Channel Choice: A Literature Review

Christian Ø. Madsen[1] & Pernille Kræmmergaard[1]

[1]The IT University of Copenhagen, Copenhagen, Denmark
{chrm, pkrm}@itu.dk

Abstract. The channel choice branch of e-government studies citizens' and businesses' choice of channels for interacting with government, and how government organizations can integrate channels and migrate users towards the most cost-efficient channels. In spite of the valuable contributions offered no systematic overview exist of channel choice. We present a literature review of channel choice studies in government to citizen context identifying authors, countries, methods, concepts, units of analysis, and theories, and offer suggestions for future studies.

Keywords: channel choice, e-government, integrated service delivery, literature review, multichannel, multi-channel

1 Introduction

Although the digitization of the public sector has taken place for decades [1] there is still a gap between the availability and uptake of online public services [2]. Even in the countries which are front runners in terms of citizens' adoption of electronic public services citizens keep using traditional channels in addition to online channels either as a supplement or as primary channels [3], [4]. The continued use of traditional channels where the interaction takes place between individual citizens and government employees is costly compared to interaction through a website or other forms of self-service applications.

Several literature reviews within e-government have presented and synthesized the findings of studies of citizens' adoption of online services [5]–[7]. However, these studies tend to focus on citizens' intention to adopt an individual e-government service in isolation [7]. The channel choice (CC) literature studies citizens' choice of channels, and the interplay that takes place between citizens' use of channels for interacting with public authorities [8]. In spite of the valuable contributions the CC literature offers, no systematic review of the CC literature exists.

To cover this gap we present a literature review of the CC field in e-government. Our review analyzes 36 papers which study government to citizen interaction (G2C) through more than one type of channel. We combine and expand Webster & Watson's [9] and Schlichter and Kræmmergaard's [10] methods for finding, classifying and analyzing papers.

1.1 Scope of review

Webster & Watson [9, p. xv] recommend that only one level of analysis is included in a literature review unless there is a strong rationale to include several levels. However, the studies within the CC field take place at several levels; insights from the analysis of how citizens choose channels for interaction with public authorities are used to make recommendations to these organizations on how to manage their channels. Due to this connection in the literature we include both levels in our review.

In the CC literature the terms channel or service channel are used to describe the various forms of communication available to citizens to interact with public authorities [11]. Reddick and Anthopolous [4, pp. 400-401] divide these channels into three types: traditional channels (face-to- face, telephone conversations and physical letters), e-government channels (web and e-mail) and new digital media (text messaging, social media and mobile apps). To focus our review, we only include papers which study at least two of these channel types. Further, only papers which study CC in a government to citizen context (G2C) are included. Results from studies of employees' CC may not be transferrable to citizens, as businesses' policies, structures and means of communication can affect employees' behavior. We want to study the managerial aspects of CC in e-government [1], and papers focusing on CC in relation to e-democracy or e-participation are omitted. Finally, due to the rapid technological development of online services, only papers published within the last decade (2005-2014) are included.

The papers are classified according to authors, country and methods based on a framework by Schlichter and Kræmmergaard [10]. Previous literature reviews of the e-government field have criticized scholars for not leaving their offices to collect data, for conducting cross-sectional rather than longitudinal studies, and for not studying what happens inside government organizations [12]–[14]. To find out if this criticism is applicable to the CC literature we expand the method classification to include researchers' involvement in the data collection process, the use of longitudinal studies, and practioners' involvement in the studies. As our topic is CC we also examine if the papers include data on channel traffic. For analyzing the papers we apply Webster and Watson's [9] conceptual analysis matrix identifying objects and level of analysis, conceptual models, and the theoretical frameworks used.

The next section present the methods used to find and analyze the papers in our review. In the third section we present a classification of the papers found, while section four presents the analysis of the papers. In section five we discuss the results with the aim of identifying gaps in the CC literature for future studies. Section six contains concluding remarks and limitations.

2 Method

The method section is divided into three parts. First we present the search for papers. We then present Schlichter and Kræmmergaard's [10] framework for the classification and Webster and Watson's [9] method for the concept-centric analysis.

2.1 The search for papers

The papers were found in a three step process following Webster & Watson [9].
1. Search for papers in selected journals and conference proceedings
2. Database search
3. Backwards and forwards searches

We began our search for papers in selected journals recognized as core e-government journals by scholars [15] and in the proceedings of EGOV. The first round of searches was conducted in January 2015 using keywords found through an iterative process. An initial series of keywords were supplemented as papers with new keywords were found. Further, inspired by Hofmann et al. [7] we contacted eight experts within the CC field for additional keywords, of which five replied. 13 keywords were used; *CRM, channel behavior, channel choice, channel ict architecture, channel integration, channel management, channel marketing, channel strategy, customer relationship management, integrated service delivery, multichannel, multi-channel and orchestrating service delivery.*

The keyword search included titles, abstracts, and keywords. After removing duplicates we ended with 239 papers. Papers were included if they focused on CC in a G2C context, included at least two types of channels, were published no later than 2005, and written in English. After reading the abstracts 212 papers were omitted as they only studied one type of channel or were outside the G2C domain. This left 27 papers of which two were omitted as they were inaccessible from the university libraries we had access to. After reading the remaining 25 papers 17 were included in the review.

Webster & Watson recommend that a database search is conducted as the second step to find additional papers. Following the recommendation of an expert in the field, we used the E-government Reference Library (EGRL). We downloaded EGRL version 10.0 (July 2014) to Mendeley Reference Manager for Windows (version 1.13.3) and conducted keyword searches in titles, abstracts and keywords using the 13 keywords. 56 papers were found of which 31 had been found in step 1, two were inaccessible, and one was written in Dutch. This excluded 34, leaving us with 22 papers. After reading these four papers were added to the pool bringing the total to 21.

The third step consisted of using Google Scholar to find papers that either referenced or were referenced to by the 21 papers. 68 papers were found which initially seemed relevant according to our selection criteria. We omitted four conference papers which were earlier editions of journal papers already found. Four papers were unavailable. After reading either the abstracts or the whole papers we were left with 15 relevant papers. These 15 papers were added to the final pool, bringing the total to 36. Appendix A presents an overview of the 36 papers.

2.3 Classification of papers.

For the analysis and coding we created a one page template for each paper which contained bibliographical information, abstracts, coding results and notes. This data was entered into a spreadsheet (MS Excel) and analyzed at an aggregated level. The classification of methods follow the framework by Schlichter and Kræmmergaard

which they developed for a literature review of the enterprise resource planning field [10]. We removed one method category, archival, as it overlapped with other categories in the papers found. Table 1 presents the classification.

Table 1. Classification of methods

Category	Description
Case study	Papers reporting on studies involved with a single site or a few sites over a certain period of time
Combined	Papers which do not rely on one primary method
Descriptive	Papers solely describing or arguing for a phenomenon and often very practically oriented
Design science	Papers that construct systems and/or tools
Field experiment	Papers which conduct field experiments
Theoretical	Papers analyzing existing theory, typically with the aim of developing new theory
Survey	Papers that gather data by means of questionnaires

Researchers' involvement in data collection (Table 2) was coded following Blaikie [16, p. 161]. Longitudinal studies followed Blaikie's definition 'a study extended in time' [16, p.201]. Practioners' involvement was coded if the authors had direct contact with government organizations' employees through workshops, interviews, surveys etc. Channel traffic was coded if it was presented in numerical form.

Table 2. Types of data

Category	Description
Primary	Data generated by the researcher
Secondary	Data generated by another researcher
Tertiary	Data analyzed by another researcher

2.4 Concept-centric analysis of the papers

To synthesize the CC literature we conducted a concept-centric analysis following Webster and Watson [9]. As we read the papers we created a template with the primary concepts covered, and the units of analysis. A pattern quickly emerged; part of the papers studies factors impacting CC at the individual level, while another part studies processes related to multichannel management (MCM) at the organizational level. Webster and Watson state that the conceptual analysis should be supplemented with information on the variables examined, and a conceptual and theoretical analysis of how and why the variables are related [9]. We therefore coded factors, processes and theories applied as well.

3 Classification of the CC literature

In this section we present the classification of the papers according to authors, countries and methods applied. We also discuss practioners' involvement and the use of channel traffic in the papers.

3.1 Authors and country

Table 3 presents an overview of the most prolific authors, while Table 4 presents the papers according to first author's country.

Table 3. Most productive authors within CC literature

Author	Papers
Pieterson, W.	11
Reddick, C.G.	6
Janssen, M.	4
Teerling, M.L. (with Pieterson)	4
Ebbers, W.E. (with Pieterson)	3
Kernaghan, K	3
Klievink, B. (with Janssen)	3

The majority of the papers were written by a small group of authors from only a few countries. Three scholars have authored or co-authored 21 of the 36 papers.

Table 4. First author's country

Country	Papers in pool
The Netherlands	14
US	10
Canada	5
Germany	2
Belgium	1
India	1
Italy	1
South Korea	1
UK	1
Total	36

The papers in the pool are written by first authors from nine different countries. Authors from The Netherlands have published 40 percent of the papers and authors from the Netherlands, US and Canada have published 29 of the 36 papers.

3.2 Methodology

Table 5 presents the papers according to the primary method applied. Four papers are labeled as 'combined' as they rely on several methods.

Table 5. Papers classified according to primary method

Category	Number of papers	Papers
Case study	12	[17]–[28]
Combined	4	[29]–[32]
Descriptive	2	[33], [34]
Design	1	[35]
Field experiment	2	[36], [37]
Theoretical	4	[3], [11], [38], [39]
Survey	11	[4], [8], [40]–[48]

Case studies and surveys are the most frequently applied methods. Eighteen papers include results from surveys, but only eleven use surveys as a primary method; ten study the factors that influence citizens' choice of channels and one studies the adoption of multiple channels in organizations. Twelve paper present individual or multiple case studies, based on documentary material and interviews, workshops or other forms of collaborations with practitioners. Four papers develop theory, and focus mainly on exploring and explaining government organizations' strategies for multichannel management through various theoretical lenses. One paper presents a role-playing game as a method for involving case-workers multichannel management, and the results from applying this method in practice. None of the 16 of the papers which apply qualitative methods relies on one method. Rather, interviews or focus groups discussions are combined or conducted preliminary to a survey.

Table 6. Level of data

Level of data	Number of papers	Paper
Primary	22	[17], [19]–[30], [32], [35]–[37], [40], [42], [46], [48]
Secondary	7	[4], [8], [41], [43]–[45], [47]
Tertiary	6	[11], [18], [33], [34], [38], [39]
No data	1	[3]

Table 6 presents the highest level of data in the papers according to researchers' involvement. Primary data has been collected for 22 of the 36 papers. Secondary data is used in seven papers which use survey results on individuals' CC and channel satisfaction for statistical modeling. Six papers present only tertiary data, while one paper does not present any data. Times series are used frequently, but only one paper presents a longitudinal study, with six months between data collection points.

There is a high level of practitioner involvement in the papers, largely due to the many case studies based on interviews with employees. Of the 36 papers, 21 include

involvement or collaboration with practioners. The authors' biographies reveal that four authors behind three of the papers [18], [19], [34] have worked in government organizations, in three cases at the top level.

Seven papers presents channel traffic, of which three presents the same data [11], [38], [40]. Three papers contain a single table or paragraph with channel traffic [8], [19], [23]. Finally one paper analyzes channel data as a part of a field experiment conducted in 2008 [37]. This data only concerns transactions; however, information inquiries related to the transactions are not presented. Further, except for the field experiment, the latest data on channel traffic is from 2006.

4 Concept-centric analysis of the CC literature

This section present the concept-centric analysis of the pool of papers following Webster and Watson [9]. During coding we focused on the two overall concepts in the papers; CC which focuses on the factors that influence citizens' choice of channel and MCM which focuses on the processes and issues related government organizations management of multiple channels. Table 7 presents the result of this analysis.

Table 7. Concept-centric analysis of papers

Papers	Concepts					
	Channel choice			Multichannel management		
	Unit of Analysis			Unit of Analysis		
	O	G	I	O	G	I
[41] [32] [40] [42] [29] [44] [17] [48] [47] [8] [31] [45] [46] [4]			●			
[18]–[25], [27], [28], [33], [34], [39], [43]				●		
[3], [26], [30], [36], [38]			●	●		
[35]					●	
[11]*						

Legend: O = organization, G = group, I = individual, * = service channel

Of the 36 papers 14 study CC at the individual level, while 15 study MCM at the organizational level. There are five papers which overlap these levels, of which two presents the results of field experiments and three are theoretical. One paper, presenting the results of a MCM design study takes place at the group level. One paper [11] does not fit into either level, but focuses on the channels and services delivered, and the development of channel traffic over time. None of the papers study CC at the group level, although a few briefly mention that citizens can also influence each other, or ask each other for help in dealings with public authorities.

4.1 Studies at the individual level

Of the 19 papers which study citizens' CC for interaction with public authorities three are theoretical and 11 use survey data either for descriptive analysis and/or to test the factors that influence this choice. Four papers explore the factors through qualitative methods, two of which also use surveys. Three papers study the effects of organizations' instruments for channel integration and migration, and how these instruments are perceived by citizens. These studies are noteworthy as they cross the boundaries between the individual and organizational unit of analysis.

Most of the studies at the individual level apply variance models to test the impact of independent variables on citizen channel and/or source choice. Nine study citizens' satisfaction with a channel and/or interaction. Satisfaction is both studied as a dependent variable, based on channel chosen, and as an independent variable, where satisfaction with a previous encounter influence future interactions. The factors influencing channel choice have been found through qualitative studies, informed by previous studies, adoptions studies such as TAM [49], marketing theory, and theoretical frameworks from media and communication theory especially Media Richness Theory (MRT) [50], Channel Expansion Theory [51] and Uses and Gratifications research [52]. The papers test a number of different factors. To provide a simple overview we clustered the independent variables into four groups during coding. Note that satisfaction was studied both as an independent and dependent variable. Table 6 presents the factors studied, and the papers which study them.

Table 6. Factors related to citizens' channel choice

Variable	Examples of indicators	Theory	Papers
Channel characteristics	Multiple cues Level of interactivity Perceived ease of use Perceived usefulness	Media richness theory, marketing theory, technology adoption models	[3], [17], [26], [30], [32], [36], [38], [42], [45], [48]
Task characteristics	Type of task at hand Complexity of problem Ambiguity of information	Media richness theory, uses and gratifications research	[3], [4], [8], [17], [26], [29], [32], [38], [40]–[42], [44], [45], [48]
Personal characteristics	Socio-demographics (age, gender, race, education, income) Experience with channel, habits Trust in public authorities	Digital divide literature, technology adoption models, channel expansion theory,	[3], [4], [8], [29], [31], [32], [38], [40]–[42], [44]–[48]

Situational constraints	Availability of channels Price Distance to channels	Marketing theory,	[3], [26], [29], [32], [38], [40], [41], [47], [48]
Satisfaction	Satisfaction with channel Satisfaction with service encounter Satisfaction with previous encounters	Channel expansion theory, marketing theory,	[4], [8], [29]–[31], [36], [37], [41], [45]

An alternative to the variance models is presented by Teerling and Pieterson [30] who use a process model to illustrate how governments' marketing efforts and a person's previous experiences also influence channel choice. This model is interesting as it acknowledges that channel choice is not just a psychological process taking place within citizens, but also a social process where citizens can be influenced by external factors. This is important as government organizations can then impact citizens' CC before an interaction takes place.

4.2 Studies at the organizational level

Table 7. Concepts analyzed at the organizational level

Concept	Theory	Papers
Channel strategies	Media theory, technology adoption models	[3], [11], [38], [39]
Channel integration and/or migration	Media theory, technology adoption models	[24], [26], [27], [33], [34], [36], [37]
Inter- and cross-organizational cooperation, integrated service delivery	References e-government and e-commerce literature and institutional theory but no explicit theoretical framework	[18], [21], [23], [25], [28], [35]
Intermediaries	Intermediation theory, marketing theory, transaction cost theory,	[19], [20]
Other (various)	Technology adoption models	[22], [43]

The 21 papers which take place at the organizational level are much more diverse in terms of topics studied than those at the individual level. Channel integration and migration are the most frequently studied topics, followed by inter- and cross organizational cooperation related to MCM. Due to the limits of this review we only briefly cover the topics here.

Pieterson's studies of government organizations' channel positioning strategies stand out as they are presented in four papers [3], [36], [38], [39]. He uses a process model to illustrate how public authorities can migrate citizens towards the most efficient channels to reduce administrative costs and increase citizen satisfaction. The

studies are informed through theories from media science such as MRT, Bordewijk and van Kaam's [53] classification of tele-information services, a historical analysis of government organizations' channel strategies, and through a series of field experiments from the Dutch Channels in Balance project [24], [30], [36].

Kernaghan discusses the different types of MCM collaboration between government organizations and presents two models to visualize these variations. The first describes inter- and cross organizational partnerships, in terms of actors, services and channels involved [21]. The second model describes the degree to which organizations involved in MCM can be integrated, from informal cooperation, where they share information, to full consolidation, where they give up individual goals and policies and become fully harmonized [33]. This is reminiscent of the vertical and horizontal integration of government organizations which is frequently studied in e-government literature, such as Layne & Lee's [54] often cited e-government web-stage model. Kernaghan differs from Layne and Lee, however, in that he does not present consolidation as an inevitable last stage, but rather as one of several strategic options to consider depending on one's needs and resources. In this way Kernaghan avoids the technologic determinism which the web-stage models have been criticized for. Kernaghan's studies are mostly informed through case studies, especially from Service Canada, rather than any explicit theoretical framework.

Klievink and Janssen [25] categorize challenges related to MCM coordination based on a literature review from several fields including e-commerce and e-government. They identify three layers which cover the political, organizational, and information and technological aspects to MCM coordination and present these in an analytical framework. Kernaghan and Flumian discuss similar barriers [18], [21] with a stronger emphasis on problems caused by changing political climates and power struggles.

In another study Klievink and Janssen focus on public and private intermediaries [20]. Based on case studies and transaction cost theory they discuss the positive roles intermediaries play in facilitating government to citizen interaction, and the strategies government organizations can employ in relation to them in the shape of a process model. Another perspective on intermediaries comes from Frey and Holden [19] who study the channel conflicts that can arise when private companies appear as intermediaries. The authors apply the theoretical concept of distribution channel management from marketing literature and two case studies to illustrate how government organizations can handle these conflicts. Like Janssen & Klievink they acknowledge the positive role intermediaries can play in MCM. However, Frey and Holden note the importance of protecting the interests of the private companies in addition to those of the government and citizens, while Janssen & Klievink are more concerned with ensuring that citizens have equal access to government services.

5 Discussion

In this section we discuss the results of our literature review with the aim of identifying methodological and knowledge gaps in the CC literature. Table 8 presents six areas for future CC studies, which could bring the field further forwards.

Table 8. Suggestions for future CC studies

Suggestion	Purpose
Studies from new countries and services	Increase analytical generalizability
More use of primary data and qualitative data	Improve statistical analysis of CC, and in-depth examination of specific areas
Direct observation and analysis of channel traffic	Supplement and update existing studies
Longitudinal studies	Analyze long-term effects of MCM instruments
Studies of CC at group level	Extend existing process models to include the effects of citizen-to-citizen interaction on CC
Field experiments	Bridge gaps between CC at individual level and MCM at organizational level

The CC literature is dominated by a few authors and countries. Many of the papers study actual use and involve practitioners. This limits the places where the studies could have been carried out, as well as their generalizability. Studies from other countries and of specific services could offer valuable contributions to the literature.

Many methods are used to collect and analyze data, but two types of studies stand out; statistical analysis of survey data of citizens' CC, and case studies of MCM at the organizational level. The studies of CC appear more harmonized and coherent than those of MCM. Part of this may be because they are carried out by a small group of authors who cross-reference each other. However, these studies also revolve around one topic – individual's CC – use similar variance models and explicitly refer to the same theoretical frameworks to inform their analyses. There is a strong sense of progress and building on each other's work, and both empirical and theoretical contributions are offered. However, they are largely based on survey data from secondary data sets which the researcher cannot influence. Although a few studies use qualitative studies to inform the survey creation, CC scholars repeatedly state a need for supplementing surveys through qualitative methods [3], [4], [8], [40], [41], [47].

Methods of direct observation are time consuming to conduct, but they provide valuable contextual information [16] and could inform areas which have only been slightly touched upon; situational constraints, habits and how the service in question and its importance to the citizens influence CC. Observations could study an entire service encounter from the citizens' point of view and the interplay that takes place between channels during such an encounter. This would enable CC scholars to explore citizen initiated requests and explain why these requests occur and gain insight into channel switching and supplementing behavior.

Data on channel traffic could update and supplement the existing knowledge on MCM. Longitudinal studies of channel traffic could be used to evaluate the effects of MCM instruments on citizens' channel behavior. Most of the existing analyses of channel traffic are based on data which is a decade old, and it is unknown if the conclusions based on this data still hold up today.

Future CC studies could examine how citizens influence and help each other when interacting with government organizations. It is striking that the papers in this review

focus at only the individual or organization level. There are no studies of CC at the group level, although both private and public intermediaries are mentioned at organizational level, and several studies mention that friends and family members can be intermediaries [25], [32], [44]. Teerling & Pieterson's process model seems suitable for this task as it illustrates external parties' influence on citizens' CC [30].

A series of conceptual models have been presented to illustrate channel integration and migration, inter-and cross organizational collaboration and barriers to MCM. However, most of the authors seem to either build new models or improve their own. Having presented some of the overlaps in the MCM studies at organizational level here, we would suggest that the existing conceptual models are criticized, tested or synthesized before new models are created. This could lead to a more mature and coherent field. We also recommend that theoretical frameworks are used to inform these models to a higher extent.

Finally we recommend that new field experiments are conducted to study the effects of MCM instruments. The existing studies have been valuable to bridge the individual and organizational levels, but they have been carried out in one country by a small group of scholars. New experiments could contribute by including new service areas, target groups, and MCM instruments. Further they could examine the effects of MCM on all available channels, rather than a few isolated channels. Field experiments could also to examine the effects of MCM instruments on new digital media, which previous experiments have not covered.

6   Conclusion

This paper has presented an overview of 36 papers from the CC literature found and analyzed following Webster and Watson (2002). The classification of the papers expanded a framework by Schlichter and Kræmmergaard (2010). The importance of supplementing the search for papers with forwards and backwards searches has been demonstrated as new papers were added in each step. Hofmann's method of contacting authors to inquire about keywords proved fruitful [7]. Our analysis has revealed multiple gaps in the CC literature. We have suggested six areas which future studies could address to contribute to the theoretical and empirical development of the CC field.

There are several limitations to our study. Many of the papers were found due to authors citing themselves. This self-citing means the pool of papers revolve around a few authors and countries. The effect may have been strengthened by the sources searched, keywords used, and the fact that papers from certain publishers were inaccessible. It is possible that we may have missed papers for these reasons. Our conceptual analysis is limited to two main areas due to author resources and spatial limitations. A synthesis of results, recommendations for practiioners, and a more in-depth discussion of suggestion for future studies were omitted for similar reasons.

Future literature studies could address these limitations by expanding the search, classification and analysis conducted here. An analysis of author keywords, citations, sources and disciplines could illuminate the relationships between the papers and to other fields. Future studies could synthesize and discuss results, suggestions for future studies and recommendations for practiioners. We welcome input from scholars on these issues and will gladly share our data for further analysis upon request.

Appendix A. Pool of papers in the review

ID	Author(s) and year	Source	Country
19	Frey, K. N., & Holden, S. H. (2005)	GIQ	US
21	Kernaghan, K. (2005)	IRAS	Canada
41	Reddick, C. G. (2005)	JEG	US
39	Pieterson, W., & Dijk, J. (2006)	IFIP EGOV Conference	Netherlands
11	van Deursen, A., & Pieterson, W. (2006)	ICA Conference	Netherlands
18	Flumian, M., Coe, A., & Kernaghan, K. (2007)	IRAS	Canada
32	Pieterson, W., & van Dijk, J. (2007)	Dg.o. Conference	Netherlands
38	Ebbers, W. E., Pieterson, W. J., & Noordman, H. N. (2008)	GIQ	Netherlands
40	Pieterson, W., & Ebbers, W. (2008)	IRAS	Netherlands
42	Pieterson, W., Teerling, M., & Ebbers, W. (2008)	IFIP EGOV Conference	Netherlands
34	Singh, A. K., & Sahu, R. (2008)	GIQ	India
29	Verdegem, P., & Hauttekeete, L. (2008)	IJEG	Belgium
20	Janssen, M., & Klievink, B. (2009)	IJEGR	Netherlands
36	Pieterson, W., & Teerling, M. (2009)	IFIP EGOV Conference	Netherlands
43	Reddick, C. G. (2009)	GIQ	US
23	Roy, J. (2009)	IJEG	Canada
35	Bharosa, N., Janssen, M., Klievink, B., van Veenstra, A., & Overbeek, S. (2010).	EJEG	Netherlands
28	Gagnon, Y. C., Posada, E., Bourgault, M., & Naud, A. (2010)	IJPA	Canada
25	Klievink, B., & Janssen, M. (2010)	Dg.o. Conference	Netherlands
26	Mundy, D., Umer, Q., & Foster, A. (2011)	EJEG	UK
3	Pieterson, W. (2010)	IJEGR	US
44	Reddick, C. G. (2010)	IJEGR	US
37	Teerling, M. L., & Pieterson, W. (2010)	GIQ	Netherlands
17	Barth, M., & Veit, D. (2011)	HICSS Conference	Germany
30	Teerling, M. L., & Pieterson, W. (2011)	IP	Netherlands
24	Van De Wijngaert, L., Pieterson, W., & Teerling, M. L. (2011)	IJIM	Netherlands
27	van Veenstra, A. F., & Janssen, M. (2010)	EJEG	Netherlands
48	Lee, J., & Rao, H. R. (2012)	ISJ	US
47	Reddick, C. G., Abdelsalam, H. M., & Elkadi, H. A. (2012)	ITD	US
8	Reddick, C. G., & Turner, M. (2012)	GIQ	US
33	Kernaghan, K. (2013)	CPA	Canada
45	Pang, M. S., Mithas, S., & Lucas, H. (2013)	ICIS Conference	US
46	Plattfaut, R., Kohlborn, T., Hofmann, S., Beverungen, D., Niehaves, B., Rackers, M., & Becker, J. (2013)	HICSS Conference	Germany
31	Lamberti, L., Benedetti, M., & Chen, S. (2014)	GIQ	Italy
22	Nam, T., & Pardo, T. A. (2014)	GIQ	South Korea
4	Reddick, C., & Anthopoulos, L. (2014)	TGPPP	US

7 References

1. Chadwick, A., May, C.: Interaction between states and citizens in the age of the internet: 'e-government' in the United States, Britain, and the European Union, *Governance-an Int. J. Policy Adm.*, vol. 16, no. 2, 271–300 (2003)
2. European Commission: Public Services Online : Assessing User Centric eGovernment performance in Europe – eGovernment Benchmark 2012. (2013)
3. Pieterson, W.: Citizens and Service Channels: Channel Choice and Channel Management Implications. *Int. J. Electron. Gov. Res.*, vol. 6, no. 2, 37–53 (2010)
4. Reddick, C., Anthopoulos, L.: Interactions with e-government, new digital media and traditional channel choices: citizen-initiated factors. *Transform. Gov. People, Process Policy*, vol. 8, no. 3, 398–419 (2014)
5. van de Wijngaert, L. Bouwman, H., Contractor, N: A network approach toward literature review. *Qual. Quant.*, vol. 48, no. 2, 623–643 (2012)
6. Rana, N.P., Williams, M.D., Dwivedi, Y.K., E-government adoption research: A meta-analysis of findings. In *20th European Conference on Information Systems (ECIS 2012)* 1–10 (2012)
7. Hofmann, S., Räckers, M., Becker, J.: Identifying Factors of E-Government Acceptance – A Literature Review. In *33rd International Conference on Information Systems (ICIS 2012)*, 1–10 (2012)
8. Reddick, C., Turner, M.: Channel choice and public service delivery in Canada: Comparing e-government to traditional service delivery. *Gov. Inf. Q.*, vol. 29, no. 1, 1–11 (2012)
9. Webster, J., Watson, R.: Analyzing the past to prepare for the future: Writing a literature review. *MIS Q.*, vol. 26, no. 2 (2002)
10. Schlichter, B., Kraemmergaard, P.: A comprehensive literature review of the ERP research field over a decade. *J. Enterp. Inf. Manag.*, vol. 23, no. 4, 486–520 (2010)
11. Van Deursen, A., Pieterson, W.: The Internet as a service channel in the Public Sector. *International Communication Association Conference (ICA)* (2006)
12. Heeks, R., Bailur, S.: Analyzing e-government research: Perspectives, philosophies, theories, methods, and practice. *Gov. Inf. Q.*, vol. 24, no. 2, 243–265 (2007)
13. Madsen, C.Ø., Berger, J.B., Phythian, M.: The Development in Leading e-Government Articles 2001-2010: Definitions, Perspectives, Scope, Research Philosophies, Methods and Recommendations: An Update of Heeks and Bailur. In: *Electronic Government: Proceedings of the 13th IFIP WG 8.5 International Conference, EGOV 2014*, vol. 8653. 17–34 (2014)
14. Yildiz, M.: E-government research: Reviewing the literature, limitations, and ways forward. *Gov. Inf. Q.*, vol. 24, no. 3, 646–665 (2007)
15. Scholl, H.J.: E-Government Reference Library v.10.0. [Online]. Available: http://faculty.washington.edu/jscholl/egrl/. [Accessed: 03-Jan-2015] (2015)
16. Blaikie, N.: *Designing Social Research.* Polity, Cambridge (2012)
17. Barth, M., Veit, D.: Electronic Service Delivery in the Public Sector: Understanding the Variance of Citizens' Resistance. *Proc. 44th Hawaii Int. Conf. Syst. Sci.*, vol. 0, 1–11 (2011)

18. Flumian, M, Coe, A, Kernaghan, K.: Transforming service to Canadians: the Service Canada model. *Int. Rev. Adm. Sci.*, vol. 73, no. 4, 557–568 (2007)
19. Frey, K.N., Holden, S.H. :Distribution channel management in e-government: Addressing federal information policy issues," *Gov. Inf. Q.*, vol. 22, no. 4, 685–701 (2005)
20. Janssen, M., Klievink, B.: The Role of Intermediaries in Multi-Channel Service Delivery Strategies. *Int. J. Electron. Gov. Res.*, vol. 5, no. 3, 36–46 (2009)
21. Kernaghan, K.: Moving towards the virtual state: integrating services and service channels for citizen-centred delivery. *Int. Rev. Adm. Sci.*, vol. 71, no. 1, 119–131 (2005)
22. Nam, T., Pardo, T.A.: The changing face of a city government: A case study of Philly311. *Gov. Inf. Q.*, vol. 31, no. S1, S1–S9 (2014)
23. Roy, J.: E-government and integrated service delivery in Canada: the Province of Nova Scotia as a case study. *Int. J. Electron. Gov.*, vol. 2, no. 2/3, 223–238 (2009)
24. van de Wijngaert, L., Pieterson, W., Teerling, M.: Influencing citizen behavior: Experiences from multichannel marketing pilot projects. *Int. J. Inf. Manage.*, vol. 31, no. 5, 415–419 (2011)
25. Klievink, B., Janssen, M.: Coordinating e-government service delivery. *11th Annual International Conference on Digital Government Research (dg.o 2010)*. Digital Government Society of North America, Puebla, Mexico, 209–216 (2010)
26. Mundy, D., Umer, Q., Foster, A.: Examining the Potential for Channel Shift in the UK Through Multiple Lenses. *Electron. J. e-Government*, vol. 9, no. 2, 203–213 (2011)
27. Van Veenstra, A.F., Janssen, M.: Migration Strategies for Multi-Channel service provisioning in public agencies. *Electron. J. e-Government*, vol. 8, no. 2, 409–416 (2010)
28. Gagnon, Y.C., Posada, E., Bourgault, M., Naud, A.: Multichannel Delivery of Public Services: A New and Complex Management Challenge. *Int. J. Public Adm.*, vol. 33, no. May 2014, 213–222 (2010)
29. Verdegem, P., Hauttekeete, L.: The user at the centre of the development of one-stop government. *Int. J. Electron. Gov.*, vol. 1, no. 3, 258–274 (2008)
30. Teerling, M. Pieterson, W.: How to improve e-government use: An empirical examination of multichannel marketing instruments. *Inf. Polity*, vol. 16, no. 2, 171–187 (2011)
31. Lamberti, L., Benedetti, M., Chen, S.: Benefits sought by citizens and channel attitudes for multichannel payment services: Evidence from Italy. *Gov. Inf. Q.*, vol. 31, no. 4, 596–609 (2014)
32. Pieterson, W., van Dijk, J.: Channel choice determinants; an exploration of the factors that determine the choice of a service channel in citizen initiated contacts. In *8th Annual International Conference on Digital Government Research (dg.o 2007)*, vol. 228, 173–182 (2007)
33. Kernaghan, K.: Changing channels: Managing channel integration and migration in public organizations. *Can. Public Adm.*, vol. 56, no. 1, 121–141 (2013)
34. Singh, A.K., Sahu, R.: Integrating Internet, telephones, and call centers for delivering better quality e-governance to all citizens. *Gov. Inf. Q.*, vol. 25, no. 3, 477–490 (2008)

35. Bharosa, N., Janssen, M., Klievink, B., Van Veenstra, A.: Guiding Integrated Service Delivery : Synthesizing and Embedding Principles Using Role-Playing Games. *Electron. J. e-Government*, vol. 8, no. 2, 83–92 (2010)
36. Pieterson, W., Teerling, M.: Channel Integration in Governmental Service Delivery: The Effects on Citizen Behavior and Perceptions. In *Electron. Gov. Proc. 8th [IFIP WG 8.5] Int. Conf. EGOV 2009*, vol. 5693, no. 2007, 222–233 (2009)
37. Teerling, M., Pieterson, W.: Multichannel marketing: An experiment on guiding citizens to the electronic channels. *Gov. Inf. Q.*, vol. 27, no. 1, 98–107 (2010)
38. Ebbers, W., Pieterson, W., Noordman, H., Electronic government: Rethinking channel management strategies. *Gov. Inf. Q.*, vol. 25, no. 2, 181–201 (2008)
39. Pieterson, W., Van Dijk, J.: Governmental service channel positioning: history and strategies for the future. In *Communication Proceedings of the Fifth International EGOV Proceedings*, 53–60 (2006)
40. Pieterson, W., Ebbers, W.: The use of service channels by citizens in the Netherlands: implications for multi-channel management. *Int. Rev. Adm. Sci.*, vol. 74, no. 1, 95–110 (2008)
41. Reddick, C.: Citizen-Initiated Contacts with Government: Comparing Phones and Websites," *J. E-Government*, vol. 2, no. 1, 27–53 (2005)
42. Pieterson, W., Teerling, M., Ebbers, W.: Channel Perceptions and Usage: Beyond Media Richness Factors. In *Electronic Government 7th International Conference, EGOV 2008 proceedings*, vol. 5184/2008, Wimmer, M.A., Scholl, H.J., Ferro, E. Eds. Springer, Berlin (2008)
43. Reddick, C.: The adoption of centralized customer service systems: A survey of local governments. *Gov. Inf. Q.*, vol. 26, no. 1, 219–226 (2009)
44. Reddick, C.: Comparing citizens' use of e-government to alternative service channels. *Int. J. Electron. Gov. Res.*, vol. 6, no. June, 54–67 (2010)
45. Pang, M., Mithas, S., Lucas, H.: How Channel Choice and Service Failure Influence Customer Satisfaction: The Case of Public Services. In *Thirty Fourth International Conference on Information Systems, Milan (* 2013)
46. Plattfaut, R., Kohlborn, T., Hofmann, S., Beverungen, D., Niehaves, B., Rackers, M., Becker, J.: Unravelling (E-)Government Channel Selection: A Quantitative Analysis of Individual Customer Preferences in Germany and Australia. In *46th Hawaii International Conference on System Science (HICSS 2013)* (2013)
47. Reddick, C., Abdelsalam, H.M.E., Elkadi, H.A.: Channel choice and the digital divide in e-government: the case of Egypt. *Inf. Technol. Dev.*, vol. 18, no. 3 226–246 (2012)
48. Lee, J., Rao, H.R.: Service source and channel choice in G2C service environments: a model comparison in the anti/counter-terrorism domain. *Inf. Syst. J.*, vol. 22, no. 4, 313–341 (2012)
49. Davis, F.D.: Perceived Ease of Use, and User Acceptance of Information Technology," *MIS Q.*, vol. 13, no. 3, 319–340 (1989)
50. Daft, R., Lengel, R.: Organizational information requirements, media richness and structural design. *Manage. Sci.* (1986)
51. Carlson, J.R., Zmud, R.W.: Channel expansion theory and the experiential nature of media richness perceptions. *Acad. Manag. J.*, vol. 42, 153–170 (1999)

52. Katz, E., Blumler, J.G., Gurevitch, M.: Uses and Gratifications Research. *Public Opin. Q.*, vol. 37, no. 4, 509–523 (1973)
53. Bordewijk, J., van Kaam, B.: Towards a new classification of tele-information services. In *McQuail's Reader in Mass Communication Theory*, SAGE Publications, London, 575–586 (2002)
54. Layne, K., Lee, J.: Developing fully functional E-government: A four stage model. *Gov. Inf. Q.*, vol. 18, no. 2, 122–136 (2001)