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e-Government, Transparency & Reputation: An Empirical Study of Spanish Local Government

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ABSTRACT

This paper examines the interrelationship between e-government, transparency, and reputation in Spanish local government. It postulates the existence of a three-way relationship, namely, that the degree of transparency in a local authority influences the reputation of that authority and that both transparency and reputation are influenced by the level of e-government service provided. The research is based on a study of 78 Spanish municipalities. The results are presented as a model.

Introduction

Since the appearance of the first government web application sites in the 1990s, expectations of both e-government delivered and e-government enabled change have fallen into three broad categories: services, economics, and governance. The first two of these have largely, if somewhat fitfully, been delivered. Though much remains to be done, various benchmarks (e.g. Graafland-Essers & Ettedgui, 2003) demonstrate the wide range of government services that are now available online and illustrate the fact that in many countries there are now no significant public services that are not either partially or totally web-enabled. Simultaneously, e-government has created substantial efficiencies by eliminating paper, speeding up processes, and reducing headcounts. In contrast, progress in the third category, governance, has, notwithstanding some successes, remains disappointing. Many transformative changes in governance and democracy have been envisaged and/or forecasted by scholars, pundits, and experts. These include greater citizen involvement in government, increased trust in government, more consultation, participative or even deliberative democracy, greater transparency, greater accountability, online voting, and overall a more engaged citizenry and better decision making as a result of public involvement in the management and governance of the state.

While there has been some progress with these, and in particular with transparency, in general, the hopes of earlier years remain unfulfilled.

While transparency has received much attention (see below), one aspect of this third category that has received limited attention in the e-government or public administration literature to date is reputation. The word "reputation" does appear in the e-government literature, but usually only on the periphery of some wider discussion. On most occasions when the word "reputation" (or the term "perceived reputation") is used, it is not defined and, therefore, it is not possible to state with confidence that the same issues of concern are under consideration. There are some exceptions, for example Carter, Schaupp, Hobbs, and Campbell (2012), but even in this article reputation is only fleetingly discussed and is measured by just three variables (which are not identified). The lack of definitional clarity may derive in part from the fact that reputation is a multidimensional concept and as a result can be difficult to bind precisely. For example, it is possible for organizations, including government agencies, to have several reputations simultaneously; an agency might have a reputation for integrity/lack of corruption while also being regarded as inefficient or bureaucratic.

Notwithstanding this, some aspects of reputation have been extensively researched. Examples of these include trust (Connolly & Bannister, 2007; Jøsang,

Ismail, & Boyd, 2007) and service quality (Connolly, Bannister, & Kearney, 2010). However, in practice, there is more to reputation than simply trust or service quality. For example, reputation can encompass other public values such as fairness or economy – neither of which are necessarily prerequisites for either trust or superior service quality.

Such evidence supports the self-evident notion that people's attitude to government is influenced by its reputation (Bannister & Connolly, 2011a). However, research into the impact that deployment and extent of e-government use has on the reputation of government is thin. This is surprising as, if the reputation of a government agency exerts a significant influence on people's willingness to engage with it, then understanding the ability of e-government (or lack thereof) to enhance that agency's reputation is clearly important. This is the focus of this article which examines the impact of e-government on reputation and transparency, as well as the impact of transparency on reputation in Spanish local government.

Literature review

This section starts with a brief background of e-government in Spain and a short discussion of what is meant by e-government. A more detailed review of the transparency and reputation literatures follows. The section concludes with three research hypotheses.

Background: e-government in Spain

A significant and growing number of Spanish scholars are pursuing diverse lines of research into e-government at a national level. Examples include Esteves and Joseph (2008), de-Miguel-Molina (2009), Gallego-Álvarez, Rodríguez-Domínguez, and García-Sánchez (2010), Criado, Sandoval-Almazan, and Gil-Garcia (2013), Albalate Del Sol (2013), and Gascó (2015). Other scholars such as Bonsón, Torres, Royo, and Flores (2012) and Bonsón, Royo, and Ratkai (2015) have focused their research specifically on local governments. Within the latter context, one area that has been the subject of numerous studies is transparency in Spanish local government. For example, Gandía and Archidona (2008) analyze websites in a sample of Spanish city councils and propose a disclosure index. They go on to examine and evaluate the factors that influence the level of information disclosure. Similarly, Caba-Pérez, Rodríguez-Bolívar, and López-Hernández (2008) examine the level of financial information disclosed through the websites of Spanish municipalities. They show that local governments do not seem to be fully aware of the strategic potential of the Internet as a means of fostering e-democracy. On a related research theme, Caamaño-Alegre, Lago-Peñas, Reyes-Santias, and Santiago-Boubeta (2012) analyze the determinants of budget transparency in a number of small Galician municipalities. Studies of organizational performance measurement and reporting in Spanish municipalities have been undertaken by Torres, Pina, and Yetano (2011) and Montesinos, Brusca, Rossi, and Aversano (2013). The latter compared local authorities in Spain and Italy. Other scholars such as Araguàs-Galcerâ (2012) have studied how the development of e-government results in new relationships between the administration and citizens. Some of these changes have had to be accompanied by changes in legislation. The evolution of local e-government in Spain and its use is explored by García-Sánchez, Frías-Aceituno, and Rodríguez-Domínguez (2013) who examine a sample of 102 Spanish local administrations. Finally, Ruano De La Fuente (2014) focuses his attention on how the investments in ICT made by city councils can have different objectives and lead to different results. In summary, there is a solid base in the extant literature from which to draw and which will be used in this article.

e-government: a brief note on definitions

Arriving at a universally agreed definition of e-government has proven difficult. Despite the fact that it is possible to find abundant definitions of e-government in the literature, none of these have gained widespread acceptance as an agreed formulation (Estevez & Janowski, 2013). As a consequence, three problems have become increasingly evident in the extant literature – namely, a multiplicity of definitions that are normative, definitions that are too narrow, and definitions that are imprecise or suffer from vagueness (Yildiz, 2007). Two examples, used in some recent articles (Bonsón et al., 2012; Grönlund, 2010; Magro, 2012), illustrate this point. For example, the definition of e-government as provided by the OECD (2003; p.63) is "*the use of ICTs, and particularly the Internet, as a tool to achieve better government*" whereas Estevez and Janowski (2013; p.96) define e-government as "*...the application of technology by government to transform itself and its interactions with customers, in order to create impact on society.*" While both definitions are accurate as far as they go, they are incomplete and normative. For the purposes of this article, there is no need for a lengthy discussion of the problem of definition; interested readers are referred to Yildiz (2007). In this article, e-government will be defined simply as the

use of ICT in and by government and public administration including for the delivery of government services.

Transparency

Transparency presents a distinct set of its own challenges, some of which are also definitional in nature. In the e-government literature, while various definitions of transparency have been proposed, many are problematic. An example of this is Grigorescu's (2007 p. 626) definition of transparency as "… *the ability to provide information from one actor to another.*" However, transparency is about more than simply the ability to provide information – it is also about the willingness to do so.

Another example is the following offering from Kim, Halligan, Cho, Oh, and Eikenberry (2005 p. 649) who state that transparency "…*means that information is freely available and directly accessible to those who will be affected by decisions and that enough information is provided in easily understandable forms and media.*" This sweeping definition also creates a number of problems one of which is its use of the future tense, which implies that people have a right to access information even before decisions are taken, a situation that may not always be practical or desirable.

Grimmelikhuijsen and Welch (2012) provide a more robust definition; they define transparency as the availability of information, while Meijer (2013) taking this idea further defines transparency as information that allows citizens to monitor the performance of their government. Meijer depicts government transparency as connections between political and social stakeholders within a framework of rules that take into account evolving technology. La Porte, Demchak, and De Jong (2002) prefer to use the term openness instead of transparency, considering it a performance measure of government behavior. However, as Bannister and Connolly (2011a) have shown, openness and transparency should not be conflated as they are most certainly not the same thing.

Full transparency goes beyond even these definitions and enables citizens not just to monitor performance or access information, but to understand fully the information, logic, rationale, and processes (including, for example, lobbying) that lead to or underlie decisions. It can also be internal and outward as well as inward looking. It is helpful to look beyond the confines of the e-government literature where there has been much discussion on the concept of transparency in the wider public administration literature. There is not sufficient space to review this in any depth, but two contributions

are worth noting. The first is by Heald (2006) who in a detailed exploration of the concept notes that transparency is not an intrinsic value and that it can be a double-edged sword. The second is Hood and Heald's observation made in the same year (Hood & Heald, 2006) that transparency is about openness to public scrutiny. Transparency is, thus, about the right of citizens to observe the inner workings of the state. This right is not, however, absolute and in some cases transparency may in fact *not* be desirable and not just for reasons of state security or individual privacy (Bannister & Connolly, 2011a). For example, while transparency, when combined with consistent disclosure of government performance information, can create a context of understanding and community that would generally have a positive impact on citizen trust, it is possible to have the opposite effect by flooding citizens with too much information – something which can create concerns that a government is trying to obfuscate rather than illuminate (Grimmelikhuijsen, 2012). While there is a tendency to assume that transparency always has a positive effect on reputation (Meijer, Curtin, & Hillebrandt, 2012), there are circumstances in which this may not be true. Notwithstanding that fact, having surveyed the literature, Bannister and Connolly (2011a) conclude that the weight of evidence supports the contention that a perception of disclosure and fairness has a positive effect in the formation of trusting beliefs, and that, if governments provided citizens with more information on performance, the levels of trust would increase.

One thing that is not disputed is the fact that the e-government literature attributes many benefits to transparency and specifically to ICT-enabled or ICT-facilitated transparency. Pardo (2000) and Fang (2002) claim that giving citizens access to government information is the most common digital government initiative which, it is argued, in turn increases transparency and accountability (Jaeger, 2005; Kardan & Sadeghiani, 2011). The provision of citizen access to information is viewed as "*a central component of governmental transparency*" (Piotrowski & Van Ryzin, 2007; p. 307), and many public administration scholars consider transparency to be an essential component for a trustworthy government (Grimmelikhuijsen, 2012; Hood & Heald, 2006; Kjaer, 2004).

A widespread belief is that such transparency increases when ICTs are present (Colesca, 2009; Meijer, 2013), and as a consequence that governments should employ ICTs as a mechanism to establish (or extend) citizens' trust in public institutions through improved transparency (Moon, 2003; Ruano De La Fuente, 2014). Thus, researchers such as Norris (2001)

and Tolbert and Mosserberger (2006) view transparency as a mechanism which can restore trust in government institutions, while Cook, Jacobs, and Kim (2010) argue that, by increasing the amount of information available about how government performs, the knowledge of citizens will be enhanced, which in turn will increase their confidence and ultimately their trust in government. Clearly, ICT enables more efficient information delivery, which is particularly important as efficiency and information delivery are frequently portrayed as two of the key drivers to improve trust in government (Andersen et al., 2010).

Broadly, transparency also encourages a culture of openness within organizations which also has a positive impact on trust (Grimmelikhuijsen, 2012; Hood & Heald, 2006). Other much cited benefits of e-government-enabled transparency include the reduction of corruption, promotion of good governance, and support for reforms (Bertot, Jaeger, & Grimes, 2010). As a result, it has been contended (Islam, 2003) that better information flows can positively influence how fast economies grow and the quality of governance. The logic is, thus, that transparency, which is presumed to be a conventional issue inherited from traditional government, should be implemented to create citizens' trust (Cook et al., 2010; Welch, Hinnant, & Moon, 2005). In Spain, investigation of this topic has been limited, but Bonsón et al. (2012) report that most local Spanish governments use e-government to enhance transparency, while Caba-Pérez et al. (2008) found that a significant number of Spanish public administrations are using ICTs to provide new ways for delivering public services and to enhance transparency.

Reputation

Reputation is important to organizations whether they are in the private or the public sector (Rindova, Williamson, Petkova, & Sever, 2005). For the private sector, the academic literature on corporate reputation has developed over many years. A journal dedicated to this subject, *Corporate Reputation Review*, was first published in 1997, and a search for "corporate reputation" in Google Scholar yields nearly 40,000 hits, over 5,000 of which are post 2014.

Notwithstanding this large literature, there continues to be much dispute about exactly what the term reputation means even in a corporate context. In a review of definitions of the corporate reputation construct, Wartick (2002) found that both definitions of and data about corporate reputation were a problem. For example, Fombrun (1996, p.72), a widely cited contributor to this literature, defines corporate reputation as:

"…*a perceptual representation of a company's past actions and future prospects that describes the firm's overall appeal to all of its key constituents when compared with other leading rivals.*"

However, as Wartick points out, while perception might be relatively easy to measure, the question of "*overall appeal to all of its key constituents*" is more problematic as it could require the aggregation of the perspectives of several stakeholder groups each of which might be looking at different aspects of the organization and its behavior. A subsequent study by Walker (2010) of 54 journal articles found that there was no consensus about the definition of corporate reputation, that definitions tend to vary with context and that different stakeholder groups may have different perceptions of a given corporate's reputation. As both Barnett and Pollock (2012) and Walker show, definitions of corporate reputation abound. Barnett, Jermier, and Lafferty (2006) surveyed what they called the definitional landscape and, finding many definitions in circulation, offer one of their own, namely that corporate reputation is:

"*Observers' collective judgments of a corporation based on assessments of the financial, social, and environmental impacts attributed to the corporation over time.*"

While plausible, this definition is problematic at several levels including the problem of how "collective judgements" is assessed. A further problem – visible in Fombrun's definition above – is the implication that an organization's reputation can be compared in some meaningful way to its rivals. For this, there would need to be an agreed standard or basis for measurement, but no such universally accepted measurement has emerged thus far. One of the oldest measures is Fortune Magazine's *Most Admired Company* (MAC) survey, which has been widely used and referenced since it first appeared in the 1980s. However, the MAC is only one of a large number of such lists (Fombrun, 2007), none of which has an undisputed claim to being authoritative. There have also been "academic" attempts to measure corporate reputation, for example, by van Riel, Stroeker, and Maathuis (1998) and Davies, Chun, Da Silva, and Roper (2001). The latter applies the Aaker scale, a tool normally used to measure dimensions of human personality (sincerity, competence, sophistication, excitement, and ruggedness) to the perception of organizations. The theoretical underpinnings of such lists have been the target of criticism (Chun, 2005). One point that does emerge clearly from these studies and others is that reputation

needs to be considered along two key dimensions – stakeholder and issue or aspect. In the case of corporates, the latter covers headings such as finance, product quality (Brown & Perry, 1994), social responsibility (Szwajkowski & Figlewicz, 1999), environmental impact, and treatment of employees (Gatewood, Gowan, & Lautenschlager, 1993).

While there may not yet be an agreed definition of corporate reputation, at least the question has been and continues to be widely discussed. This is much less true of the question of reputation in the public sector. Inasmuch as there are similarities between, say, local government and commercial corporations, the same definitions may be useful. For example, Carmeli and Tishler (2004) argue that local governments compete with each other and with other bodies and, therefore, need to seek competitive advantage. It can, therefore, be argued that in this respect they resemble private companies. In a study of Norwegian municipalities, Wæraas, Bjørnå, and Moldenæs (2015) support this claim arguing that municipalities compete to get more inhabitants, firms, tourists, and competent employees. While the authors focus on branding (and specifically location branding) rather than reputation as such, they look at municipalities from two reputational perspectives: municipalities as corporate organisations and municipalities as democratic institutions. In such competition with other local authorities/municipalities, reputation is potentially a significant source of advantage (Carmeli & Cohen, 2001; Clark & Montgomery, 1998). Ceteris paribus, tourists, to take but one stakeholder group, are more likely to want to visit a city that has a reputation for being safe, clean and which is known to have good public transportation than one that lacks such amenities. Addressing the question of competitiveness of cities, Harmaakorpi, Kari, and Parjanen (2008) propose a framework for city design management, desegregating it in four elements: city topography, presentation, management, and general impression. With regard to the latter, they point out the importance to a city of good management of identity, distinction, brand, and reputation.

Carmeli and Tishler believe that the reputation of not-for-profit organizations is under researched and insufficiently discussed. This is not to say that it is ignored entirely. Several scholars have either looked at this directly or considered the reputation of public sector bodies as part of a larger question (e.g. Andreassen, 1994; Carmeli & Cohen, 2001; Carter et al., 2012; Luoma-Aho, 2008; Wæraas et al., 2015; Wæraas & Byrkjeflot, 2012). Andreassen (1994), for example, examines the attitude of the business community to local governments in Norway and shows that

reputation is correlated with satisfaction and loyalty in the sense of the willingness of firms to remain in a local authority area. One interesting finding to emerge from this research is what is commonly referred to as a perception-reality gap. Wolman, Hill, and Furdell (2004) explored the gap between reputation and reality in 48 US cities. They concluded that the correlation between city reputation and reality is low.

Nonetheless, the problem of how to measure reputation in the public sector remains a thorny one. In a theoretical study, Ryan (2007) presents a reputation measurement scale for local governments which is adapted and redesigned from the more frequently cited management literature. She proposes what she calls a "local government reputation quotient" with the following dimensions:

- Organizational culture
- Corporate governance
- Products and services
- Vision and leadership
- Social and environmental responsibility
- Trust

Several of the above are measurement problems in their own right. In another study, using a sample of 2,540 stakeholders from 12 organizations in Finland, Luoma-Aho (2008) developed a scale to measure the reputation of public sector organizations. In this case, five reputational factors are proposed:

- Authority
- Trust
- Service
- Esteem
- Efficiency

Carter et al. (2012), using a sample of 152 taxpayers in US, found that the perceived reputation of the Internal Revenue Service agency reduced the perceived risk of transacting business with the government online – in this case the eFile electronic tax filing system. Their work suggests that the reputation of the e-government organization has a positive influence in the citizen's attitude to use an e-government service.

Wæraas and Byrkjeflot (2012) explore the common problems of the public sector and their political authorities when adopting reputation management strategies initially designed for for-profit organizations. They point out that, despite the importance of managing reputation for public organizations, the concept of legitimacy (Deephouse & Carter, 2005) is still more necessary for public agencies; public bodies are also

democratic institutions. As noted above, more recently, Wæraas et al. (2015), in a survey of 429 Norwegian municipalities, analyze local government branding strategies and present their own typology (place, organizational, and democracy) developing a multi-item scale for each one. Their results show that organizational branding strategies obtain the highest score, closely followed by place branding and democracy branding. An even more recent research project in Norway uses a sample of 171 local governments to examine what is called the strategic positioning and differentiation of each municipality related to reputation management (Wæraas et al., 2015)

Drawing the above ideas together, the literature suggests that reputation is important to local government and not just for reasons of civic pride. Reputation has a real impact on economic performance, on citizen trust of government, and on citizen willingness to use e-government services. However, there is also no agreed definition nor is there any widely accepted tool for measuring reputation. Moreover, there are few empirical papers in the public administration domain dealing with reputation. In contrast, we find some studies for non-profit organizations with concepts strongly linked to reputation, as can be the case of trust. However, if reputation was in a battle among scholars to get definition and measurement acceptance, the same applies to trust (Smith, 2010; Urbano, Rocha, & Oliveira, 2013).

Trust and reputation are not the same thing, but the relationship between both concepts is significant. It is possible to find four perspectives on that relationship in the literature. The first one perceives trust as being one of a number of components of reputation. As noted in the Introduction, an entity might have (say) a reputation for being trustworthy but also for being inefficient. In line with this perspective, Barnett et al. (2006) and Levitt (1965) define reputation as being grounded on perceptions of how credible, trustworthy, and well-known an organization is. Similarly, both Ryan (2007) and Luoma-Aho's (2008) scales of reputation measurement conceptualize trust as one of several dimensions or factors influencing reputation.

The second perspective uses trust as a synonym for reputation. One example of this is from Hardin (2002; p.157) who states that actors can form "*quasi trust, grounded in inductive expectations from past behaviour or reputation about the trustworthiness of government.*"

A third group of scholars contemplates reputation as one of a number of antecedents of trust formation. While there is much discussion in the literature about the antecedents of trust, there is a broad agreement about that three factors, perceived competence, perceived benevolence, and perceived integrity, are pre-requisites for trust (Mayer, Davis, & Schoorman, 1995). At least the first and the third of them are influenced by reputation. Others (e.g., Urbano et al., 2013) argue that trust follows reputation.

The fourth perspective considers trust as an antecedent of reputation. For example, Keh and Xie (2009) claim that trust is built on good reputation, as customers are expected to identify companies with satisfactory reputations as trustworthy. In line with this thinking, Tolbert & Mosserberger (2006) define institutional-based trust as an appraisal of institutions that conveys an expectation that institutions will do the "right thing."

A possible source of this confusion may come from the view that in the literature it is possible to find plenty of research about corporate reputation, but when it comes to public administration the real issue is one of trust and this construct seems to be better adapted to citizens' perceptions of state agencies. Avgerou, Ganzaroli, Poulymenakou, and Reinhard (2009) argue that the origins and the circumstances that drive trust remain opaque and controversial, though not all scholars agree with this blunt assessment. A few studies can be found concerning the means of how government organizations maintain or create trust (Thomas, 1998; Tolbert & Mossberger, 2006), and there have been some more recent contributions to this (e.g. Grimmelikhuijsen, 2012).

The importance and need for trust to assure the successful adoption and use of e-government has emerged as a recurrent topic in the literature (Bannister & Connolly, 2011a; Papadopoulou, Nikolaidou, & Martakos, 2010). On the one hand government actions that correspond with the citizen's expectations could enhance the institutions' reputation (Tolbert & Mossberger, 2006). On the other hand, the degree of citizens' confidence in their institutions will mark the degree to which a government is trusted (Kim & Lee, 2012).

It has been argued that e-government improves perceptions of government responsiveness and quality and favors interactivity with individuals, and that both of these have an effect on citizens' trust (Tolbert & Mosserberger, 2006; Gracia & Casaló Ariño, 2014).

Examining inter-relationships

Although the relationship between trust, transparency, and reputation has never been studied together in a government context, the literature strongly suggests that the three are linked. Welch et al. (2005) report that, the higher the level of satisfaction with government transparency, the higher the level of trust in government. This is interpreted as being due to the fact that increased transparency may help to reduce

bias in citizens' perceptions and change trust expectations by reducing information asymmetries between citizen and government. The link between transparency and reputation has been demonstrated by studies in the private sector that have shown perceived transparency to have a major impact on reputation, specifically showing that proactive information disclosure regarding strategy and management decisions provides the base for a solid reputation (Mazzola, Ravasi, & Gabbioneta, 2006). Similarly, Eccles, Grant, and van Riel (2006) suggest that establishing and maintaining a robust reputation requires high levels of transparency as well as high quality information. This is particularly true of organizational transparency, which is an important determinant of corporate reputation, as it helps to reduce information discrepancies and promotes a context of openness (De La Fuente Sabate & De Quevedo Puente, 2003; Highhouse, Brooks, & Gregarus, 2009; Podnar, Tuškej, & Golob, 2012; Walsh & Beatty, 2007). In parallel, open government can help to recover lost trust in government (Norris, 2001; Tolbert & Mosserberger, 2006). While the literature is suggestive of linkages, a problem with a number of the studies cited above is an absence of empirical evidence – particularly when it comes to the three-way relationship between transparency, e-government, and reputation. This is a deficiency that this research seeks to address. We, therefore, propose the following three hypotheses:

H$_1$: Higher local e-government development has a positive impact on transparency;

H$_2$: Higher transparency has a positive impact on reputation;

H$_3$: Higher local e-government development has a positive impact on reputation.

These hypotheses and the resulting model are summarized in Figure 1.

Methodology

Data sources

This research was undertaken in Spanish municipal authorities. There are 8,115 municipalities in Spain, of which 145 have more than 50,000 inhabitants. To test the relationship between the three constructs, three different data sources from the same time period were used:

- Data for *e-government penetration and use* was obtained from CIBERP@ÍS (2007), a study of local government webs developed by the Spanish journal *El País* for 138 municipalities with more than 50,000 inhabitants.
- Data for measurement of *transparency* was obtained from Transparency International Spain (2008). It provides data for 100 Spanish municipalities: 50 provincial capitals and 50 other state agencies.
- Data for *reputation* was taken from Spanish Monitor of Reputation, MERCO (2008), which is an instrument of reputational assessment. This ranking evaluates the reputation of 78 cities in Spain: provincial capitals and other cities with more than 100,000 inhabitants.
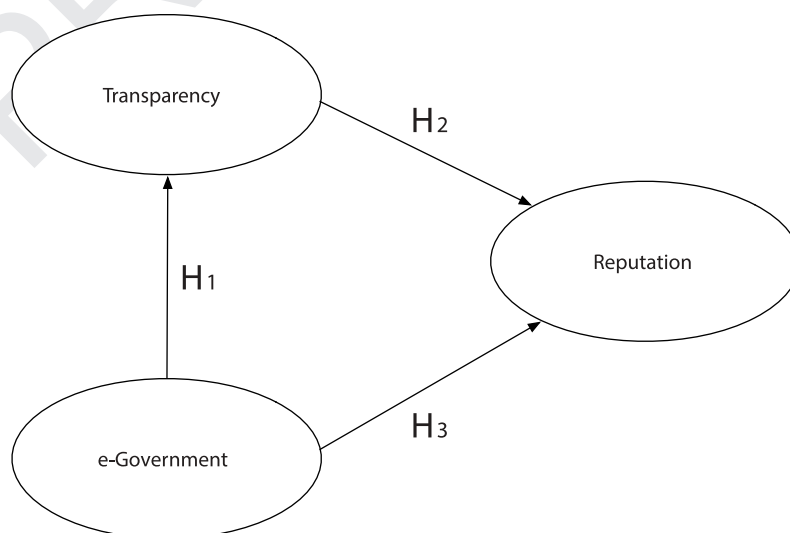

Figure 1. Research model.

For data about a given municipality to be included in the sample, it had to be covered in all three of the databases. A total of 78 municipalities met this criterion. This sample was, therefore, used for the subsequent analysis. This is a specialized case of convenience sample; it is not a random sample.

Constructs

The continuing academic debate about how to define e-government (Bannister & Connolly, 2015; Estevez & Janowski, 2013; Heeks & Bailur, 2007) is mirrored in the continuing discussion about how to measure it (Wirtz, Piehler, Rieges, & Daiser, 2016). Several approaches to measuring e-government can be found in the literature. One is the stage model approach which dates back to Layne and Lee (2001) and has many subsequent variants (e.g. Hiller & Belanger, 2001; Lee, 2010; Moon, 2002; Nielsen, 2016; Siau & Long, 2005). A second approach uses frameworks which combine e-government services and citizen satisfaction (Bigné, Moliner, & Sánchez, 2003; Osman et al., 2014; Sá, Rocha, & Pérez Cota, 2016; Verdegem & Verleye, 2009). The latter has certain advantages over the stage modelling approach including that is it is a more holistic approach and normally more tractable when designing e-government scales.

While it would have been better to use the citizen satisfaction approach, limitations in the nature of the data available means that we had to use the stage model approach. As noted above, this research involved combining three different sources of public data to measure e-government, transparency, and reputation. To implement it, data must be available for these three variables which constitutes a limitation. To our knowledge, the

only public available data about e-government in municipalities in Spain are those provided by CIBERP@ÍS in 2007. This source was used by Esteves (2005) who proposed a stage model based on those proposed by Hiller and Bélanger (2001) and Moon (2002). We have adopted the same approach.

We, therefore, measured the *e-government* (E-GOV) construct using five latent variables derived from the five-stage model of e-government validated by Esteves (2005). The five stages in this model, which measure the degree of development of e-government, are:

(1) Web presence (EG1)
(2) Information (EG2)
(3) Interaction (EG3)
(4) Transaction (EG4)
(5) e-democracy (EG5)

The five sub-constructs EG1 to EG5 were drawn from CIBERP@ÍS (2007), which uses a set of 16 indicators obtained from a questionnaire. This formed the measurement model shown in Figure 2.

The variables used to measure this construct are shown in Appendix A.

The second construct of our research model, transparency, has also been the subject of widespread debate and discussion (Cucciniello, Porumbescu, & Grimmelikhuijsen, 2017) in terms of both conceptualization (e.g. Grimmelikhuijsen & Welch, 2012; Meijer, 2013; Piotrowski & Van Ryzin, 2007) and measurement (e.g. Albalate Del Sol, 2013; Bertot et al., 2010; Bonsón et al., 2012). Indices for measuring local government transparency have been proposed by the non-profit organization *Transparency International* and used by, among others, Guillamón, Bastida, and Benito (2011), Albalate Del Sol
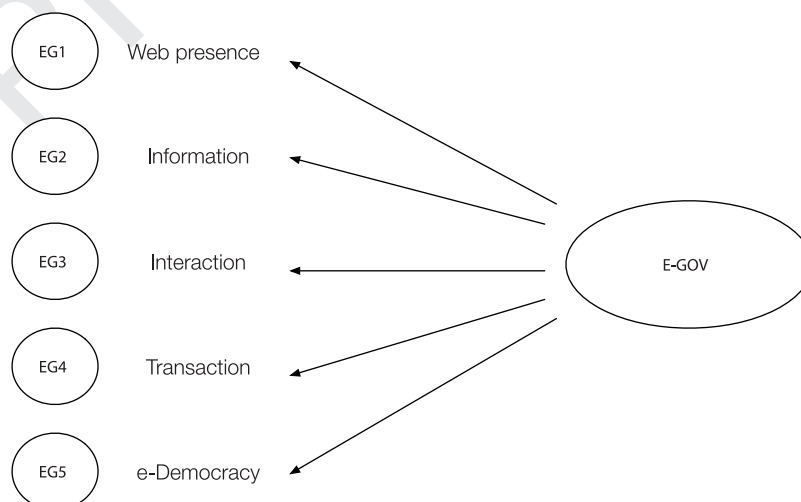

Figure 2. E-GOV construct.

(2013) and Da Cruz, Tavares, Marques, Jorge, and De Sousa 2016. More recently, others have examined the concept of a transparency measurement approach grounded in the web and social media landscape; for example, this was done by Gandía, Marrahí, and Huguet (2016) in a study about Spanish municipalites and by Guillamón, Ríos, Gesuele, and Metallo (2016) with a sample of Italian and Spanish local governments.

In this article, for the Transparency construct (TRANS), the scale developed by *Transparency International Spain* was employed as it is a well validated measurement instrument in the literature which fits the sample data. This construct is measured using five latent variables (see Appendix B):

(1) Local government information
(2) Relationships with citizens and society
(3) Economic and financial transparency
(4) Transparency in public services contracts
(5) Transparency in urban planning and public works

As noted above, even though a considerable body of literature about reputation exists, the debate about its definition and measurement continues (Agarwal, Osiyevskyy, & Feldman, 2015; Sarstedt, Wilczynski, & Melewar, 2013; Wartick, 2002). The most systematic reviews of the measurement of reputation have focused on for-profit organizations. Walker (2010) reviews 54 papers and Ali, Lynch, Melewar, and Jin (2015) examine 101 quantitative works. From these reviews, it is clear that reputation is moderated by the country in which the study was undertaken, the typology of participant stakeholders, and the measurement scale adopted. The measurement of reputation in non-profit organizations is still in an emergent stage with an absence of standardization, and the applicability of any given set of metrics is dependent on the specific context in which the organization is operating (Busuioc & Lodge, 2017; James & Van Ryzin, 2015; Wæraas & Byrkjeflot, 2012). This can be observed in, *inter alia*, Ryan (2007), where a corporate reputation quotient – a scale of 28 items grouped in six dimensions – is adapted to measure local government reputation, in the proposal of Luoma-Aho (2008), which tests five factors to measure reputation in public organizations in Finland and in the work of Christensen and Lodge (2016) who propose a typology composed of six dimensions, which was then used to analyze how five European governments manage their reputations.

Our approach to measuring reputation has been determined by the availability of Spanish municipality data, consideration of the multiple stakeholders involved, and the time period limitations associated with data collection for the other two constructs (e-government and transparency). Thus, the reputation construct (REPUTATION) was measured using the *MERCO City* ranking index (MERCO, 2008). This index is based on numerous surveys of the views of multiple stakeholders seeking to establish their perceptions of a given municipality. The survey covers a range of headings including social factors, economic performance, services, and physical aspects of the city such as the quality of its infrastructure. With these data, MERCO measures the reputation construct using six latent variables (see Appendix C):

(1) Quality of life
(2) Demand for qualified employment
(3) Business context
(4) Education offer (i.e. choices available)
(5) Leisure and culture
(6) Responsible citizenship

These provisional rankings are verified through research into the cities' own reports and through a "merit questionnaire" assessed by city experts on various fields. Finally, a definitive ranking is drawn up and released.

In the e-government literature some studies suggest that there is a relationship between city size and e-government development (e.g. Gallego-Álvarez et al., 2010; Norris & Moon, 2005), although others question this claim (Laswad, Fisher, & Oyelere, 2005; Moon, 2002). The possibility that size could be a factor in e-government usage raises an important question for the research design: should the analysis control for size? To measure the impact of size the population of the city was regressed against the E-GOV construct (using simple linear regression). The adjusted R-squared value was 0.041, and the linear correlation coefficient was 0.232. These results suggest a weak relationship between these two variables. Consequently, it was decided to ignore population size as it was felt that any impact from this would not be significant particularly since all the municipalities in the sample were large.

These data were then analyzed using structural equation modelling (SEM) with the AMOS 21 software package. To estimate the parameters the method of maximum likelihood was chosen as it has been demonstrated that it provides adequate results with samples of 50 or more observations (Hair, Anderson, Tatham, & Black, 1999), and with moderate departures from normality (Raykov, Tomer, & Nesselroade, 1991).

Results

For the measurement model (see Figure 2), Table 1 shows the values of some indices of fit. The chi-square test gave a

Table 1. Standardized factor loadings and fit measures of the e-government factor.

Codes	Items	Loadings	t-values[a]
EG1	Web presence	0.752	4.462
EG2	Information	0.698	3.969
EG3	Interaction	0.530	- [b]
EG4	Transaction	0.572	3.733
EG5	E-democracy	0.095	0.726

[a] Critical t for α = 5% is 1.96 and for α = 1% is 2.576 (two-tailed tests)
[b]*Without value because the unstandardized factor loading was fixed to 1 in order to obtain an identified model*
Model fit: chi-square (df) = 4.754 (5), p-value = 0.447, CMIN/DF = 0.951, CFI = 1.000

Table 2. Fit measures of the structural model.

Measures	Fit
Chi-square (degrees of freedom)	10.011 (8)
P-value	0.264
RMSEA (Root mean square error of approximation)	0.057
CMIN/DF (Normed chi-square)	1.251
CFI (Comparative fit index)	0.974
IFI (Incremental fit index)	0.978
NFI (Normed fit index)	0.898

p-value of 0.447, a value much higher than 0.05 that is normally taken as a threshold for an adequate level of fit. Other measures echoed this result with values of 0.951 for the parsimony measure CMIN/DF (close to 1) or the maximum of 1.000 for the comparative fit index (CFI). However, and despite of the positive sign of the five latent variables EG1-EG5, the results also showed that the factor loading of e-democracy (EG5) was not significant at the 0.05 level, so we considered appropriate to eliminate this variable from the *e-Government* construct. Doing this, the composite reliability of the new four-variable E-GOV construct shows a value of 0.736. Since this exceeds the recommended threshold of 0.7 (Hair et al., 1999), it can be seen as evidence supporting the internal consistency of the items that make up the factor.

For the structural model, Table 2 contains the values of the indices of fit, which indicate that the model fits adequately. These results impede the rejection of the hypothesis that the theoretical model fits reasonably well with the data.

In relation to the three proposed hypotheses, H_1 and H_2 are supported by the data. This is indicated by the positive sign of the regression weights for the relationships E-government → Transparency and Transparency → Reputation and the high corresponding t-values that appear in Figure 3. However, H_3 (E-government → Reputation) is rejected because of the non-significant regression weight at the 0.05 level, although it shows a positive sign as it was hypothesized.

Discussion

This study contributes to our understanding of the inter-relationship between e-government, transparency, and reputation in an e-government context.

First, the study findings provide evidence of a positive relationship between e-government and transparency (H_1). This finding is consistent with the studies of Torres, Pina, and Royo (2005) on EU regional and local governments and Bonsón et al. (2012) on EU local governments, who identify that e-government enhances transparency. Giving citizens access to government information is the most common digital government initiative (Fang, 2002; Pardo, 2000), and it has been argued (Jaeger, 2005; Kardan & Sadeghiani, 2011) that this in turn increases transparency and accountability. In addition, several studies find that e-government reduces corruption by increasing government accountability and transparency. These include the work of Shim and Eom (2008) in Korea, as well as the work of Andersen (2009) and Elbahnasawy (2014) using countries worldwide as the unit of analysis. While the relationship between e-government and transparency has been limited to date, the results obtained in this study
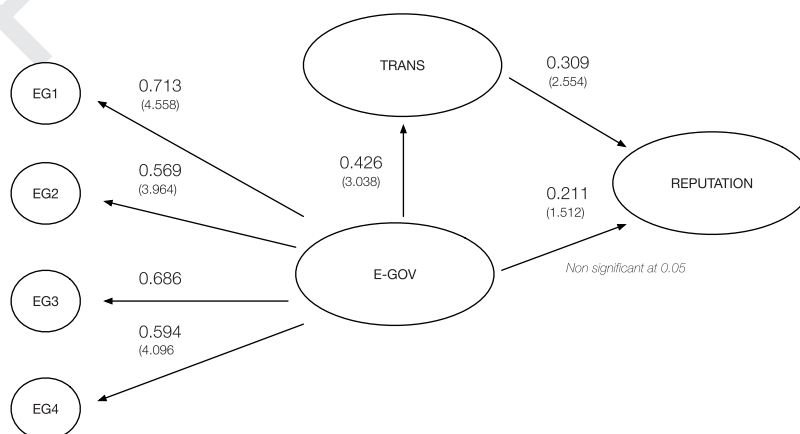
Figure 3. Proposed theoretical model: standardized factor loadings and regression weights (t-values in parentheses).

provide much needed confirmation of that relationship and its importance. This augers well for Spanish municipalities and for their citizens as transparency in e-government results in more engaged and participative citizens who have confidence in the governance of their municipality and support new ways of delivering public services.

Transparency also brings wider benefits as it helps to lower bias in citizens' perceptions and to have a positive impact on trust expectations by reducing information asymmetries between citizens and governments (Welch et al., 2005). Consistent disclosure of government performance information creates a context of understanding and community that impacts positively on citizen trust (Grimmelikhuijsen, 2012), thereby serving as a much needed mechanism to restore trust in government institutions (Tolbert & Mosserberger, 2006). The results of this study, therefore, provide support for the view (Bannister & Connolly, 2011b) that government bodies seeking to increase citizen support for and trust in their online services should place greater attention on disclosure of information regarding performance.

Second, while the study provides suggestive evidence of a positive relationship between e-government and reputation (H_3), the data does not support this hypothesis at the 0.05 level. This finding is consistent with previous work in which trust is used as a proxy for reputation, such as that of Berens and van Riel (2004), which emphasized the fact that it was not possible to find published works about e-government and reputation. While reputation and trust are clearly not identical concepts, their relationship is nonetheless very solid as observed in the literature. For example, among others, Fombrun and Foss (2001), Ryan (2007) and Luoma-Aho (2008) present trust as one of the dimensions that can be used to measure reputation and, more recently, Gul (2014) identified a very strong relationship between reputation and trust. In line with this, researchers such as Parent, Vandebeek, and Gemino (2005), in their study of Canadian voters, have identified a positive relationship between e-government usage and trust in government. Based on a four-case study developed with organizations of the US and Korea, Moon (2003) suggests that governments' ITCs have the potential to contribute to the enhancement of public trust, though Moon offers no empirical support for this claim. Furthermore, several authors identify a positive relationship between e-participation and trust in government (e.g. Tolbert & Mosserberger, 2006; Welch et al., 2005). Undoubtedly, trust and the role it plays in successful e-government adoption is deserving of attention. While this study provides much needed

empirical evidence of the relationship between e-government usage and reputation, the study findings are consistent with previous work in which trust is used as a proxy for reputation, and it, therefore, strengthens the voice of researchers who call for more examinations of whether trust can serve as a proxy for reputation in an e-governement context. While the results pertain to Spanish municipalities and their citizens, it is likely that these results will extend to other contexts equally. Further research will determine whether that is in fact the case.

Third, our findings show that the hypothesized positive relationship between transparency and reputation (H_2) is confirmed by the data. This is in line with the view of Mazzola et al. (2006) who propose that a way for an organization to improve reputation is to enhance transparency through proactively disclosing quality information. Also, De La Fuente Sabate and De Quevedo Puente (2003), in a study of Spanish savings banks, identify that the informative transparency of the organization proves to have a positive effect on reputation.

Finally, it is worth noting that the results obtained suggest the exclusion of the (claimed) fifth stage of e-government (e-democracy), a finding that is consistent with those obtained by Coursey and Norris in their (2008) study of US municipalities which showed that the complex steps involved in e-government adoption are not accurately explained by existing stage models (a point argued by Debri and Bannister (2015)). It is also consistent with the literature relating to stage model proposals, which emphasize a lack of consensus about the number of stages that should be considered. For instance, in most cases, four stages are proposed (Baum & Di Maio, 2000; Hiller & Belanger, 2001; Layne & Lee, 2001; West, 2004), while others continue to defend five or more stages (Debrí & Bannister, 2015; Lee, 2010; Siau & Long, 2005). Although this study did not set out to determine the number of stages involved in e-government adoption, the results obtained provide an interesting perspective that confirms the urgent need to reconsider the number of stages, the nature of those stages, and their relevance. It also draws attention to the need for models that can more effectively explain the stages in e-government adoption that are applicable in other cultures and contexts.

The value of this study lies not only in its examination of the relationship between e-government, transparency, and reputation, but also in that it is the first study of its kind to provide empirical evidence of these relationships within a Spanish municipality context. The literature on transparency and reputation in e-government contexts is limited, and much of what does

exist is discursive in nature. This study provides definite empirical evidence that supports the expectations and contentions of many public administration and e-government researchers, specifically regarding the relationship between e-government, transparency, and reputation. In doing so, it provides an important step forward in our understanding of these issues.

Conclusions

This study set out to examine the interrelationship between e-government, transparency, and reputation in Spanish local government. While considerable literature on transparency in the public sector exists, the issue of reputation in local government has received limited attention to date despite its growing importance in the private sector. The study provides evidence of a three-way relationship between transparency, reputation, and the degree of development of municipal e-government. Specifically, it shows that the degree of transparency in a local authority influences the reputation of that authority, and that transparency is influenced by the level of e-government service provided. While there is some evidence that there is a direct link between e-government level and reputation, the evidence suggests that the indirect effect via transparency is more significant.

This study provides, as far as we are aware, the first attempt to link these three constructs using empirical data. This study has some obvious limitations. It is confined to one country and to local government in large municipalities in that country. There remains considerable scope for replicating this research in other contexts including countries, different levels of local and regional government and national government. To do so will, however, require addressing the question of how to measure reputation in that context. As noted in the paper, while this question has been extensively discussed in the private sector, discussion of the problem in the public sector has been modest and limited to a few authors and a few countries. This result was only feasible because of the existence of the Merco City data.

Nonetheless, this is an important research question. As observed in the article, reputation is important in numerous ways. For better or worse it affects business, investment, tourism, and possibly, the morale and civic pride of citizens. More and more cities are declaring that they want to become "smart" and e-government has a central role to play in achieving this goal. Its contribution to reputation is, in some ways, just as important and there is a continuing need to understand

this phenomenon better. This article has been a step in that journey, but there is more research to be done.

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Appendix A. E-government: unobserved latent variables and observed variables

Latent Variables (Stages)	Observed Variables (Services)	Description
Web Presence	Forms	Proceeding documents (general information)
	Council/plenary Proceedings	Acts or changes in description of laws in the council (decrees and local regulations)
	Search box	To find information inside city web pages
	Web map	Map of the website
	RSS	Up-to-date news subscription
Information	Street map	City map with all streets (can be static or dynamic)
	Transportation	Transport facilities and how to get to the city
Interaction	Citizen mailbox	Information request or method of contact
	Telephone Listings	Telephone numbers of the different services
Transaction	Follow-up functionality	It is possible to track the online applications or check the status
	Online applications	Is it possible to apply for documentation and services request?
	Payments	The possibility to finalize a payment transaction on the web (taxes, fees etc.)
	Digital signatures/certificate	If it is possible to obtain certified documents directly from the website
	Citizen folder	Citizens can update and maintain personal details
	Mobile	The web site is ready for mobile devices
E-democracy	Blogs	Discussion and forum facility for debate and posting information

Appendix B. Transparency: ITA Spain unobserved latent variables and observed variables

Information about the Municipal Corporation
Basic institutional information (10)
Information on municipal rules and regulations (6)
Relations with Citizens and Society
Characteristics of the council's website (3)
Information and citizen care and attention (11)
Level of commitment to citizens (6)
Economic and Financial Transparency
Accounting and budgetary information (11)
Transparency in municipal income and expenses (6)
Transparency in municipal debt (4)
Information about Municipal Service Contract Bidding
Procurement of services procedures (4)
Relations and transactions with suppliers (2)
Transparency about Urban Development/Public Works
Urban planning and planning agreements (4)
Re-planning decisions and planning permissions (2)
Announcements and public works tenders (4)
Contractors information, offers, and resolutions (2)
Monitoring and control of execution of works (3)
Planning indicators and public works (3)

Appendix C. Reputation: MERCO City unobserved latent variables and observed variables

Quality of life	Demand for qualified employment
Public services	Public employment
Housing and house prices	Employment generating capacity
Environmental quality	Production structure
Mobility	R & D Centres
Citizen security	Professional associations
Business context	Education offer
Industrial and trade fairs	University degrees
Infrastructure and communications	Business Schools
Investment incentives	Vocational professional schools
Business infrastructure	Educational facilities
Quality of telecommunications	Student residences
Leisure and culture	Responsible citizenship
Cultural heritage	Support for the third sector
Cultural and sporting agenda	Sustainable sector
Sporting facilities	Care for the elderly and dependent
Natural heritage	Aid and social services
Hospitality offer	Development aid