



Does local government staff perceive digital communication with citizens as improved service?



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ABSTRACT

Digital communication between government and citizens is pivotal to e-government. The Danish e-government initiative Digital Post aims to digitize all communications between government and citizens. We surveyed local government staff about how Digital Post affects the service delivered to citizens. As much as 82% of the 448 respondents considered digital communication with citizens using Digital Post a good idea, yet 47% reported concrete incidents in which they perceived a decrease in service with Digital Post. This result shows the importance of distinguishing between the overall service relationship and the concrete incidents of which the service consists. We discuss interactions between the relationship level and the incident level of Digital Post on the basis of a content analysis of the respondents' incident descriptions.

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1. Introduction

E-government encompasses “the use of information and communication technologies to enable citizens, politicians, government agencies, and other organizations to work with each other and to carry out activities that support civic life” (Robertson & Vatrapu, 2010, p. 319). However, even in countries with a high level of e-government readiness, most of the communication consists of physical letters, phone calls, and face-to-face meetings. Digital communication between citizens and government agencies is not yet established practice (Andersen, Medaglia, Vatrapu, Henriksen, & Gauld, 2011). A transition to digital communication is necessary to attain the economic and efficiency benefits expected from e-government. The perceived costs of imposing such a transition are debated and include that it degrades government service for less digitally literate citizens (Bélanger & Carter, 2009). A service degradation may be experienced by citizens and by the government staff that is in direct contact with the citizens who are affected – positively or negatively – by the transition.

This study surveys local government staff's perception of the Danish e-government initiative Digital Post, especially of whether it is good service to citizens. Digital Post is a system for authenticating, encrypting, and sending digital letters between government institutions and citizens without the need for email addresses (which may change

over time). Staff accesses Digital Post through an output manager. If a citizen has adopted Digital Post, the output manager sends a digital letter to the citizen using Digital Post; otherwise, the output manager automatically sends a physical letter. Digital Post is free of charge to citizens, who access it through a national public portal. We conducted our survey four years after local governments gradually started to use Digital Post and half a year before its use became mandatory for all citizens.

We investigate Digital Post because it is pivotal to the national e-government strategy regarding digital communication between government and citizens and because only 27% of Danish citizens had become users of Digital Post a year before all citizens were required to use it (Berger & Hertzum, 2014). The modest level of adoption among citizens makes it interesting to know how the system is perceived by the staff tasked with using it and, thereby, knowledgeable about its effects on the service delivered by local government to citizens. Next to the citizens, the staff is the largest user group of Digital Post, and the staff has an additional role as champions of the system toward the citizens. In spite of the importance of government-side users to e-government success, Rana, Dwivedi, and Williams (2013) find that they are underrepresented in e-government research, which predominantly focuses on the citizens.

Studies of e-government mostly assess systems by asking users about their overall attitude toward the use of a system (e.g., Dwivedi, Shareef, Simintiras, Lal, & Weerakkody, 2015; Rana & Dwivedi, 2015). Far fewer studies assess systems by analyzing concrete incidents in the users' encounter with a system (e.g., Al Thunibat, Zin, & Sahari,

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2011; Barbosa, Pozzebon, & Diniz, 2013). While the users' relationship with a system consists of a series of incidents, the users' overall attitude may or may not reflect any concrete incident. Following studies in service research (Edvardsson & Strandvik, 2000), we contend that the association between the relationship level and the incident level of an e-government service is complex and poorly understood. The aim of the present study is to survey local government staff's perception of Digital Post and to map out the sources underlying this perception. We assess local government staff's perception of Digital Post through survey questions about their attitude toward Digital Post. We map out the sources of their perception by asking them to describe a concrete incident with Digital Post and by qualitatively analyzing the variety of sources mentioned in these descriptions. By addressing the relationship level as well as the incident level the survey enables an analysis of the association between these two levels. More generally, the qualitative analysis adds richness to the constructs found in models of, for example, technology acceptance (Venkatesh, Morris, Davis, & Davis, 2003) and service quality (Parasuraman, Zeithaml, & Malhotra, 2005).

In the next section we review related work on the perception and adoption of e-government and on the distinction between the relationship level and the incident level of services (Section 2). On this basis we describe the methodological considerations in devising and administering our survey (Section 3). In reporting the results of the survey, we start by analyzing the respondents' overall attitude toward Digital Post and contrasting it with the concrete incidents they report; then we content analyze the incidents (Section 4). The analysis leads to a discussion of whether digital communication between government and citizens, through systems such as Digital Post, is good service to the citizens (Section 5). We also discuss the implications and limitations of the study.

2. Related work

Governments are going online and increasingly make use of information technology in their internal processes and for communicating with citizens (Norris & Reddick, 2013; Robertson & Vatrapu, 2010). In the following, we briefly review related work on the perception and adoption of e-government and on the relationship and incident levels of services.

2.1. The perception and adoption of e-government

E-government research mostly reflects a perception that e-government brings changes that are positive for governments and citizens (Heeks & Bailur, 2007; Janowski, 2015). This positive perception supports, and is supported by, the considerable government spending on e-government initiatives in many countries. A main result of the positive perception is the frequent proposition that e-government evolves through stages of increasing sophistication. While different stages have been proposed, the models share the characteristic that each increasingly sophisticated stage brings additional benefit. For example, Layne & Lee (2001) propose four stages: *catalogue*, involving online presence and downloadable forms; *transaction*, involving online services and forms; *vertical integration*, involving local systems that are linked to higher-level systems within a domain; and *horizontal integration*, involving the integration of systems across domains. The increasing sophistication of the stages implies that earlier stages tend to be prerequisites for later stages. Digital Post is at the transaction stage. Multiple studies find that the advancement of local governments to the transaction and integration stages is progressing slowly (Andersen, Medaglia, Vatrapu, Henriksen, & Gauld, 2011; Norris & Reddick, 2013). The transaction stage is critical for e-government adoption because this stage requires profound organizational changes, including privacy and security measures, re-engineering of back-office processes, and new ways of working for staff (Irani, Al-Sebie, & Elliman, 2006). The slow progress has fostered studies of organizational barriers to e-government

adoption (Dwivedi, Weerakkody, & Janssen, 2012) and of how staff (Wastell, White, & Broadhurst, 2009) and citizens (Rana, Dwivedi, & Williams, 2015) perceive e-government.

Multiple studies investigate the perception of e-government among staff and citizens on the basis of factors drawn from models of technology acceptance (Venkatesh, Morris, Davis, & Davis, 2003), diffusion of innovations (Rogers, 2003), service quality (Parasuraman, Zeithaml, & Malhotra, 2005), and web trust (McKnight, Choudhury, & Kacmar, 2002). These studies aim to identify factors that are important to individual persons' perception of e-government, and they assess the importance of a factor by its influence on whether a person adopts and uses e-government. In a survey of 873 US local public managers, Shin (2012) found that their use of e-government was influenced by their perception of the technology as well as by their commitment to public service. That is, consistent with technology acceptance models the use of e-government was higher for managers who perceived the e-government technology as useful to their work and easy to use. At the same time, e-government use was higher for managers with a high commitment to provide public service (the seven items used to gauge this commitment included, e.g., "I consider public service my civic duty"). Similarly, Sun, Ju, & Chen (2006) found that staff satisfaction with a document-transfer system in the Taiwanese public sector was positively related to the staff's perception of system quality, information quality, and the quality of the service provided by internal IT staff. This study is particularly interesting because the document-transfer system resembles Digital Post.

Some studies find negative perceptions of e-government among staff. E-government services have been found to increase staff workload because the staff needs to spend more time documenting their work and following rigid workflows, thereby leading to disrupted work practices and growing resistance (Wastell, White, & Broadhurst, 2009). Government staff may face gaps between their mixed everyday experience of e-government services and the positive rationales that drive e-government at the institutional level. Roman (2013, p. 227) elaborates these gaps by emphasizing that "public administrators often develop personal and emotional ties with the citizens that they serve". These ties and the practical knowledge that follows from serving citizens provide the staff with an impetus to question and compensate for the rigid rules created by e-government. In most cases staff lacks the power to change the rules and must, therefore, work within or around them, probably experiencing moral tensions (Roman, 2013; Wastell, White, & Broadhurst, 2009). One source of such tensions is that equality of treatment may suffer as a result of e-government because some citizens cannot afford or master new technology (Bannister & Connolly, 2014). A similar point of view is expressed by Dwivedi et al. (2012, p. 19) who argue that even though governments have succeeded with implementing e-government, they might struggle with avoiding to exclude certain segments of the population such as "the elderly, disabled, less computer literate and poorer citizens". Irani, Elliman, & Jackson (2007) reported sources of tension that potentially affect the entire population, not just segments of it. The e-government practitioners studied by Irani et al. (2007, p. 331) were concerned about "the trend to dehumanize the interaction between citizens and government" and they questioned the evidence of citizens' demand for e-government. In addition, the practitioners often saw technology more as the creator than the solution of problems due to a poor fit between technology and work processes.

Because government staff's perception and adoption of e-government is influenced by whether it provides a quality service to citizens, it becomes relevant to this study how citizens perceive e-government. In a meta-analysis of 103 studies, Rana, Dwivedi, and Williams (2015) found that the most consistent predictors of citizens' attitude to e-government were their perception of its relative advantage, compatibility (with the citizen's existing values, beliefs, experiences, and needs), usefulness, and ease of use. Intention to use was predicted by a wider range of factors, which in addition to the most

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