Association for Information Systems

AIS Electronic Library (AISeL)

Stray Dogs and Wild Cats Tracking Down Information Systems in Government

Kim Viborg Andersen
Copenhagen Business School, andersen@cbs.dk

Helle Zinner Henriksen
Copenhagen Business School, hzh.digi@cbs.dk

Amar Shazad Ahmed
Copenhagen Business School, amar@cbs.dk

Haukur Arnthorsson
University of Iceland, haukura@hi.is

Follow this and additional works at: https://aisel.aisnet.org/ecis2004

STRAY DOGS AND WILD CATS TRACKING DOWN INFORMATION SYSTEMS IN GOVERNMENT?

Andersen, Kim Viborg, Copenhagen Business School, Howitzvej 60, Frederiksberg, Denmark, andersen@cbs.dk

Henriksen, Helle Zinner, Copenhagen Business School, Howitzvej 60, Frederiksberg, Denmark, hzh.inf@cbs.dk

Ahmed, Amar Shazad, Copenhagen Business School, Howitzvej 60, Frederiksberg, Denmark, amar@cbs.dk

Arnthorsson, Haukur, University of Iceland, Odda, Sturlugotu, 150 Reykjavik, Iceland, haukura@hi.is

Abstract

This paper explores the body of e-government research surfaced during 1998-2003 in Web of Science and ProQuest. The search identified 158 scholarly papers. Using a classification model developed by Andersen and Danziger (1995), the predominately part of the research addresses improvements of services and products (72%), better data access (67%) and public-Government interaction (64%). Less frequent are studies on values. Comparing data with literature review on the Golden Age of transformation of the public sector (1988-2000), the authors suggest that e-government so far has not altered the balance between existing domains of applications or introduced new areas.

1   INTRODUCTION

During the eCommerce era many –perhaps most newcomers—found themselves and others running like wild cats in the minefield of studying innovative IT-applications and business organization that went bankrupt before the research had been written up. Hunting for new cases, the eCommerce label was gradually transformed to eBusiness. During the same time we saw the stray dogs - after all being well-trained and more rigors researchers sticking with technologies that were spreading slowly and transforming businesses. The stray dogs - were the EDI-researchers and the Michael Porter followers. The wild cats were the dot-com preachers. However, regardless of species – cats or dogs – they preached the advent of opportunities created by IT. Mostly, building in the assumption that the more It the better and smarter. One danger of the current focus of eGovernment is repeating the same roles if subscribing to the attitude of the UK eEnvoy who states that eGovernment is just like government, it is just smarter and faster. This paper on eGovernment adresses this by assessing literature on the topic published since 1998.

The significance of eGovernment is easily traced in the political agendas throughout the world. At the supranational level eGovernment has been on the agenda for quite a while (European Commission 2003, OCED 2003) and national governments are also catching up on the ideas of using technological applications and infrastructures in their work procedures (IAB 1999). A number of IS conferences have recently included tracks on eGovernment. Other conferences e.g. DEXA eGov and European Conference on eGovernment, specifically focusing on eGovernment have also seen the light. These events have attracted an increasing number of researchers. eGovernment is also at the agenda at public administration conferences such as the European Group of Public Administration (EGPA) and International Political Science Association conferences (IPSA). Thus eGovernment in its variety of labels as e-government, e-governance, one-stop government, digital government, electronic government and online government is unique in capturing not only IS research but bridging to other disciplines. We are seeing journals being devoted to eGovernment by special issues (DSS, ISJ) and entire new journals being launched on this topic (International Journal of e-Government and Electronic Journal of eGovernment). However, it is our assumption that what mainly characterizes e-Government research at present is the legacy from IS research broadly. Lenk and Traunmüller (2002, p.2) expressed similar concerns when stating "… the underlying concepts of eGovernment remain fairly vague… they are still driven by analogies from E-Commerce." This approach might offer rich opportunities or it might create limitations, which are inappropriate in the long run.

2   OUR MOTIVATION: IS GOVERNMENT A SPECIAL CASE?

Rather than seeking a solely formal political view of government, i.e. who gets what, when, and how (Laswell, 1936) from government, our first observation about government is that it includes structures, processes, actors and policies that determine or implement the allocation of public values in the collectivity (Easton, 1965). Easton's model brings awareness to the political environment of which public administration is part of. The model provides insight in the complex way public services has emerged, sustained and changed. Yet, complementing Easton's model with modern more in-depth governance analysis can aid our understanding of how governmental IT-initiatives and IT-practices unfold (Ham & Hill, 1984).

Barry Bozemann (1989) takes position the that "all organizations are public" in so far as they are subject to public authority whereas Allison (1980) and Klausen (2000) argue that the specific context among other things is constituted by the inherent political and regulated character of both goal-setting and performance.

There are *many political actors and they are setting the goals (not the leaders and managers of public institutions)*, these goals are subject to change whenever shifting political coalitions find it opportune,

and they are typically diverse, broad and ambiguous (Hoff 1992). This result in "less direct market exposure (and therefore more reliance on appropriations), resulting in less incentive for productivity and effectiveness, lower allocational efficiency, and lower availability of market information; more legal and formal constraints; and higher political influences, including impacts of interest groups and the need for support of constituencies" (Thong et al. 2000)

At the managerial level, managers are left with "less decision-making autonomy, less authority over subordinates, greater reluctance to delegate, and a more political role for top managers; more frequent turnover of top managers due to elections and political appointments; difficulties in devising incentives for individual performance; and lower work satisfaction and organizational commitment."(Thong et al. 2000)

Furthermore, there are often *strict rules and regulations* as to how various tasks and jobs are to be accomplished, what is to be done and what is not to be done. The room for strategic manoeuvring is therefore often very limited. A public institution can for instance neither change its line of production nor can it harvest and invest any profits it may gain from reducing the spending of resources or from performance pay (Klausen 2000)

Onwards, the public sector is overall a very labor intensive workplace with a special work culture. There are common expectations that public officials act fairly, responsively, accountably, and honestly. Although similar expectations can exist in the private sector, there are legal means to seek these expectations being implemented.

In the mid 1990s, Hutton (1996) pointed out that public sector organizations have a number of specific characteristics, including rigid hierarchies, a special work culture, multiple stakeholders for many processes and boundaries that cannot be crossed. Changes in policy direction can be sudden and dramatic, furthermore overlap of initiatives, wide scope of activities often with unrealistic expectations of the impacts, and staff is a crucial part of public sector organizations. An implication of these characteristics is that "soft" human issues are to vital issues to consider when building and implementing IT applications for public sector (McAdam and Donaphy 1999).

Overview of characteristics of governmental institutions

- labor intensive
- specific context constituted by the inherent political and regulated character of both goal-setting and performance.
- political actors setting the goals (not the leaders and managers of public institutions)
- diverse, broad, ambiguous, overlapping, and over ambitious (with respect to impacts) goals are subject to change whenever shifting political coalitions find it opportune.
- strict rules and regulations as to how various tasks and jobs are to be accomplished, what is to be done and what is not to be done, e.g. the room for strategic maneuvering is often very limited
- rigid hierarchies and boundaries that cannot be crossed
- less market exposure (indirect link to demand side), hence less incentive for productivity and effectiveness improvement
- special work culture and expectations that public officials act fairly, responsively, accountably, and honestly.

Table 1.   Governmental characteristics

One crucial question is if these characteristics are captured in the present eGovernment research where the "e" apparently has taken a prevalent role? Or to phrase it a bit more polemic: Is the political research tradition superseded by the broader IS/ MIS research tradition, where organizational issues and technological innovation play a more central role? In order to explore a possible common denominator of the most recent eGovernment research, a comprehensive literature review of the last five years publications on eGovernment was accomplished. The objective of this literature review is to provide a state-of-the-art picture of eGovernment research.

3 METHODOLOGY

Similar to Swan et al. (1999) the initial quantitative analysis of core search terms was conducted using the search technology available via comprehensive on-line journal databases. Two of the largest on-line journal databases were investigated: Social Sciences Citation Index (SSCI®) and ProQuest Direct (PQD). The applied search criteria are presented in Table 2.

	Social Science Citation Index (SSCI)	ProQuest Direct (PQD)
Search entry:	Topics	Citation and abstract
Search criteria:	Full Search Advanced Search 1998 until 2003	Advanced Search Scholarly journals only Not limited to fulltext articles 01/01/1998 to 12/31/2003

Table 2.   Search entry and criteria

In the spiraling literature on IT in government, however, e-government and e-governance are not the only labels used. Also, online government, digital government, one-stop government, and electronic government are being used.

Thus, we used the four broad terms to search for the substantive issues addressed on IT in the public administration and political world. The search was performed in October-November and last updated November 14 2003. The search led to a total of 158 different articles where at least one of the above-mentioned keywords occurred in the title, abstract, or keywords. The numbers reported in Table 3 only reflect articles. Hits retrieved from the databases which were book-reviews or contributions in conference proceedings were excluded in the further analysis.

Keyword (search string)	SSCI	PQD
e-government	51	54
e-governance	10	5
Egovernment	1	2
Egovernance	0	0
e-government + e-governance	3	3
egovernment + egovernance	0	0
e-government + egovernance	0	0
e-governance + egovernment	0	0
digital government	5	13
digital governance	0	0
online government	3	1
online governance	1	1
one-stop government	0	1
one-stop governance	0	0
electronic government	28	28
electronic governance	3	1
Total number of citations	86	72

Table 3.   Keywords and number of articles by keywords and combinations of keywords in SSCI and ProQuest 1998-2003

As a conceptual framework to guide our review, we utilized a taxonomy composed of four main domains of impacts, which reflect classic themes in political science: capabilities, interactions, orientations and value distributions (Andersen and Danziger 1994; Danziger and Andersen 2002). Given that the evaluation of articles focused on impact of E-Government. Articles merely focusing on technical solutions were not included and categorized.

The list of the four domains and 22 categories of impacts were formulated by means of an inductive process grounded in the actual findings in the research literature. Table 4 lists the 22 categories in our taxonomy. We used this list of variables to categorize the focus of the papers despite we did not look for impacts per se.

Capabilities of a political unit address the manner in which the unit (individual or collective) deals with its environment, in an attempt to control the environmental effects on its behavior and to extract values from the environment (quality of information available to political actors and also on changes in the efficiency or effectiveness of performance).

Interactions between the political units assess how IT affects patterns of power and control, communication among units, the coordination of tasks or policies, and the cooperation among actors in performing a function within the public sector. It also considers the relations between the public sector (e.g., governmental agencies, public administrators) and citizens or private sector actors, as well as the relations among citizen groups.

Orientations capture the political unit's cognitive, affective and evaluative considerations. For example, quantitative considerations can have gained weight relative to qualitative arguments in political decisions and actions. Also, IT can cause actors to structure problems differently. Third, actors, such as street-level bureaucrats, perceive that their discretion has been altered by IT.

Finally, *value distributions* are measured by examining whether a political actor experiences a shift in values that is attributable to IT. We look specifically at values associated with the enhancement of the citizen's private sphere, legal rights, and levels of health, safety and well-being, as well as examining the job satisfaction and job (domain) enlargement of public employees.

The list of variables was our point of departure for assessing the paper. Categories were added if relevant during the assessment process. If the article did meet our criteria of relevance, it was then independently assessed by two of the authors of the paper. The article's findings were classified within each appropriate category of the conceptual framework.

Conceptual domain	Variable		Citations (Percent)*
I. CAPABILITIES	Information Quality	1. Data access	67%
		2. Data quality	44%
	Efficiency	3. Productivity gain	45%
		4. Staff reduction/substitution	4%
		5. Improved (managerial) control	35%
		6. Time-saving measures	20%
	Effectiveness	7. Improved decision processes	26%
		8. Improved products and services	72%
		9. Improved planning	22%

II. INTERACTIONS	10. Improved coordination/ cooperation	33%
	11. Citizen-public sector interaction	64%
	12. Private sector-public sector	26%
	interaction	10%
	13. Citizen-citizen interaction	21%
	14. Organizational control and power	
III. ORIENTATIONS	15. Emphasis on quantitative criteria	7%
	16. Structuring of problems	29%
	17. Increased discretion	14%
IV. VALUE DISTRIBUTIONS	18. Protection and improvement of the private sphere	15%
		10%
	19. Job satisfaction and enrichment	8%
	20. Job enlargement	14%
	21. Protection of legal rights	15%
	22. Improved standard of health, safety and well-being	

* Please note that 110 papers were reviewed and classified.

Table 4.   Conceptual Domains and Results of Our Review*

Apart from coding the impacts as defined in the applied conceptual framework the research methods used in the articles were also registered. The distribution of applied research methods is presented in Table 5 below.

Data gathering method	Percent (%)
Case study	38
Survey	0
Other	38
Not their own primary data	25
Total	100%

Table 5.   Data gathering method in the studies

4   POTENTIAL SHORTCOMINGS OF OUR METHODOLOGY

Among the potential threats to validity of our method is its failure to capture research on the impacts of IT on politics and public administration that is not published in these particular journals since we included scholarly journals only. We recognize that there are numerous other valid sources of empirical research, including other journals, online media, books, book chapters, conference papers, and so on.

A second threat to validity is that we have relied exclusively on English-language journals, which introduce certain biases regarding the scholars, countries studied, and perhaps even epistemologies.

Third, the research methods in the studies vary; this can generate some problems of comparability and generality when the findings are aggregated in the manner we utilize.

Forth, we do not make quality assessments regarding methods or findings and we do not weight the findings on the basis of the power of evidence supporting the inferences provided in the research. We assume that the journal's internal system of peer review provides a baseline of acceptability regarding the validity of the research and conclusions.

Finally, our own conceptual framework for classifying findings or methods of establishing inter-analyst agreement could be found wanting.

Despite these possible sources of error, we suggest that viewing the retrieved articles as a sample of key academic contributions included in the on-line journal database is a reasonable method for conducting a systematic survey of the research within the "universe" of sources on e-government, e-governance, one-stop government and digital government.

5 PRELIMINARY CONCLUSIONS

The first and foremost insight obtained from our screening of the two on-line journal databases of publications including the terms e-government, e-governance, online government, digital government, one-stop government, or electronic government is related to the large number of papers. Our preliminary assumption was that there would be a limited number of publications on the topic. This assumption has proved to be wrong (cf. Table 2). Yet, despite the large number of studies, one out of four (25%) papers are armchair studies or re-analysis of data collected by other people than the authors. Of those publications reporting empirical studies, 38% are case studies whereas no surveys have been identified yet.

What could indicate that the legacy from IS research is not as prevalent as expected is the fact that surprisingly few publications are related to business-to-government studies. Bearing in mind that IS research for decades have studied businesses and the implications of IS for businesses it was expected that this would have been reflected in the reported research on eGovernment. Given that business research after all is the core competence of IS researchers.

The findings point towards that parameters related to capabilities are in the hub of eGovernment research. Especially, information quality with respect to data access is often subject to the researcher's attention. Eighty-eight percent of the articles mention the prospects of improved data access in their publication. Though we have not so far analysed a possible correlation between whether those studies focusing on data access also include issues related to productivity gain (50% of the studies refer to this parameter) or improved products and services (54% of the studies refer to this parameter) it is our expectation that this might be the case. This could indicate that researchers are at the same track as main-stream IS-research.

When considering the more visible characteristics of the public sector services, it is not surprising, that a substantial number of publications (64%) discuss the citizen-public sector interaction. Whereas the rest of the parameters included in the category of Interactions are less often reported in the studies.

References

Allison, G. (1980). Public and Private Management: Are They Fundamentally Alike in All Unimportant Respects? *Proceedings for the Public Management Research Conference*.

Andersen, K. V. and J. N. Danziger (1995). Information Technology and the Political World: The Impacts of IT on Capabilities, Interactions, Orientations, and Values. *International Journal of Public Administration 18*(11): 1693-1724.

Danziger, J. N. and Andersen, K. V. (2002). Impacts of IT on Politics and the Public Sector: Methodological, Epistemological, and Substantive Evidence from the "Golden Age" of Transformation. *International Journal of Public Administration 25*(5): 591-627.

Bozemann, B. (1989). *All Institutions are Public: Bridging Public and Private Organizational Theories*. San Francisco: Jossey-Bass Publishers.

Easton, D. (1965). *A Systems Analysis of Political Life*. New York: John Wiley & Sons.

EU (2003). The role of eGovernment for Europe's future. Brussels: European Commission.

Ham, C. & Hill, M. (1984). *Policy Process in the Modern Capitalist State*. Wheatsheaf Books.

Hoff. J. (1992). Evaluation of Information Technology in Private and Public Sector Contexts. Informatization and the Public Sector, 2(4), pp. 307-28.

Hutton, G. (1996). Business Process Re-engineering: A Public Sector View. In C. Armistead & C. Rowland (Eds.)., *Managing Business Processes: BPR and Beyond.* New York: John Wiley & Sons.

IAB. (1999). Integrated Service Delivery: Governments Using Technology to Serve the Citizen International, Federal, State, and Local Government Experiences. Washington, D.C.: Intergovernmental Advisory Board

Klausen, K. C. (2000). *Leadership and Management: Roles and Styles among Local Government Ceos*. IPMN conference at the MGSM, Macquire University, Sydney, Australia

Laswell, H. (1936). *Who Gets What, When, How*. New York: Whittlesey House.

Lenk, K. and Tranunmüller, R. (2002) Electronic Government: Where are We Heading? in *Proceedings of The First International Conference, EGOV 2002, Aix-en-Provence, France, pp. 1-9.*

McAdam, R., & Donaphy, J. (1999). Business Process Reenginnering in the Public Sector: A Study of Staff Perceptions and Critical Success Factors. *Business Process Management Journal, 5*(1), pp. 33-52.

OECD. (2003). The e-Government Imperative. Paris Cedex 16, France, OECD.

Swan, J., Scharbrough, H. & Preston, J. (1999) Knowledge Management – The Next Fad to Forget People? *Proceedings of the 7th European Conference on Information Systems, vol. II*. Copenhagen Business School, 668-678

Thong, J. Y. L., Yap, C.-S., and Seah, K.-L. (2000). Business Process Reengineering in the Public Sector: The Case of the Housing Development Board in Singapore. *Journal of Management Information Systems, 17*(1), 245-71.