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E-Government

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10.1 Introduction

The e-government research topic has been at the forefront within the business and management, social sciences and information technology fields, reflecting the multidimensional nature of the evolvement of e-government. Some authors see the e-government as a relatively new research area (Coursey and Norris 2008). According to Norris and Lloyd

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(2006), research articles on e-government, which are more than intellectual speculation and rumination and are based on data within empirical research (surveys, case studies etc.) instead, began to appear not earlier than in the year 1999. But after 1999, only in the journals indexed in Scopus database 2677 articles using key word e-government (in English) were identified; this shows a certain level of maturity of the research field.

Bibliometric studies of e-government, that may present the overview over this research field, are still seldom (Alcade et al. 2017); most of them are mainly limited to selected geographical areas (Dwivedi 2009; Jinghua 2011; Dias 2014; Madsen et al. 2014; Przeybilovicz et al. 2014) or to a certain area of e-government (Valle-Cruz and Sandoval-Almazan 2014). Jinghua (2011) analysed articles of e-government in China from 2000 to 2009 focusing on how they are distributed among journals, authorship, affiliation institutions, keywords indexed and sources of research funds employed. Dias (2014) revealed that e-government research in Portugal still had a substantial room for improvement and pointed out that only a small number of researchers and institutions were involved in e-government research. A body of literature focused on a particular time period was analysed, as well; the template analysis approach by Madsen et al. (2014) found that majority of papers were positivistic, but were becoming less technologically deterministic, slowly moving from infrastructure to the services and citizens.

E-government is undoubtedly considered as a very important topic in the government agendas, from different viewpoints: technological—as smart, innovative and efficient, from the sustainability viewpoint—as green approach, from the accountability—as responsibility approach. Although several studies have underpinned the e-government topic from different viewpoints, we stem from the fact that huge changes in the field of informatics, digitalization and information generated, that we are facing nowadays, are very likely effecting (and will even more effect in the future) the e-government field as well, from the academic and maybe even more from the professional point of view. In this chapter, e-government is understood as a special organisational governance policy. By defining e-government policy, management implements the organisation's chosen governance policy (Duh 2016, p. 141).

In this chapter the bibliometric and citation analysis were performed, with two main objectives: (1) to analyse the thematic dynamics of this research field over the time period from 2000 to 2018, and (2) to identify the thematic subfields in the past as well as future trends. The bibliometric analysis approach consists of several visualization techniques and is still considered a novel approach (Alcade et al. 2017); together with the citation analysis approach the in-depth insight to the scientific frontiers of the e-government field is established and presented in this chapter.

10.2 E-Government Complexities

E-government is supposed to bring several advantages and is assumed to be very easily adapted to changes. It is supposed to ease access to public sector information and to make interaction with government and public institutions more convenient through online transactions, thus, advancing public administration and transforming public service delivery. Moreover, by shifting the interaction focus from a provider to a user perspective, e-government shall extensively enhance public sector service-orientation. The concept embraces the idea of fostering internal efficiency, effectiveness, and productivity, and thus substantial e-government-related cost savings are expected. This thus brings also business ethics and social responsibility viewpoints in the foreground. Simply stated, e-government is the "use of technology to enhance the access to and delivery of government services to benefit citizens, business partners and employees" (Silcock 2001, p. 88). E-government refers to "[…] the use of information technology to enable and improve the efficiency with which government services are provided to citizens, employees, businesses and agencies" (Carter and Bélanger 2005, p. 5). E-governance refers to a technology-driven administration and control system of formal and informal arrangements to enhance governance structures and/or processes as well as to guide and confine collective activities (Bannister and Connolly 2012). Therefore, "[…] e-government constitutes only a subset (though a major one) of e-governance" (Saxena 2005, p. 3).

Accordingly, e-government constitutes a technology-enabled part of the effectiveness government or public sector governance model that allows unattended public stakeholder access to information and services, improves government-stakeholder interaction, fosters accountability, efficiency, and effectiveness, and forms the basis for e-democracy from a technological point of view. E-government, being a technology-enabled part of the government or public sector governance model, was quickly regarded as a powerful system that can provide manifold benefits. Furthermore, its' digital platform character for government-stakeholder interaction embellishes unity and standardization and thus reflects citizens' demands for more transparency and accountability (Wirtz and Daiser 2015). Technology-enabled part of the government or public sector governance model should be in line with non-technological integral management models cognitions (e.g. Belak 2010; Duh 2016; Wheelen et al. 2018); this includes necessary raising awareness of the social responsibility and other responsibilities needed, which must be a red thread during the development and business in the context of e-government.

The first issue of the e-government model is convergence and technology. Although all of these developments are crucial, this is the most significant one, since it covers the fundamental breakthrough of making e-government technologically possible. Here, convergence describes the approximation of underlying technologies, diminishing sector boundaries, networking of different public and non-public areas of value creation, and finally, an integration of sectors, business units, organizations, products, and services. Besides technological innovations one must be focused also on non-technological ones. This is in line with Dialectical Systems Theory (Mulej 1974 and onwards; Mulej et al. 2013), which advocates all important and only important viewpoints and their synergy, thus holistic approach and interdependence—linking viewpoints also in ISO 26000 on corporate social responsibility (ISO 2010). In the centre of ISO 26000 core subjects is placed organisational governance, thus e-governance as a partial integrated policy is placed also there. ISO 26000 advocates seven principles of social responsibility: accountability, transparency, ethical behaviour, respect for stakeholder interests, respect for the rule of law, respect for international norms of behaviour, and respect

for human rights (ISO 2010, p. 7). Organisations must integrate seven principles of ISO 26000 into organisational governance, thus also into e-governance. We can conclude that an organisation that meets ISO 26000 standards also directs its e-governance to more corporate social responsibility.

The second issue are state and politics. From this point of view, ongoing denationalization of countries, especially in EU as well as regional coalescence of markets and nations, requires adequate technological and non-technological preconditions for transnational cooperation on political and administrative level. These have to be created by the respective governments. E-government is a suitable answer to tackle this challenge since it is an internet-based solution and thus provides the possibility to quickly establish an online environment that allows government-user interaction on a global scale. But in order to implement e-government, we also need non-technological innovations, in particular innovations in values, culture, ethics and norms, and other factors that define organizational governance (Štrukelj and Šuligoj 2014).

The third issue is society and economy. Its key drivers include globalization, digital dividedness, demographic change, and urbanization. The high economic interconnectedness and international assimilation of lifestyles as parts of globalization require a stronger public sector focus on superregional and supranational demand aspects, as well as on cross-border cooperation of governments and public authorities. As mentioned before, e-government, which is based on internet technology and thus can be regarded as a global medium, is an adequate system to approach this situation. We have to plan it (Belak et al. 2010) and it has to be socially responsible (Štrukelj 2017).

The forth issue of the e-government development is citizen empowerment. This change in the public environment mainly concerns the citizens themselves.

10.3 Methodology

10.3.1 Bibliometric Mapping of E-Government Research and Citation Analysis

With the purpose to graphically represent the complexity of the e-government as the research and professional topic, the bibliometric mapping of e-government research and citation analysis were made. Pritchard (1969) described bibliometrics as "the application of mathematical and statistical methods to books and other media of communication". Later, Hawkins (2001) defined bibliometrics as "the quantitative analysis of the bibliographic features of a body of literature". Within a bibliometric analysis, mainly books, monographs, reports, theses, and papers in serials and periodicals are analysed; however, papers which are published in journals seem to be the most suitable ones for bibliometric research studies (Glänzel 2003), since they are considered to be validated knowledge (Podsakoff et al. 2005). For analysing research literature production (to identify patterns in the literature) bibliometric analysis uses quantitative methods (De Bellis 2009). Moreover, Garfield (2006) is convinced that with bibliometric analysis, we can also examine the history and structure of a field, the flow of information into a field, the growth of the literature, the patterns of collaboration amongst scientists, the impact of journals, and the long-term citation impact of a work.

In this chapter bibliometric mapping is used with the purpose to visually present scientific publications based on bibliographic data. With bibliometric mapping different bibliometric maps are produced that provide an overview of the structure of the scientific publications in a specific research field. One of the most popular ways to use bibliometric mapping is to identify specific research areas within a selected science field, with the purpose of getting a view of the size of the field and relevant subfields, and how they relate to each other (van Eck 2011). In this way, we can understand the broader aspects of the particular research field (Börner et al. 2012); of e-government in our case.

Visualization of Similarities (VOS) is the novel mapping technique and has been used to create bibliometric maps in various studies (van Eck and Waltman 2007; van Eck et al. 2010; Waaijer et al. 2011). The VOS

mapping technique is conducted by the open-source software VOSviewer (Leiden University, Netherlands) (van Eck and Waltman 2013). The VOSviewer software has visualization capabilities, therefore bibliometric maps can be displayed in various ways and consequently emphasize different aspects of a map, identification of clusters of terms; it merges terms that may be closely related (van Eck 2011). According to van Eck, the proximity of the terms can be interpreted as an indication of their relatedness. VOSviewer Version 1.6.7 additionally enables the creation of maps in which terms are coloured according to the year of the term's appearance in the scientific literature, thus allowing the analysis of the thematic dynamics in the chosen time period.

The bibliometric analysis is combined with the citation analysis to identify influential papers that served to determine the main categories of the e-government research field and to form the classification of journal articles. Citation analysis approach serves to identify the most influential papers regarding e-government in the time period from 2000 to 2018 (Gundolf and Filser 2013) and allows the conclusions about interconnections between papers and conjunctions among different scientific concepts (Kraus et al. 2014). Citations of an individual publication indicate that it brings important scientific knowledge that is worth using as a foundation for further elaboration (Casillas and Acedo 2007). Therefore, following the approach adopted by Gundolf and Filser (2013), we identified articles in the four most prolific journals that were cited the most in the analysed period for the analysed research-field.

10.3.2 Data Set

To analyse publishing of e-government research, bibliographic data available in the Scopus database were used. Based on the databases indexing, we did the in-depth analysis of the publishing in the time period until 2018. To be able to identify all published documents connected with e-government, the Scopus database was searched using the keyword: "E-Government" in the title and in keywords of the documents.

Bibliometric analysis was performed to analyse and to visualize documents found on the bases of described search. The data set was limited

to the scientific articles in the English language. For each article, the author, nationality of the author's institutional affiliation, year of publication, number of citations, and abstract were compiled. In the in-depth bibliometric and citation analysis, the articles of the four most prolific journals regarding the e-government related topics were included.

The Scopus database was selected, because it suits the goal of our study; it is easy to use, and it also enables an easy transfer of data into the VOSviewer (Leiden University, the Netherlands) program for further data analysis (van Eck and Waltman 2013). For data analysis SPSS 21 and VOSviewer software support tools were used.

10.4 Results of Analysis

10.4.1 Distribution of Articles

In the period until 2018, 2677 journal articles were published in the researched field. The first article published and included into the Scopus data base is from the year 2000, by Rainey (2000). From 2000 to 2018 the number of articles in English in the field of e-government increased (analysis was performed in March 2018, therefore for 2018 only 3 months are included). Analysis of the articles published per countries revealed that the five top countries, where over 100 journal articles were published in this time period, are United States (558), United Kingdom (278), China (146), Greece (123), Australia (111) and Spain (103). See Fig. 10.1

The articles on e-government were published within various scientific fields—mostly from the fields of Social Sciences (64.8%), Computer Science (60.2%), Business, Management and Accounting (17.8%), Decision Sciences (10.2%), and/or Engineering (8.6%). Most of the articles were published by authors from Brunel University London (68), and further on by the authors from the institutions such as Delft University of Technology (33), University of Texas at San Antonio (31), Swansea University (30), National Technical University of Athens (29), National University of Singapore (29), etc. The most fruitful authors, with more

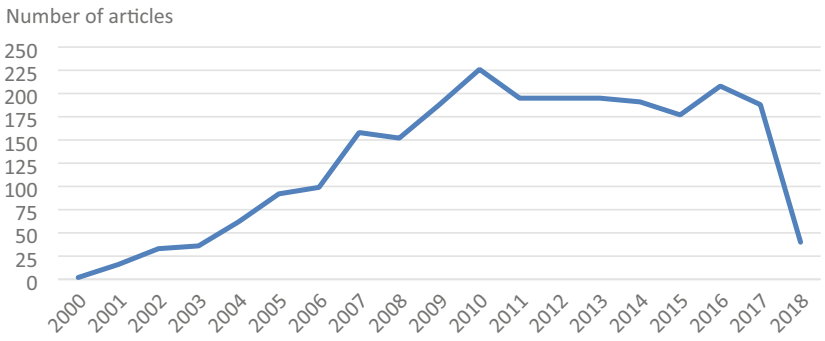

Fig. 10.1 Number of e-government articles over years (2000–2018) (*Source* Own research)

than 25 articles published in the time period analysed, were Weerakkody, V. (32), Dwivedi, Y. K. (29), Reddick, C. G. (28) and Janssen, M. (27).

10.4.2 The Most Prolific Journals in E-Government Field

The top four journals regarding the number of publications, with more than 100 articles in the e-government field, are Electronic Government (248 articles), Government Information Quarterly (244 articles), International Journal of Electronic Government Research (124 articles), and in Transforming Government: People, Process and Policy (105 articles). In these four journals altogether 721 articles on e-government were published.

For these four journals the mapping of clusters was performed. In the bibliometric analysis for the period up to 2018, 721 journal articles were relevant, leading to the 11,814 terms (words or phrases). Those terms that occurred at least 25 times in the titles and/or abstracts of the documents were identified (145 terms), and out of them, 60% of the most relevant terms were used in the analysis (87 terms); the map of terms is presented in Fig. 10.2

Words and phrases that are more interlinked and repeated present a cluster. Three main clusters, obtained by the VOSviewer (van Eck 2011)

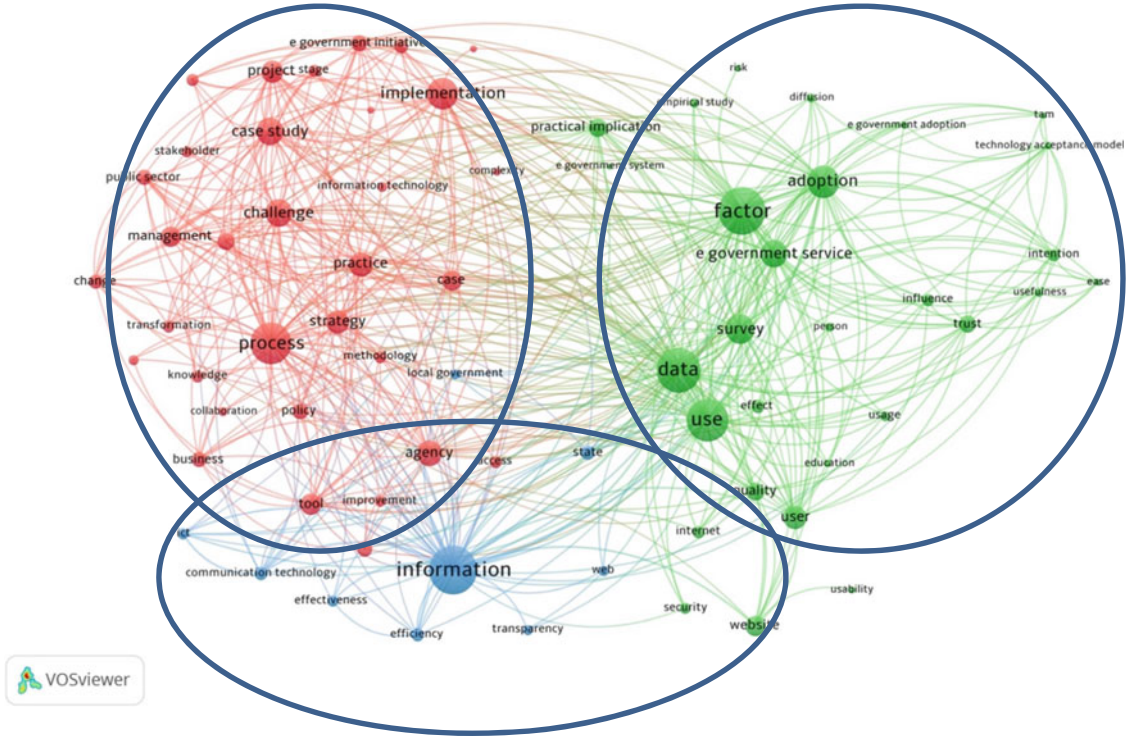

Fig. 10.2 Network visualization for e-government terms (2000–2018) (*Source* Own research)

are visually marked by colours and circles. Cluster 1 (red colour)—left upper circle—combines documents where terms implementation of e-government, process, project, case study and similar are most frequently used, thus this cluster is named as "e-government implementation". Cluster 2 (green colour)—right circle—combines documents that are especially associated with different aspects of the e-government adoption and influencing factors, with terms services, citizens, quality, and data, thus we named it "e-government adoption and use". Cluster 3 (blue colour)—low left circle—is to a greater extent oriented towards information and includes terms information, communication technology, website, efficiency, tools—we named it "e-government technology". Bibliometric analysis leads to the conclusion that the field of e-government in the last two decades is associated with three main fields, which are reflected in the clusters explained above; these three main fields also form a very dense net of connections (within clusters, as well among them), clearly revealing the huge complexity of e-government as a research and professional topic.

Figure 10.3 shows the exploration of the areas of e-government across the time period analysed. The scale at the figure with the value zero (0) represents the year 2011. Figure 10.3 brings a very clear visualization of the distribution over time: in the period before 2011 (blue and dark green colour), the field of e-government was dealing to a greater extend with the information and information technology, implementation of e-government, strategies and processes. After 2011 (light green and yellow colour) the published research on e-government is more focused on how to adopt e-government, factors influencing adoption, on data, trust, risk, use and e-government services.

In-depth analysis of the areas of time period clusters with the bibliometric analysis is enriched in content by the citation analysis. Namely, in the next phase, the systematic search of the body of literature was conducted taking into account the citations of articles in these four journals. Analysis reveals the results presented in Table 10.1.

A citation analysis was conducted by the Scopus citation tool to identify the most influential publications within this period. The process resulted in a list of 86 journal articles that were cited 50 or more times. Categories that emerged from these most-cited publications, based on

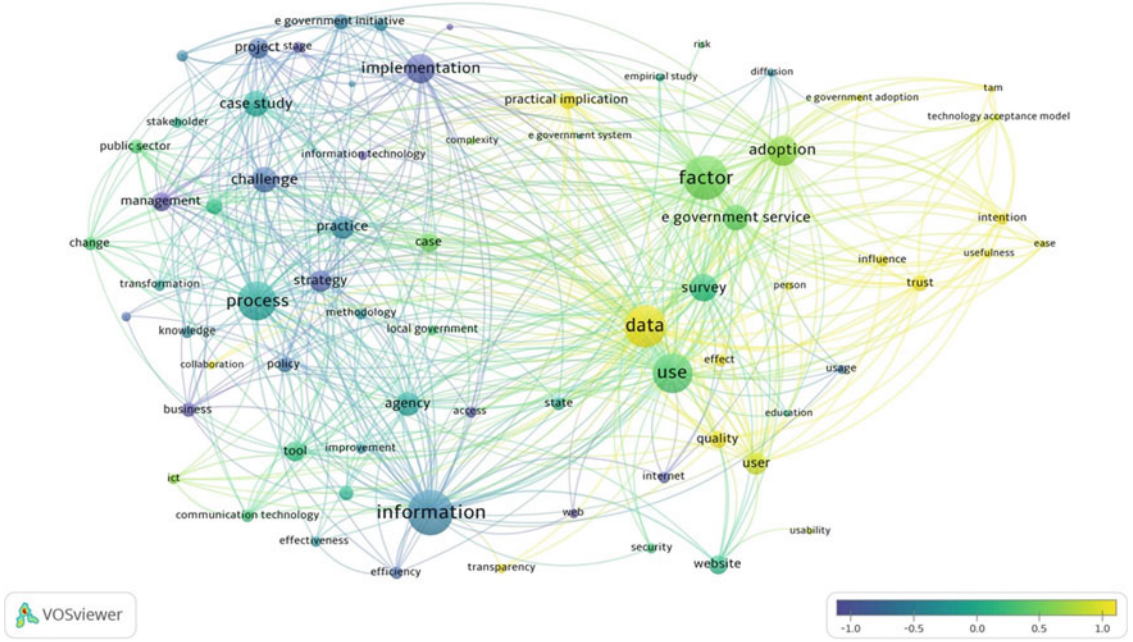

Fig. 10.3 The distribution of research topics within e-government field over time (2000–2018) (*Source* Own research)

Table 10.1 Clusters of articles, based on bibliometric and citation analysis, in the four most prolific journals[a], 2000–2018

Clusters and sub-clusters	Articles (the highest citations)
E-government implementation	
General	Layne and Lee (2001), Gupta and Jana (2003), and Reddick (2005)
Analysis of the past research	Heeks and Bailur (2007), Yildiz (2007), and Jaeger and Thompson (2003)
E-government adoption and use	
General	Hung et al. (2006), Verdegem and Verleye (2009), and Shareef et al. 2011
Social media	Bertot et al. (2010), Bonsón et al. (2012), Linders (2012), and Bertot et al. (2012a, b)
E-government technology	Andersen and Henriksen 2006, Guijarro (2007), and Weerakkody and Dhillon (2008)

[a]Government Information Quarterly, Electronic Government, International Journal of Electronic Government Research and Transforming Government: People, Process and Policy
Source Own research

authors' keywords, were applied as the main topic areas being addressed in articles. Additionally, all abstracts were carefully examined and read to justify the main topic areas. This resulted in the identification of five clusters/sub-clusters, presented in Table 10.1, along with the three most cited articles for each of them.

While the results of the cluster analysis are confirmed by the citation analysis and are aligned with it as well, it is important to emphasize that the duality in recent trends, in the last eight to nine years, is noticeable. The citation analysis confirmed that the most cited articles may be in general divided into three clusters, corresponding to the three clusters identified by the bibliometric analysis, but the cluster "e-government adoption and use", that mainly match with the research in the last eight to nine years, may be divided into two sub-clusters. We named sub-clusters as "e-government and adoption – general" sub cluster that is spreading over the whole period of last nine years, and "e-government and adoption – social media" sub cluster that is covering articles, published in the recent five years. Also, within the cluster "e-government implementation" the sub-cluster of the highly cited articles, focused on the analysis of the e-government past research, is identified.

After 2011 the published research on e-government is more focused on how to adopt e-government, factors influencing adoption, on data, trust, risk, use and e-government services.

10.5 E-Government and Digital Society

E-government is not just about digitizing existing bureaucratic processes. It should rather be seen as a transformation of e-business models in the public sector and in terms of how governments operate. Business models are an important topic in the management and business environment (Duh and Štrukelj 2011) and should take social responsibility into consideration (Dankova et al. 2015; Šuligoj and Štrukelj 2017). Transferred to the public sector, a business model represents the service system of a public sector organization and illustrates in a simplified, aggregate form, which resources are used and how these are transformed into the service offering of the public sector organization.

Business models are considered especially suitable for e-government endeavours since they assist and encourage the continuous adaption and re-engineering of organizational practices to new circumstances. These are key reasons why the business model concept is regarded as appealing and useful in the public sector and why governments worldwide are increasingly applying business models to enhance their e-government-related service delivery. A public business model is a simplified and aggregated representation of the relevant services, processes, and activities of a public sector organization that describes how information, products, and services that create additional value for society, are developed and managed, while also considering strategic and process aspects as well as user and public demand components to support sustainable public value creation for society and the public service remit, thus taking business ethics and social responsibility into consideration. Public business models in an e-government context can therefore be classified into four basic stand-alone business models (Wirtz and Daiser 2015):

- Information: The Information Business Model builds upon the strategy to provide users with information in a simple, convenient,

and appealing way. Thus, key processes of this business model are collecting, selecting, systemizing, structuring, compiling, and packaging information as well as presenting and providing the respective content on an online platform.

- Communication: The Communication Business Model follows the approach to provide the users with a comfortable online communication platform. For this reason, setting-up, maintaining, and developing of online communication exchange possibilities, which support and foster interaction between public administration and its stakeholders, are key activities.
- Transaction: The Transaction Business Model targets at the initiation, handling, and processing of administrative procedures through the e-government platform. The core aim of this business model is to complement, or partially or fully substitute, existing offline government services. Therefore, automation and data processing, service bundling, and service development are, for example, important core competencies that are required for realizing the e-government platform.
- Integration: The Integration Business Model aims at integrating public stakeholders directly into the value chain of the public sector organization as well as its administrative procedures. This means that the user has the possibility to influence governmental activities through participative and collaborative action.

Most e-government portals today are hybrid business models that apply a combination of the four basic stand-alone models.

E-government services have become an important instrument of public administration. The main drivers for their evolution during the past two decades have been the development of modern information and communication technologies and the public demand for more convenient public service provision. Their development has led to the advancement of existing e-government services and prepared the way for new innovative e-government information and service provision. Moreover, it triggers radical process changes in public administration organizations. For example, the introduction of electronic tax declarations, which significantly reduced transmission efforts and processing

times since direct electronic data processing substituted former workflows (e.g., mail delivery, digitization of information or documents) and electronic completion of forms drastically limited incorrectly filled out declarations.

E-government service evolution, however, was not a digital process that only required flipping the switch and all public service offers would automatically be available to the public stakeholders. It rather has been a long and cumbersome way of sequential service development and technology steps to reach the level of today's e-government service provision. Taking the technological development of modern information and communication technologies as well as the associated innovations in e-government service provision into consideration, mobile technology and social media have significantly expanded the possibilities of public multichannel management.

Mobile technology, which provides new service opportunities, can be applied within various fields of public service provision. These are mobile search, mobile information, mobile communication, mobile transaction, mobile payment, mobile advertising, and mobile participation. Social media can in general be expected to become more and more important for citizens' communication and interaction. Against this background, e-government-related social media adoption will constantly increase, making it a top priority on every e-government agenda.

Since local e-government portals are the main internet interfaces between the government and citizens, a further expansion and optimization of local online portals is required that clearly focuses on the users' needs as well as on increasing user-friendliness of the e-government services. This development needs to go hand in hand with broadening the full online e-government service range and increasing service depth. In addition, online communication with the users should be further intensified and the provision of participation and collaboration e-government services expanded.

10.6 Discussion and Conclusion

The thematic dynamics of the e-government research field and the thematic subfields in the past, over the time period from 2000 to 2018, as well as future trends were analysed, revealing that in the period before 2011 the e-government research was focused mainly to the information and information technology, implementation of e-government, strategies and processes. After 2011 it is more focused on how to adopt e-government, factors influencing adoption, on data, trust, risk, use and e-government services. The shift to the quality, data, trust and orientation to users is not coming as a surprise (see e.g. Sternad et al. 2011). Nowadays e-government is considered a very important topic in the government agendas, from different viewpoints: technological—as smart, innovative and efficient, from the sustainability viewpoint—as green approach, from the accountability—as responsibility approach. Although several studies have underpinned the e-government topic from different viewpoints, we stem from the fact that huge changes in the field of informatics, digitalization and information generated, that we are facing nowadays, are very likely effecting (and will even more effect in the future) the e-government field as well, from the academic and maybe even more from the professional point of view. In this chapter, e-government is understood as a special organisational governance policy. By defining e-government policy, management implements the organisation's chosen governance policy.

The digitalization of the every day's life and the high-velocity, high-variety and high-volume of data that is being produced all the time, triggered the rising awareness of the information hidden in the big-data bases that are characteristic for the e-government as well. Our analysis revealed that this is very likely to be among important topics of the research in the field of the e-government.

The bibliometric mapping identified three main clusters of terms, which are interlinked within the clusters: "e-government implementation", "e-government adoption and use" and "e-government technology". The citation analysis further revealed, that within the "e-government adoption and use" cluster, the sub-cluster focused on the social media may be identified. In general the first articles containing at least

some viewpoints regarding the incorporation of social media into e-government system, covered by Scopus, were published in 2010, with the most cited one from this group being the article of Bertot et al. (2010). Social media involvement that is characterized by the citizens' participation in e-government is a recent phenomenon where government is seeking more involvement of citizens through different platforms (Vakeel and Panigrahi 2018). The very recently disclosed activities and events (Solon 2018) revealed that the digital interfaces may have an important impact on the future of social media in e-government: through them the third parties can interact with and extract data from the social media platform that may lead to the use of people's data in political campaigns (for presidential campaigns, for important governmental decision like Brexit etc.). It is very likely that the e-government systems will be researched in the future from this viewpoint as well.

Such development is not surprising because e-government started to appear not more than two decades ago when official governmental websites delivering information and services began appearing. In a relatively short time period, development of e-government has progressed from e-government 2.0 (Meijer et al. 2012), to the smart e-government concept 3.0 (Vlahovic and Vracic 2015) and to the recent e-government 4.0 concept (Valle-Cruz and Sandoval-Almazan 2014). The importance of the field and its research attempts are growing fast and research implications challenge not only researchers themselves, but also other stakeholders, solutions providers and government representatives, as well as citizens.

Coursey and Norris (2008) developed five theories or models of e-government relative to its growth and developments published in previous published articles—four have been published in 2001, one was published in 2000. These models are partly descriptive, partly predictive and partly normative and they provide an accurate description of e-government in its early stages.

Publications that followed later, provided more in-depth understanding of e-government, included more empirical research regarding e-services use (Carter and Bélanger 2005) and also link e-government with some other relevant perspectives (Helbig et al. 2009). The latter

extended the research to new concepts as well, i.e. e-governance, e-democracy (Liden 2012), challenged the issue of measuring the value of e-government (Savoldelli et al. 2013) and benchmarked e-government capabilities (Cox 2014).

In the recent articles researchers mostly examined quality of public e-services, attitudes toward e-government and technology development of e-services, associated with users' trust and safety. The quality of public e-government services has been identified and measured in terms of management, information availability, service issues, safety challenges, organization and technical matters (Sá et al. 2016a, b). From a geographical perspective, researchers found significant differences between the rural and urban municipalities. One of important factor that distinguishes people in a rural municipality from those in an urban municipality is geographical closeness. Some researches proved that provincial government websites operate at an inefficient level (Seo and Bernsenb 2016; Wu and Guo 2015). Baqir and Iyer (2010) found that developed countries like United States and many European countries, have advanced information communication technology (ICT) infrastructures, but e-government services usage by citizens is still somehow limited. On the other hand, the developing countries are still struggling to develop and deploy basic ICT infrastructure, which limits people's ability to use e-government services that have already been developed.

E-government studies also show that more than half of e-government projects resulted in total or partial failures with regard to the initially grounded goals, scheduling or budgeting plans, while even more of projects fail to meet expectations of users (Anthopoulos et al. 2016; Aladwani 2016). Report of United Nations e-government survey also showed differences between countries regarding e-government development and use in 2014. At the top are listed South Korea, Australia, Singapore and France (UN 2014). Several newer studies of e-government are focused on diffusion of e-government, quality dimensions in e-government services, e-government adoption and acceptance etc. (Zhang et al. 2014; Yildiz 2007; Reece 2006; Titah and Barki 2006; Papadomichelaki et al. 2006).

Several researches were studying e-government from the technology view-point; many are utilizing the technology acceptance model (TAM)

when studying usefulness and adoption of e-government services (Al-Hujran et al. 2016; Chelliah et al. 2016; Rana and Dwivedi 2015; Sarrayrih and Sriram 2015).

The research showed that e-government is moving towards more mature stages. During past years research areas are clearly defining building blocks of more sophisticated e-government systems which are beyond the early systems. Advanced technological solutions are emerging, which provide added value to all stakeholders—citizens, all levels of government stakeholders and other organizations involved. Comprehensive systems beyond local government borders are emerging and we can talk about e-government ecosystems. This is in line with the growing demands for ethical conduct and social responsibility of individuals, organisations, governments and society as a whole (Belak et al. 2010; Dankova et al. 2015; Štrukelj and Šuligoj 2014).

The results revealed that the analysis of the existing research results in the literature (like bibliometric and other related analyses, e.g. citation analysis) is topical and necessary, especially in such a rapidly changing field as the digitalization of all aspects of life and work, with which e-government is closely linked as well. The articles that bring the overview of research in the past and offer perspectives about the future paths, are highly cited, have an impact and co-shape future research topic within the e-government area (Heeks and Bailur 2007; Yildiz 2007; Jaeger and Thompson 2003). The research results, obtained by the bibliometric and citation analysis of the research in the field of e-government, are important for academics and for professionals, and for all stakeholders involved or influenced by the activities that take place within the e-government systems. It is therefore even more important that in researching this important field we emphasize its interdependence with the organisational governance (Belak 2010; Duh 2016; Duh and Štrukelj 2011) and draw attention to the need for its ethical and social responsibility (Belak et al. 2010; Dankova et al. 2015; Štrukelj 2017; Wheelen et al. 2018).

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