Toward Government as a Platform: An Analysis Method for Public Sector Infrastructure

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Research Paper

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Abstract. Government as a Platform (GaaP) is a promising approach to the digital transformation of the public sector. In practice, GaaP is realized by platform-oriented infrastructures. However, despite successful examples, the transformation toward platform-oriented infrastructures remains challenging. A potential remedy is the analysis of existing public infrastructure regarding its platform orientation. Such an analysis can identify the gaps to an ideal platform-oriented infrastructure and, thus, support the transformation toward it. We follow the design science research methodology to develop a four-dimensional analysis method. We do so in three iterations, and, after each iteration, evaluate the method by its application to infrastructures in practice. With regard to theory, our results suggest extending GaaP conceptualizations with a specific emphasis on platform principles. With regard to practice, we contribute an analysis method that creates proposals for the improvement of infrastructures and, thus, supports the transformation toward GaaP.

Keywords: Government as a Platform, e-government, digital government.

1 Introduction

Government as a Platform (GaaP) envisions the public sector as an open platform where people inside and outside government can innovate and contribute to co-create better public services (O'Reilly, 2011). The approach fosters higher efficiency (Janssen and Estevez, 2013) and increases the user-friendliness of public services (Cordella and Paletti, 2019). Today, when human-centric digital transformation is part of the strategic goals of governments (European Commission, 2022), GaaP is of high priority for policymakers and governmental institutions. On a technical level, GaaP is realized by modular and open IT infrastructures (Bender and Heine, 2021; Brown et al., 2017; Pope, 2019). The modularization of infrastructure leads to more flexible interconnections and, thus, enables shared services (Brown et al., 2017; Tiwana, 2013). Openness allows for

the participation and co-creation of digital services by users and third parties (Millard, 2018; Soto Setzke et al., 2019). In other sectors, such infrastructures have been coined "platform-oriented infrastructures" (Bygstad and Hanseth, 2018).

However, the transition toward platform-oriented infrastructures can be challenging (Kuhn et al., 2022a), particularly given the complexity of existing public infrastructures. For example, the platform boundary is hard to define since it concerns numerous components across several organizations and different levels of government. Public sector literature provides first conceptualizations (e.g. Bender and Heine, 2021; Brown et al., 2017) and individual examples of GaaP (e.g. Cordella and Paletti, 2019; Smorgunov, 2021), but defining the boundaries of a platform-oriented infrastructure is not explicitly addressed. More general, it remains unclear what makes a public sector infrastructure platform-oriented and how to transition toward, which may even hinder the digital transformation of the public sector at large (Kuhn et al., 2022a).

A potential remedy for this challenge is the analysis of public infrastructures regarding their platform orientation. Public sector infrastructures arguably do not start their "platformization" (Bygstad and Hanseth, 2018) efforts from scratch. Thus, to navigate the GaaP transition effectively, governments need to understand the current state of their infrastructures. Only then they are able to outline a path to GaaP. An analysis of public sector infrastructures regarding their platform orientation is therefore a basis for the required transition and serves as a starting point toward ideal platform orientation.

We formulate the following research question: *How can public sector infrastructure be analyzed regarding its platform orientation?*

We follow the design science research methodology (Peffers et al., 2007) to develop a four-dimensional analysis method. The method development is conducted in three iterations, each evaluated by its application to public sector infrastructures. With regard to theory, we propose extending GaaP conceptualizations with a specific emphasis on platform principles. We contribute to practice by providing a method that can be used to analyze public sector infrastructure and, thus, support the transformation of infrastructure toward GaaP. The paper is structured based on Gregor and Hevner (2013).

2   Theoretical Background and Objective for a Solution

2.1   Government as a Platform

In his seminal contribution "Government as a Platform", Tim O'Reilly imagined the government as an open platform on which people inside and outside the government can innovate and contribute so that better public services can be co-created (O'Reilly, 2011). Over the years, several different perspectives on and conceptualizations of this idea have been developed – for example, GaaP as an approach to digital public infrastructure (Pope, 2019) and GaaP to co-create public value (Cordella and Paletti, 2019). Scholars have highlighted the benefits of GaaP, in particular, cost reduction (Janssen and Estevez, 2013), service orientation (Vestues et al., 2021), and better outcomes regarding user-friendliness (Millard, 2018). With GaaP, governments can "[do] more with less" (Janssen and Estevez, 2013) by providing infrastructure that enables others

to build upon existing structures instead of building from scratch. This notion has been described as leveraging (Millard, 2018) and harnessing "the power of its users (…) to co-create (…) its offerings" (p. 13, O'Reilly 2011). While the exact definition and conceptualization of GaaP are still subject to research (Seo and Myeong, 2020), the idea of leveraging is one of the central principles that underlie the approach. Other principles are openness (O'Reilly, 2011; Seo and Myeong, 2020) and participation (Millard, 2018; O'Reilly, 2011). Crucially, with GaaP, the government's role changes from a service provider to a platform owner (Fishenden and Thompson, 2013; Millard, 2018; O'Reilly, 2011). This and the aforementioned principles make "Government as Platform" more than a "Platform for Government" but a holistic approach to the digital transformation of the public sector (Brown et al., 2017).

2.2   Platforms and Platform-oriented Infrastructures

In general IS literature, scholars investigate the phenomenon of platforms in numerous publications (de Reuver et al., 2018; Hein et al., 2020; Jacobides et al., 2018; Tiwana, 2013; Van Alstyne et al., 2016). Platforms can be described as modular architectures with a core and a periphery (Baldwin and Woodard, 2008) on which actors are brought together and coordinated to innovate and compete (Gawer, 2014). The link between the core and the periphery is facilitated and managed by so-called "boundary resources", which play an important role in the regulation of the openness of the platform (Boudreau, 2010; Ghazawneh and Henfridsson, 2013; Karhu et al., 2018). The modular structure and the boundary resources foster the emergence of ecosystems. Taken together, a digital platform ecosystem "comprises a platform owner that implements governance mechanisms to facilitate value-creating mechanisms on a digital platform between the platform owner and an ecosystem of autonomous complementors and consumers" (p. 4, Hein et al. 2020). Digital infrastructures are an integral part of platforms (Constantinides et al., 2018). With "their ability to collect, store, and make digital data available across a number of systems and devices" (p. 2, Constantinides et al. 2018) they provide platforms with a backbone. Existing frameworks for the design and development of platform infrastructures are from domains like health care (Bygstad and Hanseth, 2018; Herman et al., 2020) or mobility (Weiss et al., 2020), sometimes using the term "platform-oriented infrastructure". Since there is no established definition, for the scope of this paper, we adopt the infrastructure focus of other domains and define GaaP as the adoption of platform orientation to a public sector infrastructure.

2.3   Challenges of GaaP in Practice

In practice, GaaP is applied by numerous countries, including Italy (Cordella and Paletti, 2019), Russia (Styrin et al., 2022) and the UK (Brown et al., 2017) and is pursued on a supranational level (European Commission, 2018). To achieve successful public value creation, GaaP needs to be properly orchestrated and "configured" (Cordella and Paletti, 2019). There is no "one-size-fits-it-all" approach to transforming a government toward GaaP. Several publications provide hints on how to approach practical challenges (Bender and Heine, 2021; Brown et al., 2017; Cordella and Paletti,

2019; Millard, 2018; O'Reilly, 2011), some focusing on the analysis of practical GaaP applications. For example, Brown et al. propose an assessment framework that distinguishes between the dimensions "organizational form," "market dynamic," and "architectural structure" (Brown et al., 2017). Bender and Heine describe constituting elements of public service platforms based on the categories "platform foundation & ecosystem," "platform architecture," and "platform governance" (Bender and Heine, 2021). While these conceptualizations provide the first groundwork, they are not designed to be applied to infrastructure in particular and are not targeted at practitioners.

2.4   Objective for a Solution

Based on this gap, our objective for a solution is to create an analysis method for public sector infrastructure that supports the application of GaaP in practice. To ensure its support capability, we further specify the objective by means of requirements for the method. We draw from Kuhn et al. (2022a), who find five barriers that can hinder the application of GaaP in practice. The authors find that it remains unclear for practitioners what GaaP actually means in practice. From this, we infer the need for some form of structure in the application of GaaP and formulate requirement 1 as **Req 1: The method should provide a comprehensive framework of what to consider when applying GaaP in practice.** In particular, the solution should consider the various dimensions of GaaP elaborated in literature, including the architecture and principles of platform-oriented infrastrcutures. Second, Kuhn et al. (2022a) find that the aim of implementing structural changes, such as the application of GaaP, is confronted with limited personnel and time in the public sector. Practitioners in these situations lack the resources for trial and error approaches or extensive preparation. Instead, there is a need for pragmatic solutions and hands-on tools. From this, we formulate **Req 2: The method should be applicable with little resources.** In particular, the solution should address the limitations of digital agencies that were founded recently and are not yet established. Third, many aspects of GaaP are not completely new and have already been considered in the public sector. Examples include the ideas of modularity and shared services, but also the government as an infrastructure provider (O'Reilly, 2011). However, the existing, organically developed IT infrastructures typically contain numerous areas for improvement, which makes it challenging for practitioners to prioritize. There is the need for support to determine which areas are already close to the GaaP approach and which are not. From this, we formulate **Req 3: The method should identify gaps of the infrastructure with regard to GaaP.** In particular, the gaps should be suitable for the development of actionable proposals for improvement of the infrastructure. Fourth, while there are certain commonalities among GaaP implementation across countries, the approach needs to be adopted to its context (Smorgunov, 2021). Given the identified gaps, there is a need for context-specific design to fill them. From this, we formulate **Req4: The method should create actionable proposals for the improvement of the infrastructure toward GaaP.** In particular, the proposals should be implementable by the digital agency itself, that is, should be specific for the infrastructure in question.

3   Methodology

To achieve our objective of creating a method for the analysis of public sector infrastructure regarding its platform orientation, we follow the design science research (DSR) paradigm (Hevner et al., 2004). Designing a method is an artifact of DSR that aims at creating solutions for real-world problems (Hevner et al., 2004). Given the real-world relevance of this research, we follow this paradigm. More specifically, we follow the well-established and widely used six-step design science research methodology (Peffers et al., 2007) and go through three design iterations, as shown in Table 1.

Table 1 Overview over the three iterations of the artefact development

Iteration	Time	Design and Development	Demonstration and Evaluation
1st	06/2020-06/2021	Based on literature review and case study (Agency A)	Two applications of the method to infrastructures from Agency A
2nd	12/2021-04/2022	Based on evaluation results and three practitioner interviews (Agency A)	Three applications of the method to infrastructures from Agencies A, B, and C
3rd	11/2022-03/2023	Based on evaluation results	Two applications of the method to infrastructures from Agencies A and D

First iteration. Agency A is a digital agency in Germany, responsible of the architecture management of federal e-government infrastructure. Based on a literature review and a case study of the GaaP approach of Agency A, the first iteration yielded a three dimensional framework. For evaluation, the framework was applied to two infrastructures of Agency A. The first iteration was communicated in (Kuhn et al., 2022b), which is why we focus on reporting iteration two and three in the following.

Second iteration. The *objective for a solution* was iterated based on the evaluation results and three interviews with IT architects from Agency A in December 2021. The interviews were semi-structured and lasted between 37 and 54 minutes. The *design and development* was conducted between January and March 2022 in several workshops among the authors, in which the framework was specified into a method. For example, we split the dimension "elements and roles" into two separate dimensions, renaming the first one "architecture". In addition, the first version had only one step, the application of a platform perspective to the infrastructure. Based on problems with the applicability, the second version was expanded to four steps, adding two steps for decomposing the infrastructure and a final step for assessing the results. For the *demonstration* and ex-post *evaluation* of the second iteration, we applied the method to three infrastructures from agencies A, B, and C in the beginning of 2022. Agency B is an IT service provider that provides municipalities and states with an infrastructure for digital public service delivery including the corresponding business processes. Agency C is a small municipality. The corresponding workshops for the application of the method lasted a

total of 7.75 hours and took place in a virtual collaborative setting, using the Miro online collaboration tool. They were conducted in the participant's mother tongue. Three to five experts (IT architects and strategists) from the respective agencies participated. After a short introduction, the workshops consisted of the application of the method, i.e. the application of each step in each dimension. The workshops were concluded with a summary and a feedback section. The collected data include the recordings of the workshops, the workshop results on the online collaboration board and written as well as oral feedback from the participants.

Third iteration. Conducted at the end of 2022 and in the first quarter of 2023, the third iteration aimed at incorporating the evaluation insights from the second iteration. In the *design and development,* the method was extended by a theoretical part before the analysis to clarify the motivation for and the terminologies of GaaP; and by a design part after the analysis to improve the method's ability to infer proposals for improvement from the identified gaps. Some renaming happened to align the dimensions with participant's intuition. The steps of the analysis part remained the same. Moreover, based on the evaluation data, the principles dimension was simplified to be more consistent with the other dimensions. Finally, examples from successful GaaP countries were added to inspire the design of proposals for improvement. For the *demonstration* and ex-post *evaluation* of the resulting third iteration, we applied the method in two workshops, lasting a total of 9.5 hours, to infrastructures of Agencies A and D. Agency D is the federal agency for public administration, and, among others, responsible for the infrastructure that allows the retrieval of register data. One workshop took place in a virtual collaborative setting, the other in person. Both were using the Miro online collaboration tool[1] and were conducted in the participant's mother tongue. To account for the extended method and based on feedback from iteration two, the duration of the workshops was expanded from three to five hours. One and two experts (IT architects and strategists) from the respective agencies participated. After a short introduction, the workshops started with a theoretical input by the researchers on GaaP. Then, the analysis followed dimension by dimension and step by step. After the analysis, the workshop was concluded by the overall assessment of the infrastructure and a feedback section. The collected data includes the recordings of the workshop, the results on the online collaboration board and written as well as oral feedback from the participants.

4 The GaaP Infrastructure Analysis Method

4.1 Dimensions

The GaaP infrastructure analysis method consists of four dimensions. The dimensions and their characteristics are based on literature and were refined in the course of the iterative development process. Since we adopt an infrastructure-focused definition of GaaP, we use an architecture dimension to analyze the technical aspects of a GaaP approach. Then, regarding IT governance and IT management (Pereira and Silva, 2012),

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[1] The Miro board template can be found here: https://miro.com/app/board/uXjVPgMwvlo=/

we consider the actors of the infrastructure and their platform roles, the underlying principles to engage them and finally the special role of the platform owner.

GaaP Architecture. Following Brown et al. (2017) and Bender and Heine (2021), we propose an architectural dimension concerned with the elements of GaaP infrastructure and their interactions. The elements are software components such as payment or authentication. The characteristics are based on literature on constituting parts of platforms: the platform core, the platform boundary resources, and the platform ecosystem (Baldwin and Woodard, 2008; Ghazawneh and Henfridsson, 2013). The dimension aims to identify the components of the infrastructure in question and to map them to the platform parts. This helps to identify inconsistencies, double entries, or the absence of components in the overall architecture of the infrastructure.

GaaP Actors. Based on Hein et al. (2020), we propose an organizational dimension concerned with the actors of the infrastructure and their roles. The actors are organizations and individuals such as administrative entities or IT service providers. The characteristics of this dimension are based on typical roles in platforms: the platform owner, the complementors, and the users (Hein et al., 2020). This dimension aims to identify actors of the infrastructure and map them to their respective platform roles. This helps to identify inconsistencies, double entries, or the absence of roles.

GaaP Principles. Based on the importance of platform principles such as openness, participation and co-creation (Cordella and Paletti, 2019; Janssen and Estevez, 2013; Millard, 2018), we propose a dimension concerned with the engagement of users and complementors into the GaaP approach. Users and complementors are central to the ecosystem of a platform and, therefore, the dimension considers their perspective. The characteristics of the dimension are the discussed principles openness, participation, and co-creation. This helps to identify shortcomings in the ecosystem of the platform.

GaaP Activities. Based on Brown et al. (2017) and Millard (2018), we propose a dimension concerned with the infrastructure owner and its activities, especially the orchestration of platform actors by the infrastructure owner(s) (Cordella and Paletti, 2019). Orchestration is the coordination of actors via the planning, implementation, and maintenance of infrastructure components and related resources such as documentation. The characteristics of the dimension are those proposed by Millard (2018): facilitation and orchestration provision of tools, and management of assets. The dimension aims to identify the management activities of the infrastructure owners to map them to the characteristics. This helps to identify inconsistencies, overlapping responsibilities, and missing elements in the infrastructure management from a platform perspective.

4.2 Method

The proposed method provides a procedure for analyzing public sector infrastructure regarding its platform orientation. For the analysis, the method's dimensions and characteristics are broken down into a theory, an analysis, and a consolidation part. The analysis part is again subdivided into four steps. Table 2 depicts the method.

The **Theory part** of the method aims at communicating the knowledge prerequisites for the analysis to the participants. The part includes a presentation of central concepts

of GaaP along the dimensions of the method. For example, for the architecture dimension the difference between platform core and platform periphery are discussed.

Table 2 The GaaP Infrastructure Analysis Method

	GaaP Architecture	GaaP Actors	GaaP Principles	GaaP Activities
THEORY	Learn and discuss central concepts of GaaP and its dimensions			
ANALYSIS				
1. Status quo	Identify the major components of the infrastructure	Identify the major actors of the infrastructure	Identify the major usage scenarios for the users and complementors	Identify the activities of the infrastructure owner(s)
2. Infrastructure decomposition	Classify the components to the infrastructure core use cases	Classify the actors by their role	Classify the scenarios by infrastructure services	Classify the activities by actors
3. Platform interpretation	Map the components to the platform core, boundary resources, and ecosystem	Map the actors to the roles of platform owner, complementor, and user	Map the infrastructure services to openness, participation, and co-creation	Map the activities to facilitation, tool provision, and asset management
4. Assessment	Identify gaps to ideal platform orientation	Identify gaps to ideal platform orientation	Identify gaps to ideal platform orientation	Identify gaps to ideal platform orientation
CONSOLIDATION	Consolidate the identified gaps and develop actionable proposals inspired by examples from other countries			

The **Analysis part** of the method follows the notion of decomposition and recomposition. For each dimension of the method, the method provides two steps for the decomposition of the current infrastructure into its sub-aspects and then two steps for the recomposition of those subparts from a platform perspective. The rationale for the notion of decomposition and recomposition and the four steps is its gradual development. The analysis starts from the status quo and progresses, step by step, to the final assessment. The status quo at the start makes the method relevant and the step-by-step approach makes it understandable. Both are supposed to increase the direct applicability in practice. **1. Status quo.** The first analysis step of each dimension is capturing the status quo. Its goal is to identify all relevant elements of this dimension. In the dimension architecture, for example, these elements are the major components of the infrastructure. The step lays the basis for the analysis that follows by defining the object of analysis, that is its scope and granularity. **2. Infrastructure decomposition.** The second analysis step of each dimension is infrastructure decomposition. Its goal is to classify the identified elements into categories. In the dimension architecture, the categories distinguish between components that are core parts of the infrastructure, supporting components, and external components. This step aims to break up the existing way of thinking, that is the current categories that are used when working with the architecture. **3. Platform interpretation.** The third analysis step of each dimension is platform interpretation. Its goal is to map the identified elements into a platform-oriented schema.

In the dimension architecture, this schema is the platform core, boundary resources, and ecosystem. The step aims to apply a platform perspective to the infrastructure. **4. Assessment.** The fourth analysis step of each dimension is assessment. Its goal is to process the insights from the previous steps and infer gaps. In the dimension architecture, this can be, for example, two components with the same functionality.

The **Consolidation part** of the method aims at converting insight from the analysis into actionable proposals. This part includes a presentation of examples from GaaP implementations of other countries, which serves as inspiration for the consolidation.

5   Demonstration

To demonstrate the presented method, we elaborated on the application of the third iteration to an infrastructure of Agency A. The infrastructure supports the online portals of the German states with information on available services, the jurisdiction, and the routing information to that jurisdiction. In the following, we exemplarily describe what the analysis yielded for the "GaaP Actors" dimension of Agency A's infrastructure.

The **Theory Part** introduced the GaaP Actors dimension with a brief overview of typical platform roles - such as users, complementors and platform owners - and their differentiation. This included the association of those roles with the typical architecture components, for instance, the platform owner being directly occupied with the platform core. The concepts were discussed using private sector examples.

The **Analysis Part** of the "GaaP Actors" dimension (see Table 3) started with identifying the major actors of the infrastructure. The participants did this autonomously and by means of sticky notes. The actors of Agency A's infrastructure are numerous since it historically was owned by another entity and several states and working groups are involved in its development. In the second step of the analysis part, the identified actors were categorized along their roles. The categories included "Who decides about new components?" and "Who uses the components?". While the former is true only for Agency A and an IT service provider which is commissioned with the coding of the infrastructure, the latter includes eight types of actors. The third step focused on the reconstruction. Here the categories from step two were used as a first guess. For instance, the actors who decided about components were assigned as platform owners and the actors who use the components were assigned as users. In the consecutive discussion, these assignments were refined. While Agency A kept its assignment as platform owner, the IT service provider was omitted to reflect that it serves only as an agent of Agency A and, thus, does ultimately not own the infrastructure. In the final step of the analysis, the participants and the researchers discussed the reconstruction and generated insights regarding gaps towards GaaP. One of those insights was that in theory the roles of the infrastructure are quite close to GaaP and also clear. However, in practice, Agency A cannot always enforce ownership.

Table 3 Excerpt from the analysis part of the exemplary application

	GaaP Actors
ANALYSIS	
1. Status quo	<u>Relevant stakeolders</u>: Agency A, IT service provider A, editorial offices of the states, owners of online services, developers of online services, operators of online portals, the states, online service providers, federal ministry of the interior, citizens, working groups
2. Infrastructure decomposition	<u>Who decides about new components?</u>: Agency A, IT service provider A
	<u>Who develops and deploys components?</u>: IT service provider A
	<u>Who uses the components?</u>: Editorial offices of the states, owners of online services, developers of online services, operators of online portals, the states, online service providers, federal ministry of the interior, citizens
	<u>Who is responsible for the infrastructure as a whole?</u>: Agency A, board of CIOs, board of department heads, Integration group
3. Platform interpretation	<u>Platform owner</u>: Agency A, board of CIOs, board of department heads, integration group
	<u>Complementors</u>: Editorial offices of the states, owners of online services, developers of online services, operators of online portals, the states, online service providers, federal ministry of the interior
	<u>Users</u>: companies, citizens
4. Assessment	* The platform owner is kind of clear, how can this be enforced in practice?
	* Agency A is not always able to decide about API standards [that are central to the infrastructure]
	* Consolidation of working groups?
	* Who is setting standards? The complementors or legacy boards?
	* How can the relationship between owner and complementors be better defind?
	[…]

The **Consolidation Part** built on the insights of the analysis and aimed at inferring context-specific proposals for improvement. To inspire this process, the researchers presented examples from other countries such as the UK, Italy and Estonia. Then, the insights of the analysis of the four dimensions were consolidated in a discussion. For example, the aforementioned insight regarding enforcement resulted in the recommendation to clarify the relationship between owner and complementors.

6   Evaluation

To evaluate the presented method, we consider the collected data from the application workshops of the third iteration and analyze them along the defined requirements for the method.

Comprehensiveness. The presented method is organized along four dimensions. The dimensions are based on literature, combining existing sets of dimensions to include all relevant aspects. Namely, we integrate the dimension of platform principles which play a central role in literature (Millard, 2018; O'Reilly, 2011) but are not explicitly included in other proposed sets of dimensions, for example (Brown et al., 2017). Regarding the steps of the method, the analysis part proved stable after iteration two, with the procedure of decomposition and recomposition being perceived as helpful from the participants. ("*It was interesting to compile the status quo of our infrastructure*

and then deconstruct and reconstruct it", Agency C). In iteration three, the newly added theory part, with the motivation for GaaP, and the consolidation part, with examples from practice, were highlighted by the participants.

Applicability. All steps in all dimensions were successfully performed in the application workshops. The workshops concluded with gaps and proposals. This speaks to the general applicability of the artefact, and was also reflected by the participants ("*Where do I see myself and where is our system in this context – that has obviously worked well*", Agency D). Moreover, the method proved to be applicable in a short amount of time (five hours) and with few participants compared to the size of GaaP as a transformation effort. Given the considerable output of the workshops, this speaks to the efficiency of the method. However, the actual application of the method was conducted under the researchers' supervision. As recorded in the observations, this supervision was necessary to explain the steps and make the application efficient.

Identification of gaps. The workshops created 15 (Agency A) and nine (Agency D) insights on gaps for the respective infrastructures. Those gaps mainly became apparent in the recomposition step, which introduced the platform perspective and, thus, a focus on specific aspects of the infrastructure. Other insights were created through the combined consideration of the different dimensions, leading to back and forth discussions. An example for this is the consideration of the platform owner in the dimension GaaP Activities, which in one example led to the reconsideration of the set of core components ("*Because we cannot dictate that, we do not own our own platform. That might also be an important revelation*", Agency A). Several participants saw the structured approach of the method as a key reason for its capability to create these insights. ("*The structure is quite good. That helps already [...] to think differently about it*", Agency D)

Creation of proposals. Already the second iteration received good feedback regarding the transferability and value of the results for the participants ("*I can derive many things for my own work.*", Agency B). However, not many proposals where explicitly developed within the workshop. For iteration three, the workshops created four (Agency A) and nine proposals (Agency D) respectively, for example "clarification of the relationship between owner and complementors" (Agency A) and "focus on an API instead of the dashboard" (Agency D). The improvements were created either directly during the analysis or in the final consolidation part of the workshop. For the latter, the examples from other countries were perceived as particularly helpful, suggesting that the changes from iteration two to three were effective.

7   Discussion and Conclusion

Based on the evaluation we would argue that the presented method meets the defined requirements and, by extension, the objective for a solution. In the following, we discuss the implications for theory and practice as well as the limitations of this research.

For successful public value creation, a GaaP approach needs to be properly orchestrated and "configured" (Cordella and Paletti, 2019). We find that a decomposition and recomposition procedure can organize the analysis and guide its user. For practitioners,

that means that while there are barriers to applying GaaP in practice (Kuhn et al., 2022a), tools such as methods can help to overcome them. In addition, our method is structured along multiple dimensions. While there are existing sets of dimensions (Brown et al., 2017), our research suggests that a dimension concerned with platform's principles such as openness (Millard, 2018; Soto Setzke et al., 2019) can complement them. Further research should investigate the role of platform principles in GaaP.

Public sector infrastructures play a fundamental part in GaaP (Bender and Heine, 2021; Brown et al., 2017; Pope, 2019). The method shows that focusing on their platform orientation can be a rewarding starting point for GaaP endeavors in practice. However, our method builds on both GaaP / E-Government (e.g., Brown et al. 2017; Millard 2018) and general IS platform literature (Baldwin and Woodard, 2008; Ghazawneh and Henfridsson, 2013; Hein et al., 2020). While GaaP literature proved helpful for determining the dimensions, the IS platform literature was able to fill those dimensions with characteristics. For the ongoing conceptualization efforts of GaaP, this means that further integration with IS platformization literature, especially that with a focus on infrastructure (e.g. Bygstad and Hanseth, 2018; Törmer and Henningsson, 2020), has potential. The importance of infrastructure is also relevant to policymakers who have to justify investments into backend capabilities that are not directly visible in the frontend. Our method can help them communicate the actual dimensions and characteristics of platform-oriented infrastructures and, thus, the GaaP approach.

Finally, we find that theoretical conceptualizations of GaaP can be challenging to apply in practice. Concepts like openness or leveraging help to develop an understanding of the general idea of GaaP, but they need to be supported with examples and implemented by skilled personnel. Governments planning to apply GaaP should consider successful examples to make the transformation more effective. In addition, professionals with specific "platformization" expertise and skills are necessary.

We see the strength of our artefact in its relevance to practitioners. However, while we tested our method with different cases, we acknowledge that the proposed method was only applied to infrastructures within one European country. This calls for future research that applies the method across other contexts. A similar limitation concerns the evaluation concept of the method. The evaluation data speaks to the impact of the method on the participants and not on the infrastructure itself. While a positive impact on the participants arguably can have a positive impact on the infrastructure as well, this needs to be further investigated. Finally, the researchers' guidance was required to apply the method. This calls for further research that considers improvements in the applicability of the method without expert guidance and beyond single workshops.While limitations exist, we believe that our research is valuable to both theory and practice. In particular, we hope to further the application of GaaP in practice.

Acknowledgments

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