three countries and clarifies the motivation. Steps 2 to 4 are carried out iteratively, if appropriate. The four steps described above are discussed in more detail below.

4.1. Identify Problem and Motivate (related to RQ1)

In the first step, project work in public administrations is to be analyzed internationally. In order to define a reference framework for public administration, public administrations must be analyzed across countries and the challenges that arise in the project work must be classified.

Based on the results, it can be determined which challenges public administrations in digitization projects are faced with in their project work.

In the development of a reference framework to support public administration in e-government and digitization projects, it is important to identify whether agility can resolve the challenges that arise and represent a suitable approach for public administration, as has already been shown for Germany [6].

In order to be able to conduct such an analysis, an existing questionnaire, which has already been developed for conducting two surveys in Germany in 2018 and 2021, will be optimized and used. The application of the questionnaire showed the need for optimization to improve the wording of items. First, the optimization should be carried out and then applied in the countries of Germany, Spain, and Poland.

4.2. Define Objectives of a Solution (related to RQ2, RQ3 and RQ4)

The definition of objectives of a solution and the associated learning for the development of a reference framework can be divided into three steps, where different research methods are to be applied. These steps should also be iterative when appropriate.

Successful agile teams in public administrations (related to RQ2)

The research question RQ2 will be answered by conducting a Systematic Literature Review (SLR). For the SLR, the guidelines according to Kitchenham and Charters [16] are adopted. The SLR was guided by the following RQs:

RQ2.1 - What is a successful agile team?

RQ2.2 - What is a successful agile team in public administrations?

RQ2.3 - Do factors exist that prevent the public administration and the project team from working in an agile way?

The first step is to determine what a successful agile team is, which factors contribute to this success, and which factors are used to measure success (RQ 2.1). In order to specialize this further for the context of public administration in this PhD thesis, we concentrate on the second step of answering the research question RQ2.2.

In order to identify which factors have an influence on a project team and the organization, an identification should already take place within the framework of the SLR to be carried out (RQ2.3). The identified influencing factors contribute to the definition of patterns, which represent targeted support in the agile transformation.

To determine the agile maturity of a successful project team, in the following step, the agile maturity of a selected project team defined as successful can be measured within the defined dimensions of agility with the help of our questionnaire. Based on the findings, target values in the dimensions can be derived for other project teams. Furthermore, a prioritization of the dimensions for achieving a high agile maturity within the transformation process can be derived based on the values achieved.

Derivation of the dimensions of agility and mapping with agile methods (related to RQ3)

In our research so far, we have identified that conveying an agile mindset is essential for value-oriented project collaboration in public administration (paper under review). Agile values, such as trust, transparency and cooperation at eye level are already recognized as important by the public

administration, but are not established within the project teams in the public administration yet (paper under review). To achieve an understanding of agile values and prepare the way for a different way of working, we have recognized that defining dimensions of agility is a useful approach (paper under review). This value change as a particular challenge and influences all collaboration in the development of digital products in public administration. The experience of the last few years of research shows that the defined dimensions of agility are suitable for conveying an agile way of working and building an agile mindset. The dimensions we have defined are initially based on a comparison of agile and traditional values [11] and will be derived in the next step using a Delphi Study.

With the help of the dimensions of agility, a common understanding of agility can be created, and they represent an important aspect for the further development of the questionnaire for measuring agility. The division into dimensions can be used to provide more targeted support for the agile transformation.

In a further step of the PhD thesis, these dimensions of agility could later be mapped with agile methods, so that a targeted use of methods can also take place.

For the Delphi study, experts from the purely agile context should first be selected in order to focus on agility and to develop a definition of the dimensions of agility based on agile values. Since the reference framework to be developed is to be applied in the context of public administration, experts from companies that carry out e-government and digitization projects with public administration, executives from public administrations and employees from the digitization areas in public administrations will be included in further steps. In a further step, the defined dimensions of agility should then be assigned to corresponding methods in order to be able to achieve an improvement within the respective dimension through the targeted use of agile methods.

Approaches to support an agile transformation (related to RQ4)

Based on RQ4, expert interviews will be conducted to analyze which approaches are already being used to support the agile transformation of public administration. The aim is to analyze patterns as well as best practices and methods that are already in use. Furthermore a team is influenced by the organization and therefore it is important to examine how high the influence of the overall organization is on the respective dimensions of agility.

The factors influencing a project team in a public administration result from the answer to research question RQ2.3. The factors influencing a project team in a public administration in e-government and digitization projects and the organization are to be identified as part of the SLR to be conducted. These findings will be used to derive patterns to support the agile transformation process in the project teams.

The internationally occurring challenges within digitization projects identified from the inventories conducted in different countries are to be assigned to the defined dimensions of agility in order to derive corresponding patterns for a successful agile transformation process on the basis of this. Appropriate patterns will represent a component within the reference framework.

4.3. Design and Development (related to RQ5)

In this phase, the artefact “reference framework for agile transformation in public administrations” will be created. An agile transformation of public administration requires a targeted approach and support. The findings from the defined research questions (RQ1-4) are used to derive the components of the reference framework, which will support this agile transformation. The reference framework will be designed, which is then evaluated iteratively through expert interviews.

4.4. Evaluation (related to RQ6)

The reference framework is to be established in the real world to support the agile transformation of a public administration and thus enable an agile way of working.

We intend to conduct case studies to evaluate the reference framework. Prior to this, appropriate metrics need to be defined in order to evaluate the successful application of the reference framework. The case studies will be conducted in a European context. With this approach, both the methods

developed within this PhD thesis are evaluated and the reference framework itself is validated with the individual methods as a whole.

5. Conclusion

This paper presents the approach of my PhD thesis. The main objective of this thesis is to develop a reference framework to support the agile transformation in public administration.

Based on the defined research questions to be answered in the PhD thesis, this PhD thesis contributes to advancing the digitalization of public administration with the help of an agile transformation and to improving collaboration within project teams in digitization projects with a focus on agile values. The reference framework is intended to be a kind of recommendation for action to support public administrations in handling the challenges of project work. Both the targeted use of agile methods and the communication of the agile mindset are central aspects of the transformation.

In an initial phase, the challenges of project work in public administrations, which the employees face, will be identified in the European context. Furthermore, the implementation of an SLR will identify when an agile team is successful in public administrations. In addition, an analysis of factors influencing agile teams will be integrated into the SLR, which are an important aspect for the future development of patterns. Furthermore, with the help of a Delphi study, dimensions of agility are derived and mapping with suitable methods is carried out. Using the methods and an already developed questionnaire to measure agility at the team level, the current level of maturity within a dimension can be determined and the need for improvement can be identified.

In the next step, patterns are defined on the basis of the findings in order to support the agile transformation in a targeted manner and to develop a suitable reference framework on this basis. The development of the reference framework will be followed by case studies in different countries for evaluation purposes.

The creation of a reference framework to support the agile transformation in public administrations contributes to overcoming the challenges in the implementation of digitalization projects and to establishing a different type of cooperation based on agile values.

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