

# Development of a Model Supporting the Measurement of the Maturity of Smart Public Governance

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## Abstract

The very concept of smart public governance is new in literature. A set of different definitions of this concept can be found in the literature relating to the field of public administration. The concept of smart public governance has so far been mostly discussed in the literature which focuses on this aspect at local level or otherwise in respect of smart cities. This literature places the aforementioned concept into one of the six dimensions of smart cities and interprets it on such a basis. A review of scientific literature in the field of public administration or wider public domains (that is, smart cities and smart regions, smart government, smart public administration, etc.) showed that, so far, only two studies have dealt with the issue of quantifying smart public governance (with the analysis of one study focused on central level). Although the actual model for quantifying the maturity of smart public governance has not yet been developed, the authors have suggested a possible conceptual framework as a basis for model development. To summarise, there is currently no model available in Slovenia, nor internationally, that would support the quantification of smart public governance maturity at the level of individual public policies and, on this basis, neither at state level. The primary purpose of the doctoral dissertation is to develop a model supporting the measurement of the level of maturity of the smart public governance with the aim to fill this gap. The model will then be tested in the Slovenian public policy context. With this purpose in mind, we set three aims in the doctoral dissertation. Within the framework of the first and second aims, we want to give a substantive overview of the development of two concepts (the concept of smart and the concept of (public) governance), which constitute the concept of smart public governance in administrative science. We believe that only on this basis can we later (i.e., within the framework of the third aim) analyse the content and define the concept of smart public governance. We also want to distinguish this concept from its related concepts, such as good public governance, collaborative governance, collaborative innovation etc. This is followed by a proposal for the possible parameters of this model, which we want to develop within this doctoral dissertation, taking into account the parameters that have been defined in literature or in existing studies so far. In the second part, we will evaluate the developed model to support the quantification of smart public governance maturity through empirical research. This research will be conducted in the form of structured interviews, where we will survey public policy makers in the context of Slovenian public policy.

## Points for Practitioners

The doctoral dissertation will contribute to theoretical and empirical research on smart public governance in administrative sciences. The theoretical contribution is reflected in a thorough analysis of the concept of smart public governance and related concepts, detailed analysis, and comparison of the concept of public governance and the development of the concept of smartness in the field of public administration and public governance implementation. An empirical contribution to the administrative sciences is the development of a model to support the maturity measurement of smart public governance, which will (with possible adjustments) also be useful in the public policy contexts of other countries. Furthermore, the empirical research in the doctoral dissertation will be conducted among public policy makers in the Slovenian public policy context. Following this, the results will offer an assessment of smart public governance at the central level in Slovenia.

**Keywords:** public administration, maturity model, public governance, smart public governance, smartness

## 1 INTRODUCTION

Since the beginning of the 21<sup>st</sup> century, governments, and societies around the world have been faced with a dynamic economic and social pressures, and the complex challenges associated with public policies that come from the diversity and the complexity of the social objectives (Šiugždinienė, Gaule, & Rauleckas, 2017; Scholl & Scholl, 2014). These challenges need to be addressed and responded to quickly by the public governance system, that is, the smart public governance (Šiugždinienė et al., 2017). Information and communication technologies play

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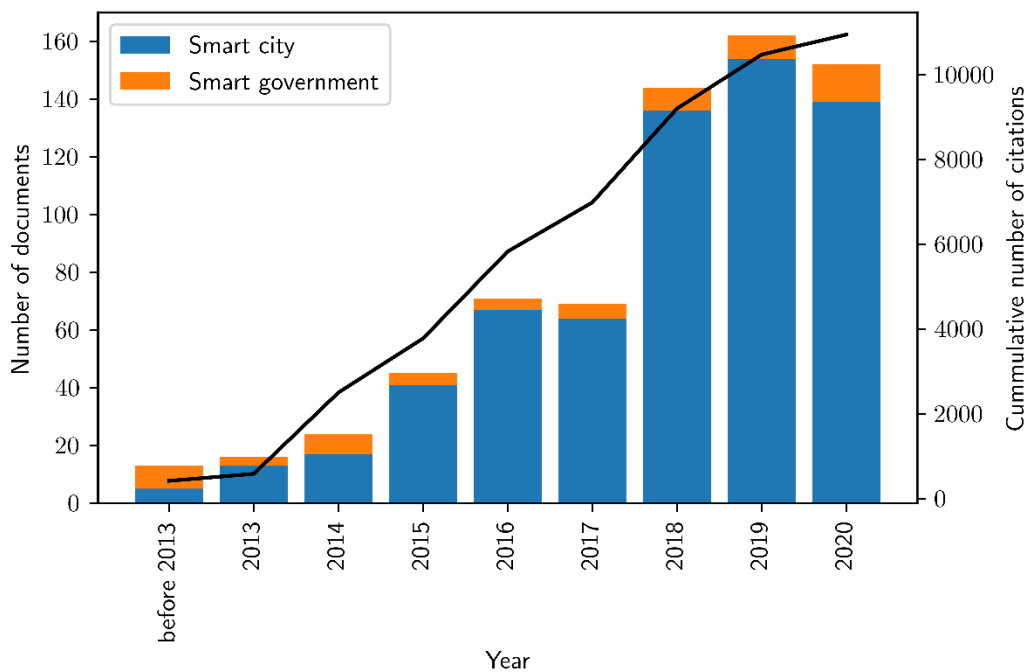
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a key role in this response, which is also reflected in the implementation of smart government into one of the (further) development phases of the e-government (Barcevičius et al., 2019).

Despite the fact that the use of information and communication technologies helps governments to improve political participation, implement public policies and provide public services, so far researchers have not paid much attention to this topic (at the central government level) (Bolivar & Meijer, 2016, p. 2). Similarly, Castelnovo, Misuraca, & Savoldelli (2015, p. 2) note that the research field of information and communication technologies and (public) governance has been focused (in the last decade) more on the local level, namely on observing the emerging trends of e-government, the most important being for example, the creation of a network that allows people to access government-related e-services or the desire for a better relationship between the government and voters. Angelidou et al. (2018) find for the local government level that smart public governance supports group decision-making and the individual's decision-making process and thus influences the achievement of sustainable development of cities. Last but not least, according to some authors, the widespread use of information and communication technologies can lead to the neglect of groups unskilled in the use of digital technologies and consequently hinder their participation in digital governance (Goldsmid & Crawford, 2014, p. 64). However, due to the widespread use of information and communication technologies, discussions on their infrastructure could be given priority over other tasks on the agenda of the government sessions in the future (Jiang, Geertman, & Witte, 2019).

The concept of smart public governance is new in the literature; solid theoretical foundations cannot be identified even in the field of other "smart" concepts in the field of public administration or wider public domains (that is, smart cities and smart regions, smart government, smart public administration, etc.). Regardless of the growing number of scientific papers in the field of smart public governance since 2013 (Aristovnik et al., 2021), the very concept of smart public governance in these papers is rarely defined. The figure below shows the growing trend of articles published (in the last decade) in the field of smart public governance in selected journals<sup>2</sup> in the field of social sciences.

**Figure 1: Trend of articles published in the field of smart public governance in selected journals**



Source: Aristovnik et al. (2021).

<sup>2</sup> Journals that publish scientific articles in the field of smart public governance are, e.g., Government Information Quarterly, Information Polity, Cities, Sustainability (Switzerland), and Sustainable Cities and Society (in Aristovnik et al., 2021).

Furthermore, the authors note that within the research in the field of smart public governance, the studies related to smart cities are predominant, but (especially in recent years) the studies related to smart government are coming to attention. In the last two decades, research on smart public governance has focused on topics such as citizen engagement, citizen centricity, e-services, sustainability, urbanization, and technological savvy.

Despite the importance of the concept, there is no general consensus on its definition, according to Bolivar & Meijer (2016, p. 2), which we have also determined after reviewing the literature. Smart public governance is still at an early stage of development, which can also be seen from the lack of empirical research (Jiang et al., 2020, p. 1347). Furthermore, the authors note that the actual benefits and disadvantages of smart public governance are not yet known. Consequently (currently) we can only refer to the possible benefits and disadvantages. A review of the literature has shown that the theory offers only a small number of different definitions<sup>3</sup> of the smart public governance concept, some of which (more recent) are presented in the table below.

**Table 1: Some definitions of smart public governance**

Author (s)	Definition
Šiugždinienė et al. (2017, pp. 3-4)	»/.../ is the mode of governance that relies on rationally utilizing internal and external resources, making adequate progress, and making advanced decisions relevant to specific circumstances in order to create shared value, with the goal of making a social system (country, region or city) and its actors (government, citizens, communities, businesses and non-governmental organizations) operate effectively in a fast-changing and complex environment.«
Pereira et al. (2018, p. 144)	»/.../ is the use of evidence (data, people, and other resources) to improve decision making and deliver results that meet the needs of the citizens.«
Jiang et al. (2019, p. 246)	»/.../ is a way to take advantage of various ICTs, aimed at bringing changes in public policy and government institutions from a public administration perspective. «
Simonofski, Snoeck, & Vanderose (2019, p. 2)	»/.../ is one of the key dimensions of a smart city and underlines the importance of an increased collaboration within governmental bodies and an increased co-creation of e-government services (or smart city projects) with users. «

Source: Author own table.

The doctoral dissertation firstly defines the concept of smart public governance and places it side by side, and (if necessary) demarcate it from, the related concepts such as good public governance, collaborative governance, collaborative innovation, co-creation and related co-productions, e-democracy, and e-participation. Further, we explore the origin and development of the concept of "smartness", starting with its emergence in the field of engineering and further development in other fields (especially in the field of public policy). It is followed by an in-depth analysis of the literature on smart public governance, which, together with the results of the previous

<sup>3</sup> A more detailed overview of the definitions of smart public governance concept can be found in the work by Bolivar & Meijer (2015).

steps, forms the basis for (1) a comprehensive definition of smart public governance and (2) a definition of its elements. The elements of smart public governance, extracted from the literature, will be used for:

- building a model that will support the measurement of the maturity of smart public governance as well as the related comparison between individual institutions (that is, public policy decision makers);
- development of a measurement instrument (structured interview), with the help of which we will test the model of measuring the maturity of smart public governance in practice.

Further, we briefly present two key concepts that make up the concept of smart public governance: (public) governance and smart.

### **1.1 The concept of (public) governance**

According to Levi-Faur (2014, p. 5), the concept of (public) governance has been present in the literature for a relatively long time, but it has played a rather limited role in discussions within the social sciences. A father of the idea of (public) governance (in social sciences) is O. Williams (1979). After having published his work<sup>4</sup> he increased the interest in law and economic, in the context of corporate governance.

More than a decade ago, in his work Willke (2007, pp. 24-25), he gave some views on (public) governance:

- the need for (public) governance arose as a result of a corollary of systemic contingencies. In social systems, (public) governance is necessary to deal with situations that are unpredictable;
- (public) governance is a property that we observe within social systems. Right there, it ensures coherence between different parts of social systems and consequently enables cooperation and coordination;
- the author mentions markets and hierarchies as the two most prominent forms of (public) governance. According to him, markets are able to organize communication in a way that is automatic, responsive and flexible. Hierarchies, however, are able to organize more focused communication; we are talking about the normative mode of (public) governance that is achievable by law-making. The author further explains that markets and the hierarchies are ideal types (referring to Max Weber's interpretation) and as a result, he expects the hybrid and intermediate forms of (public) governance in the future to expand depending on the complexity of the social system.

The concept of (public) governance (in recent decades) has become one of the most commonly used concepts in the literature in the field of political science. It has been widely used by both policy makers and international organizations (Peters, in Levi-Faur, 2014, pp. 19-44). However, according to Peters (ibid.), the ambiguity of the concept is one of the reasons for its frequent use. According to Katsamunskaja (2016, p. 133), in the field of social sciences, especially in public administration, the concept of (public) governance has also been prevalent in debates since the end of the 20<sup>th</sup> century. The author attributes the popularity of the concept, in contrast to the related (but narrower) notion of government, to the fact that (public) governance encompasses a number of institutions and relationships involved in the governance process. Also, Torfing et al. (2019, p. 9) claim that, for many years, the popularity of the concept has been attributable, both among academics and practitioners, to the role played by the latter. They also say that (public) governance is related to the interaction between public policy makers and stakeholders, the knowledge-based decision-making process, smarter political solutions and coordinated policy implementation. However, the whole process is based on inclusion. Hardiman (in Levi-Faur, 2014, p. 228) states that (public) governance is a multi-dimensional concept which includes: the process of policy engagement, the substantive issues of strategies, principles and programs politics, and the institutional structures through which the state can connect with other actors.

The concept of (public) governance is often used in the literature as an umbrella label for transparency, stakeholder involvement and sustainability (that is, a positive interpretation of public governance, which the proposed doctoral dissertation would mostly rely on). Sometimes, however, mainly emerging from the context of corporate governance, it is considered as a set of guidelines, that is, instructions on how to better manage matters in the public domain (that is, normative interpretation of public governance) (Bovaird, 2005, p. 221).

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<sup>4</sup> The reader can read more in the work entitled Williams, O. (1979). Transaction-Cost Economics: The Governance of Contractual Relations. *Journal of Law and Economics*, 22 (2), pp. 233-261. Accessible at <http://www.jstor.org/stable/725118>. Within the period of five years (1975-1980), the work was cited in 83% of all articles dealing with the topic of (public) governance. Also (according to Levi-Faur, 2014, p. 5), this is the most cited document in the period from 1981 to 1985.

## 1.2 The concept of smartness

By broadening the studies of smart technologies to other scientific areas and sciences (though still mainly technologically), the concept of smartness has gained its multi-dimensional features<sup>5</sup>. Today, smart technologies are often considered "*any kind of available technology that allows users to connect with internet networks*" (Papadopoulou & Maniou, 2021, p. 1131). Despite this simplistic definition of smart technologies, the most common ambassadors of smart technologies nowadays are the internet of things, artificial intelligence, blockchain, machine learning, and cloud computing (Kankanhalli, Charalabidis, & Mellouli, 2019; Wirtz & Müller, 2019).

There are several synonyms for the notion of smartness in linguistics, such as fast, percipient, shrewd and astute (Gill-Garcia, Helbig, & Ojo, 2014, p. 11). Both the governments and public agencies at all levels have begun to use the concept of smartness to differentiate between policies, strategies, and programs, aimed at sustainable development, economic growth and better quality for citizens and communities (Centre on Governance, 2003, p. 5). Klein & Kaefer (2008) state that the development of the concept of smartness (in the social sciences) could be reasonably used in relation to smart cities. Municipalities are the main stakeholders, according to Engelbert, Zoonen, & Hirzalla (2014, p. 11), who want to achieve the smartness of their cities. This is why they often choose to work with private sector stakeholders.

In terms of smartness, the studies have sought dimensions of it in the concepts such as smart government and smart governance. Readers can find a more detailed overview of all fourteen dimensions – see Gill-Garcia, Zhang, & Puron-Cid, 2016. However, over the last decade, the vision of smartness has been completely different in the countries of the European Union than in the United States, according to Baykurt & Raetzsch (2020, p. 8). They believe that the countries of the European Union should strive for the existence of a single smart city as a model. In contrast, governments and their actors are more inclined to cooperate with the different governance models and to involve stakeholders. The reason for this is seen in the fragmentation of the political system of member states of the European union, where the decision-making is based on the establishment of common objectives, financial support, different levels of expertise, knowledge, and heterogeneous support for the industrial sector. The authors further claim that the vision of smartness changed also after the financial economic crisis of 2008. At that time, technology companies did not focus on sustainability, such as climate change, but focused much more on finding smart ways to promote economic growth.

The remaining part of the paper is structured as follows: the second section describes the methodology in which the reader can read the presentation of the research performed so far in the subject field with an emphasis on the specific model of the measurement of the smart public governance, as well as the purpose, the thesis, the objectives, and the research questions that we will asked in the doctoral dissertation and see the proposed methodological framework. The paper ends with the conclusion and intended contribution of the doctoral dissertation to the administrative sciences.

## 2 METHODOLOGY

### 2.1 Presentation of previous research in the subject field

In this section, we first summarize the literature in general regarding maturity models. Next, attention is focused on the more detailed elements of the previous two studies aimed at developing a conceptual framework for smart public governance.

In the public domain (public administration and public political space), a number of maturity models have been the result of technological breakthroughs. Their purpose was to support the monitoring of (and comparing) the status in a particular area, as well as the support to public policy makers and public managers in the implementation of the technology in the field for which they have been held responsible. Thus, in the past, we saw the development of a range of maturity models focused on measuring the maturity of e-government, that is, e-services of the administration (e.g. United Nations, 2020; Linden et al., 2021; Layne & Lee, 2001; Andersen & Henriksen, 2006; Hiller & Belanger, 2001; Moon, 2002) and mature e-participation models which were also

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<sup>5</sup> Some authors (e.g. Worden et al., 2003) attribute the expansion of the concept of smartness to approaches to marketing new products, although they point out the lack of consideration of the meaning and content of this concept; the mere novelty or sophistication of the technology is not sufficient to position it as smart: in order to be smart, it must be aware of the current circumstances and be able (in a smart/intelligent way) to respond to changes in the environment.

developed (e.g. United Nations, 2020; Maciel, Roque, & Garcia, 2008), and interoperability (e.g. Gottschalk, 2009; IMAPS (n.d.)).

Only two studies have been conducted about the measurement of the maturity of smart public governance. In these studies, however, the authors did not actually develop a direct practical (applied) approach, that is, a model for the (quantitative) measurement of the maturity of smart public governance. They only identified the elements of the concept of smart public governance.

Bolivar & Meijer (2016), who have not developed conceptual framework of local level smart public governance up to the application level, talk about the three elements of smart public governance; (1) a strategies for the implementation of smart public governance; (2) the arrangement of the smart public governance, and (3) the outcomes of the smart public governance. The first element primarily represents ideas and actions. According to the authors, the idea (i.e., the smart city) can be achieved through actions aimed at legal, technological, political, and cooperative actions. The second element includes organizational processes (i.e., collaboration, internal coordination, evidence-based decision making and e-administration), the use of technology and the ability to innovate. The results of the smart public governance are measured by the authors at three levels where at the first level there are the changes in the government organizations, followed by a change in the relationship between the government and external stakeholders (i.e., urban actors) at the second level, and the improvement of the cities, at the third level. The authors further conclude that upcoming research aimed at developing a smart public governance model should focus on the impact that contextual factors (e.g., administrative culture, political and demographic factors, and technological factors) on smart public governance.

Šiugždinienė et al. (2017), whose conceptual framework of smart public governance for the central level has not been developed to the application level, discuss four elements of smart public governance, namely (1) strategies; (2) cross-sector collaboration; (3) inter-institutional collaboration and (4) empowerment of citizens. The reader can find a more detailed overview of all parameters in Šiugždinienė et al. (2017), but we summarise some of them below. Strategies include, for example, regular monitoring, analysis and evaluation of the external environment, the speed of strategic decision-making and the autonomy of government organisations. According to the authors, the cross-sector collaboration includes, for example, the participation and involvement of all stakeholders, decision-making based on negotiations and consensus, and a shared understanding of problems. The element of inter-institutional collaboration includes, for example, the establishment of a flexible support teams and the interoperability of the performance management system. As part of the empowerment of citizens, the authors wrote, for example, about creating conditions that enable the participation of all citizens or about encouraging open, transparent, and accountable government. They conclude that, in future, stakeholders should make a greater contribution to collective decision-making and develop much-needed skills to enable participation in digital networks. They also believe that governments should facilitate the implementation of smart public governance in the future.

In his work, dealing with the studies of smart public governance in selected western countries and in China, Lin (2018) believes that the model for measuring the maturity of smart public governance cannot be universal, since the states of the world have different institutional, social, and technological context.

## **2.2 Presentation of purposes, thesis, objectives, and research questions**

The purpose of the doctoral dissertation is to develop a model to support the measurement of the maturity of smart public governance, which will be tested in the Slovenian public policy context. In this regard, the proposed doctoral dissertation pursues the following objectives:

***Objective 1: Clarify the concept of smart public governance and compare it and, if necessary, distinguish it from related (but more established) concepts, such as good public governance, collaborative governance, collaborative innovation, co-creation, etc.***

Explanation: Studies that would comprehensively address the concept of smart public governance are limited. The first attempt to define smart public governance is the work<sup>6</sup> of Willke. He defined it as "*ensemble of principles, factors and capacities that constitute a form of governance able to cope with the conditions and exigencies knowledge society*" (Willke, 2007, p. 165). Bolivar & Meijer (2016, p. 8) note that the authors do not directly study smart public governance in their studies but mention it in relation to other concepts (e.g., smart cities, e-

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<sup>6</sup> Willke H (2007). *Smart Governance: Governing the Global Knowledge Society*. Frankfurt/Main, Germany: KM-Duck, Gross-Umstadt.

governance, and governance in general). Pereira et al. (2018, p. 144) point out that the problem is not only the lack of clear definitions of concepts related to smart public governance, but that they often overlap in the literature (which is not correct from a scientific point of view).

***Objective 2: To carry out an in-depth content analysis of articles related to "smartness" in the field of public administration and public governance.***

Explanation: The concept of smartness is already well established in natural sciences (especially in the field of mechanical engineering), which is not the case for the social sciences (Jucevicius & Liugailaite-Radzvickiene, 2013). In social sciences, the definition of the concept of smartness is a much greater challenge, as it involves complex social systems. Some researchers believe that smart refers to the instrumental perspective. They continue to think that, from the latter's point of view, smart connotes products category, services, or systems where an information and communication technology plays an important role. Such an aspect is also criticised. Critics believe that smartness is the desired outcome since it does not exist until it can be measured, adding that it is therefore a normative concept (Al-Nasrewi, Adams, & El-Zaart, 2015, pp. 543-544).

***Objective 3: Develop and test a model for measuring the maturity of smart public governance in the Slovenian public policy context.***

Explanation: Maturity models are used in many areas to assess the maturity level (i.e., current position) of the observed variable on its development path (Becker et al., 2009). Röglinger, Pöppelbuss, & Becker (2012), call the models for the measurement of the level of maturity as the "tool", which involves a sequence of stages, and show the path from the initial state to the final (i.e., desired) level of maturity. The literature review shows that the theory does not offer a (applied) model to measure the maturity of the smart public governance, but two conceptual frameworks of smart public governance can be detected<sup>7</sup>.

The research is based on the thesis that it is possible to develop a model that will support the quantitative measurement of the maturity of smart public governance at the level of individual public policies, and on this basis, also at the state level (i.e., public policies in each country).

Based on this, the proposed doctoral dissertation seeks answers to the following research questions:

***RQ1: What are the elements with which we can fully identify and measure the maturity of smart public governance?***

Explanation: The authors Johnston & Hansen (2011) discussed in their work<sup>8</sup> the so-called infrastructure of smart public governance, which should appear to be a set of elements involved in governance activities. These are mainly social norms, policies, practices, technologies, resources, skills, and information. Similarly, Scholl & Scholl (2014), who drew from the concept of smart public governance of Willka (2007)<sup>9</sup>, in their study highlight the areas<sup>10</sup> which should be relied on in smart public governance initiatives. In the doctoral dissertation, the initial set of elements will thus be prepared based on existing research or literature.

***RQ2: To what extent are these elements represented in existing approaches aimed at defining and measuring smart public governance?***

Explanation: The second research question is related to the first. The doctoral dissertation will identify the elements according to the literature studies and then compare them with the elements already identified in the existing studies. In their study, Šiugždinienė et al. (2017) defined the elements for measuring smart public governance for the Lithuanian system of central government. From a comparison point of view, this study will be most important for the doctoral dissertation.

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<sup>7</sup> More on this in Šiugždinienė's work – In search of smart public governance: the case of Lithuania (2017) and work of Bolivar & Meijer – Smart Governance: Using a Literature Review and Empirical Analysis to Build a Research Model (2016). This view of building a model for measuring smart public governance has already been criticized (see e.g., Lin (2018)).

<sup>8</sup> A structure that (allegedly) augment the society's ability to interact, organize and govern.

<sup>9</sup> More on this in Objective 1 explanatory statement.

<sup>10</sup> Examples of these are: (1) budgeting; (2) government modernization; (3) security; (4) high-speed connectivity; (5) e-mobility; (6) collaboration; (7) data (i.e., open, and big data); (8) open government.

***RQ3: What is the understanding of the concept of smart public governance between public policies, in the Slovenian context?***

Explanation: In a survey implemented at a local government level, Bolivar & Meijer (2016) pointed out that in interpreting the concept of smart public governance, representatives of European local governments (also) highlighted as significant such elements<sup>11</sup> that the authors did not find in the available literature. In the doctoral dissertation, we will therefore see whether there are differences in the interpretation of smart public governance in the available studied literature and between public policy makers in the Slovenian space.

***RQ4: Is it possible to develop a decision model to support the measurement of maturity of smart public governance that is sufficiently sensitive to distinguish between different levels of maturity of smart public governance?***

Explanation: The results of the evaluation will offer the public policy makers an insight into the state of the smart public governance in their respective fields, and the correlation with other public policies; they will see in which segment of the smart public governance, there is room for improvement. Decision-making is a part of problem-solving and a decision-making problem arises when decision-makers pursue the objectives set and have several alternatives available (so-called variants or options) (Bohanec, 2006, p. 8). However, since smart public governance is a multi-layered concept (i.e., measured by a higher number of parameters), the multi-attribute<sup>12</sup> decision-making model offers an appropriate opportunity to address the challenge of measuring smart public governance. In terms of sensitivity, however, we are interested in whether the differences between the final values for the evaluation of specific public policies will be sufficiently high to be able to claim that the model is sensitive enough. In public policies, we will draw from the list of budget classifications<sup>13</sup>.

### **2.3 Description of the research methods**

The methodological framework of the proposed doctoral dissertation will be based on the Design Science Research approach (Dresch, Lacerda, & Antunes, 2015). This approach is appropriate because it allows an innovative artifact (i.e., a construct, model, method, or instantiation) to be constructed based on a domain problem that leads to the creation of knowledge (i.e., something that does not yet exist) (Dresch et al., 2015, p. 68; March & Storey, 2008, p. 726). Therefore, our case, is a creation of a model to solve the domain problem (i.e., measuring the maturity of smart public governance).

In the doctoral dissertation, we will use a multi-stage qualitative and quantitative approach research (see Figure 2).

In the first phase, an in-depth study of literature will be implemented, which will be aimed at:

- analysis and definition of the concept of public governance, as well as its demarcation from related concepts (e.g., public administration, government, management) and placement in the public policy context;
- analysis of origin and development of the concept of smartness;
- analysis and definition of the concept of smart public governance and comparison with related concepts (e.g., good public governance, collaborative governance, collaborative innovation, etc.).

The key objective of the first phase will be to extract from the literature the initial list of parameters (the so-called the descriptive variables) of smart public governance, which will be used in the construction of the model. In this phase, we will also perform a bibliometric analysis that will show how the research field of smart public governance has developed over time, which topics have been most researched, which have been the most active

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<sup>11</sup> According to the survey, innovation was recognized (by representatives of European local governments) as a new element. Furthermore, the authors explain that, while it is an element that is often mentioned in relation to smart cities, it is not perceived in literature as one of the elements of smart public governance. The innovation was, however, rated rather low by central government representatives in the second study a year later Šiugždinienė et al., 2017, p. 17).

<sup>12</sup> Bohanec (2006, p. 83) explains "a characteristic of multi-attribute decision-making is that at the same time we monitor and evaluate more than one characteristic of alternatives. In doing so, we determine the conditions for each of the parameters - criteria [...] therefore, let us also call this decision-making method multi-criteria decision-making."

<sup>13</sup> See Section 2. Programme classification. We will include in the analysis only those public policies that will be relevant to our case.



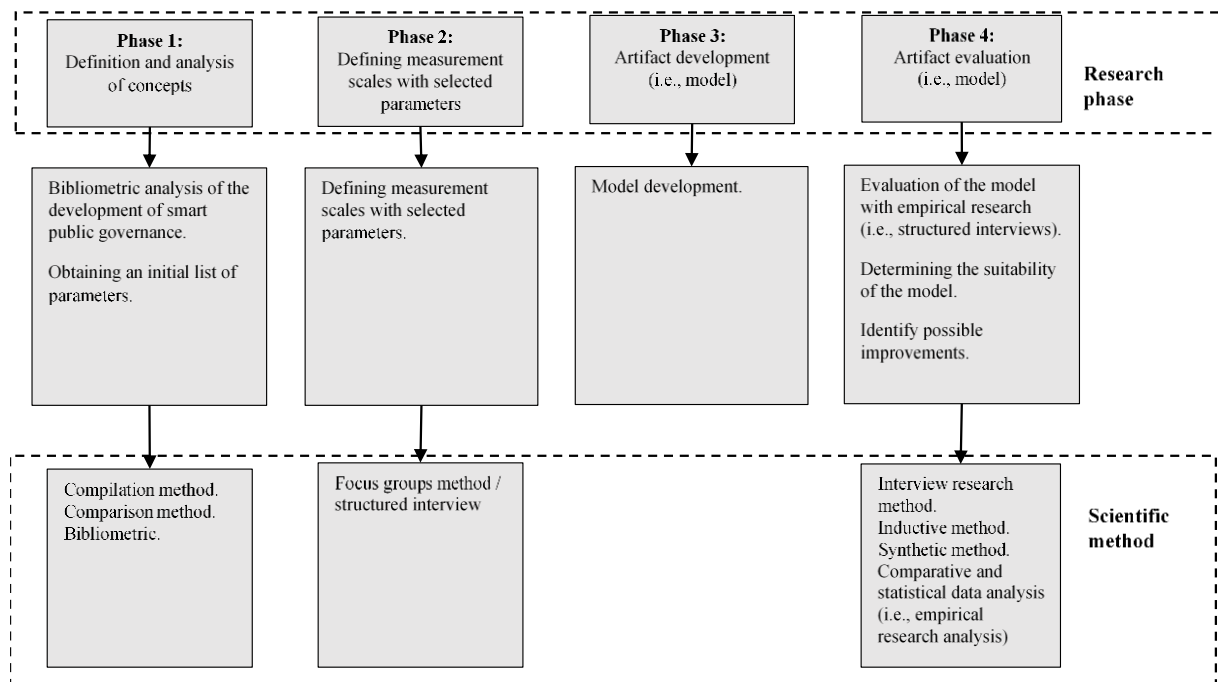
authors, to which articles most attention has been paid. In the first phase, we will use a combination of the following scientific methods: compilation, comparison and bibliometric.

In the second phase, we will define measurement scales for the selected parameters from the literature (which we will extract in the first phase). This will give us attributes (i.e., criteria) that we will be able to measure. If necessary, the parameters of the model will be adjusted to the specifics of the Slovenian public policy space (by using the method of focus groups/structured interviews, we will further check the adequacy of individual parameters).

The next (third) phase represents the development of the model that will serve to assess the state (i.e., the degree of maturity) of smart public governance.

In the fourth phase, we will use the developed model to measure the state of maturity of smart public governance in Slovenia. Structured interviews will represent the basis for that. Our target group (i.e., respondents) consists of policy makers in the Slovenian public policy context. The representatives of public policy makers who will participate in the empirical survey will be employees having different positions in an organisation, e.g.,<sup>14</sup> director-general, director, deputy, secretary and manager employed by administrative authorities (or organisations) of all fourteen ministries and government services (e.g. SVZ, SVRK) and institutions (e.g. ZZZS). The evaluation of the model in the final stage will be aimed at confirming its suitability. The objective of this phase will therefore be to test the model (e.g., multi-attribute decision model, valuation using statistical methods of dimensionality reduction (main component method, factor analysis), classification models and grouping models and identifying possible improvements. The basic method used in the fourth phase will be the interview research method. Partially, inductive, synthetic, comparative, and statistical data analysis (i.e., empirical research analysis) will be used in connection with it.

**Figure 2: Methodological framework of the proposed research**



Source: Author own figure.

### 3 CONCLUSION

According to Chung (2020, p. 239), we have seen the transition from the information society to the smart information society in this century. This transition was due to rapid development and convergence between information and communication technology and artificial intelligence. Furthermore, the author notes that

<sup>14</sup> Terms written in male grammatical form are used as neutral terms and are considered equivalent for both sexes.

governments and societies around the world actively pursue policies aimed at smarter digital government, since in his opinion (ibid.), this is the only way of dealing with the advanced technology. Gaule (2014, p. 382) noted some time ago that traditional governance models for dealing with complex issues in a very dynamic environment have become practically useless. The author further adds that citizens have ever-increasing expectations of the government, which poses a new challenge for public governance. Smart public governance is a modern approach to public governance that modernises public administration with the help of emerging technologies. It is a concept that has not yet had time to develop foundations in the literature, consequently it is subject to constant changes and developments related to information and communication technology (Aristovnik et al., 2021), which we observe ourselves after reviewing the literature.

From the outlined disposition of the doctoral dissertation, we predict a visible contribution to the development of science in this field within three parts:

***Contribution 1: We will conduct a thorough analysis of the concept of smart public governance***

Explanation: The contribution to social science, more specifically administrative and political sciences, will be a thorough analysis of the concept of smart public governance in the doctoral dissertation. So far, the concept of smart public governance has often been addressed in the context of smart cities (i.e., at the local government level). We will deal with smart public governance in a broader context, starting with the presentation and analysis of concepts, their delimitation, and present the foundations of the concept of smartness for the Slovenian language; on this basis (for the purposes of the doctoral dissertation), we will define the concept of smart public governance.

***Contribution 2: We will conduct a review and a comparative analysis of existing approaches (i.e., conceptual frameworks) aimed at measuring smart public governance***

Explanation: In the doctoral dissertation, we will present the existing approaches aimed at measuring smart public governance in detail and then prepare a thorough comparative analysis of the content of the approaches. On this basis, we will be able to carry out a comparative analysis between conceptual frameworks designed for local and central government levels. To date, such an analysis has not been carried out in this area.

***Contribution 3: We will develop a model supporting the measurement of maturity of smart public governance***

Explanation: Based on the analysis of literature and existing research, we will develop a model supporting the measurement of the maturity of smart public governance. The latter has not yet been developed in literature – more frequently, the definition of the possible dimensions of the model was discussed rather than an application model for the measurement of smart public governance. The doctoral dissertation will thus form the basis for further study of smart public governance in the domestic and international environment. The development of a model supporting the measurement of smart public governance will also be useful in the public policy contexts of other countries.

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