Facilitator and inhibitor factors: Adopting e-government in a dual model

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ABSTRACT

This paper explores why many citizens avoid adopting e-government channels despite the apparent benefits of doing so. Theoretical support is provided by the dual factor and status quo bias theories. The study is based on questionnaire responses from a sample of users and a sample of non-users of e-government channels, with 923 valid responses in total. The use of a complementary qualitative method enhanced the study. The results verify that habit is the main inhibitor of adoption of e-government channels, while it is also the most influential factor in terms of the continuance intentions of existing users. Performance expectancy has a positive effect on continuance intention in users and intention to use in non-users. However, effort expectancy and resistance are also important for existing users. Therefore, if the administration wishes to increase citizens' use of e-government, it needs to develop different strategies for users and non-users.

1. Introduction

Public administrations interact with citizens through a range of channels (Teerling & Pieterson, 2010). The recent widespread adoption of information and communications technology (ICT) at most social levels seemed to herald the success of electronic channels (Ebbers, Pieterson, & Noordman, 2008; Teerling & Pieterson, 2010). The assumption was that if citizens were able to access e-government channels, the benefits of e-government would automatically emerge. For citizens, these benefits would principally relate to convenience and saving time and effort, whereas, for public administrations, benefits would emerge mainly in terms of cost savings per transaction and a broader offer of services and information to citizens. However, this prediction disregards citizens' general preference for traditional channels (Van de Wijngaert, Pieterson, & Teerling, 2011). For example, Spain, "has an extensive offer of digital public services (…). However, the use of electronic services is limited, with only 32% of internet users requesting the full processing of a procedure online" (Ministerio de Hacienda y Administraciones Públicas, 2015). There is a disconnect between how administrations would like citizens to use electronic channels and how citizens actually behave (Ebbers et al., 2008; Rey-Moreno & Medina-Molina, 2016).

In the literature, many models that explain citizens' adoption of new channels in relationships with public administrations seek to extrapolate consumer behavior in private business relationships to citizens' behavior in public service settings. The rationale is that the same individuals are both consumers and citizens, and their role as consumer or citizen depends on the situation. According to this rationale, standard consumer behavior models that use explanatory factors such as utility, benefits and costs, objectives, information value, and so forth should also be valid in the context of citizens' e-government activities. Seemingly, however, this approach does not tally with experience. More complete and extended models are necessary to explain effective e-government use (Bhattacherjee & Lin, 2015).

To fill this gap, we argue that the dual factor model is capable of appropriately explaining the adoption process in the use of e-government. The dual factor model offers a straightforward theoretical bridge that brings together inhibitors (e.g., resistance, habit, and inertia), facilitators (e.g., performance expectancy, effort expectancy, social influence, and facilitating conditions), and intention to use e-government in an integrated model (Bhattacherjee & Hikmet, 2007). Although the status quo bias (SQB) is especially relevant among theories that explain

user resistance, the paradigm of planned behavior is the basis for explaining use. This paradigm assumes that a person's behavior is a conscious planned process influenced by the person's beliefs, attitudes, and intentions (Verplanken & Aarts, 1999). Several scholars have developed dual methods and have called for the incorporation of additional variables to these approaches (Hsie, 2016; Polites & Karahanna, 2012), while flagging the ever-present irrational component of consumer behavior.

Accordingly, this paper empirically shows that a dual model of basic behavioral inhibitors and facilitators is an effective approach for explaining adoption of ICT channels in e-government activities and measuring the relative weight of each factor when explaining the process of adoption by citizens. A second central element of the study refers to verifying a priori expectations regarding the differentiated behavior between users and non-users of e-government. It is reasonable to expect that facilitators and inhibitors of a dual model affect non-users' intentions to use differently from the way they affect users' continuance. Thus, a study of the behavior of users and non-users was necessary to understand the causes that determine the adoption of e-government. This study examined variables that explain the process of effective use. From a practical point of view, the results provided by the study of two groups of citizens—instead of only one, as is customary—can help the administration implement different strategies for users and non-users to encourage both groups to embrace e-government. The study was based on qualitative methodology, through two group sessions, and quantitative methodology, through a survey (923 valid questionnaires) aimed at users and non-users of e-government. Data were analyzed using partial least squares structural equation modeling (PLS-SEM).

Section 2 develops the theoretical framework for the dual models, inhibitors, and interrelations between resistance, habit, and intention. Section 3 describes the method, including the presentation of the research proposal, hypotheses, variables, constructs, and metrics and the description of the sample and sample processing. Sections 4 and 5 present and discuss the results. Section 6 presents the conclusions and main contributions of the study.

2. Theoretical framework

2.1. Facilitators of e-government use in a dual model

The dual factor theory suggests that, when faced with a new concept, process, or behavior, individuals develop their intentions to adopt or reject this novelty by responding to two different sets of impulses. Different factors linked to each set of impulses contribute to facilitating or inhibiting the intention to adopt the novelty (Hsie, 2016). Whereas adoption is predicted by facilitators that encourage and hinder, rejection is predicted by inhibitors that discourage use when they are present but do not necessarily favor use when they are absent. Inhibitors and facilitators are distinct independent constructs that may coexist and have different antecedents and consequences (Cenfetelli, 2004).

Most facilitators discussed in the literature are rooted in the theory that defines behavior as a conscious, planned process that is influenced by a person's beliefs, attitudes, and intentions (Verplanken & Aarts, 1999). For an information system (IS), the proposal of the facilitators of adoption is in accordance with this theory of conscious, planned behavior and establishes how beliefs determine users' attitudes and how this attitude in turn determines use. The unified theory of acceptance and use of technology (UTAUT) (Venkatesh, Morris, Davis, & Davis, 2003) enables straightforward analysis of facilitators of citizens' adoption of ICT channels. Under the UTAUT, which is a summary of previous theories, performance expectancy (i.e., the degree to which people consider that using the technology will help them achieve their aims), effort expectancy (i.e., the degree of ease associated with using the technology), social influence (i.e., the degree to which people perceive that those who are important to them think that they should use the technology), and facilitating conditions (i.e., the degree to which

people estimate that the technical infrastructure exists to help them in case of need) determine intention to use.

In this study, performance expectancy, effort expectancy, social influence, and facilitating conditions were employed as facilitators in the dual model. The hypotheses regarding these factors propose positive relationships with intention to use (in the case of non-users of e-government) and continuance intention (in the case of users of e-government).

2.2. Inhibitors of e-government use in a dual model

While there is agreement on the modeling of facilitators, no such consensus exists for inhibitors (Hsie, 2016). Likewise, there are numerous instances where the failure to implement numerous innovations is due to user non-acceptance (Joshi, 2005). Many inhibitors have been identified. While some scholars have focused on the antecedents of resistance, which include switching benefit, switching costs, perceived value, self-efficacy, organizational support, the opinion of colleagues (Kim & Kankanhalli, 2009), sunk costs, loss aversion, inertia, perceived value, transition costs, and uncertainty (Hsie, 2016), others have focused on the antecedents of inertia, which include habit, sunk costs, and transition costs (Polites & Karahanna, 2012). Khedhaouria, Thurik, Gurau, and van Heck (2016), for example, focused on habit and switching costs.

Neither acceptance nor continuance will occur unless the factors that inhibit the use of new systems are overcome. Of the inhibitors, resistance is considered the first challenge for implementing an IS as a distribution channel (Kim & Kankanhalli, 2009). The SQB is among the theories that explain users' resistance. According to the SQB, when users face multiple options, they usually opt for the one linked to the status quo, even when faced with better alternatives. This decision is a cognitive tendency to favor the current situation (Polites & Karahanna, 2012). The influence on this tendency is not only the cost/benefit tradeoff, but also the person's reduced capacity to calculate, process, and remember the information necessary for decision-making (Lee & Joshi, 2016). Understanding how resistance affects users helps retain users and reduce the effect of resistance on non-users (Kim & Gupta, 2012).

Both resistance and the SQB are forms of inertia (Patsiotis, Hughes, & Webber, 2013). Inertia describes a behavioral tendency that leads to reliance on previous choices and reflects the person's current state. Inertia is an unconscious emotion guided by convenience. Inertia means that repeated use develops passively without thought on the matter or consideration of negative perceptions linked to use. In other words, inertia reflects a rigid adherence to the status quo (Polites & Karahanna, 2012). In public services, scholars have reported evidence of a broad segment of citizens who, because of inertia, do not change their behavior (Wieringa & Verhoef, 2007a, 2007b).

In this study, resistance and inertia were categorized in the hypotheses as inhibitors because, in the adoption of e-government channels, both factors were expected to have a negative relationship with intention to use, regardless of their sign (positive or negative) in the case of existing users. Specifically, resistance was defined as citizens' dislike of e-government. Resistance encompasses citizens' refusal to stop having personal contact when communicating with the administration (Bhattacherjee & Hikmet, 2007; Hsie, 2016). Resistance is thus the main obstacle for the adoption of e-government (Kim & Kankanhalli, 2009), but its role is reversed in the dual model for users who have already embraced e-government channels: A reduction in resistance to the adoption of e-government can support the intention to continue using e-government once it has been adopted.

According to planned behavior, the explanation of adoption and use is that behavior is a conscious process influenced by beliefs, attitudes, and intentions (Verplanken & Aarts, 1999). Several scholars agree on the need to identify additional elements that influence this behavior, including habit, which is defined as a sequence of functional behaviors to achieve specific goals that relate to specific matters (Polites &