Abstract

Corruption, both bureaucratic and political, exists in various forms. Causes and effects of corruption have been documented in various academic and practitioner forums. Developing countries are plagued by rampant corruption caused by several economic, cultural, social and regulatory factors and are struggling to make changes to control and combat corruption. e-Government and e-Participation systems can substantially reduce corruption. Through a comprehensive literature review of over 100 published papers, we analyze the different theoretical models, empirical data and conclusions relating to e-government and its role in combating corruption. We decoct and synthesize the review to evolve four dominant themes relating to the association of e-government with corruption and propose a holistic model of the same. We also examine the challenges associated with each of the themes. We believe this model can be validated by researchers in different contexts while such a holistic understanding can help practitioners view potential solutions differently.

Keywords

Bribe, transparency, public administration, reengineering, e-participation.

Introduction

The term “e-Government” can be defined as the use of information technologies and the Internet by government departments/agencies. In describing e-Government, the World Bank emphasizes the role of such technology implementations in transforming the relationship between the government department and its key stakeholder viz., citizens, businesses, and other government departments. Such transformation is often reflected in increased efficiency, citizen-centricity, transparency, participation along with a greater degree of trust in the government machinery. Corruption, in government transactions, however, presents significant challenges to the achievement of efficiency of service delivery and effectiveness of government programs.

Nye (1967) defines corruption as a “behavior which deviates from the normal duties of a public role because of private-regarding pecuniary or status gains or violates rules against the exercise of certain types of private-regarding influence. This includes such behavior as bribery, nepotism and misappropriation.” Several implementing agencies and sponsoring organizations of e-Government projects have claimed major potential benefits of e-Government in terms of reduction in instances of corruption (Dada, 2006; Wescott, 2001; Basu, 2004; Heeks, 2005). In addition to traditional ICT tools, use of social media can also potentially reduce corruption (Bertot, Jaeger & Grimes 2012). The potential
to reduce corruption is an important unique selling point for e-Government projects. For citizens, one of the potential benefits would be a reduction in the cost of transactions. For a country, the significant benefit will be in the efficient allocation of resources for the benefit of all to reduce income inequity.

As e-Government environment matures in a country, the level of corruption is likely to decrease (Krishnan, Teo & Lim 2013). However, other factors may also play a significant role in the reduction of corruption (Heeks, 2005). The implementation of an e-Government project can also have some negative outcomes like giving rise to new corruption avenues (Dada, 2006; Wescott, 2001). A large digital divide in developing countries, like Brazil and India, is one of the factors contributing to some such new forms of corruption. One of the limitations of the use of e-Government projects as an anti-corruption tool is that the focus is often on bribe taking and not on bribe giving (Bertot, Jaeger & Grimes 2012). The premise of e-Government projects reducing corruption has also been questioned in the literature. Ciborra and Navarra (2005) observe corruption in government contracts in spite of digitization. They argue that lack of clear specifications in the government projects are an indicator of underlying corruption in such processes. Staff resistance, lack of legal infrastructure and leadership support are some factors contributing to low (or no) impact of e-Government projects in reducing overall corruption (Furuholt & Wahid, 2008). In some cases, corruption has reduced after the initial implementation of the e-Government project, but later due to staff resistance, the project itself failed to sustain (Kumar & Best, 2006).

Given the conflicting findings in the literature, there is a need to take stock of the research on the impact of e-Government initiatives on corruption and whether such an impact poses challenges to adoption of e-government systems. A systematic review of existing research will help us in identifying the broad themes across the different papers especially the analysis and findings of the studies, the dominant methods used, theories drawn from, common characteristics of the contexts, diversity in the sources of data, and the variety of issues examined in different studies. This paper aims to specific purposes. First, we begin with the literature review through which papers having common focus are segregated for a subsequent detailed synthesis and analysis of the empirical findings and theoretical abstraction. Second, through more in-depth reading and synthesizing of the chosen literature, we identify the broad debates surrounding the use of e-government to combat corruption and thus delineate the challenges in effecting the same.

The remainder of the paper is organized as follows. The next section discusses the methodology used to identify, choose and analyze extant research studies on e-government and corruption. The analysis revealed four dominant themes in the research on e-government and its relationship with corruption which are presented in the subsequent section. While a majority of research studies have attempted to establish an association between the two, some have also examined the challenges in effecting a reduction in corruption through the implementation of e-government systems. We present some such challenges that are discussed in the literature. We use the themes to propose a holistic depicting the relationship between the various themes, e-Government and perceived corruption. We conclude the paper with a brief discussion of the key contributions and implications of this study.

**Methodology**

Using the keywords “e-Government” and “corruption”, we searched through E-Government Reference Library (EGRL) Version 11.5 (contains 7,899 references of peer-reviewed work in the area of e-Government)\(^1\) and additionally in Google scholar. The keywords were found either in the titles or in abstracts of the papers. One hundred and thirty-nine papers, hundred published in journals, twenty-four published in conference proceedings and rest published as book chapters or reports during 1999-2016 were identified. Of these 139, eighty-three papers were obtained from EGRL and thirty additional papers from Google scholar. Since all the papers listed in EGRL are relevant for the domain of e-Government, the only search string used in this case was “corruption”. In Google scholar, top two hundred results were considered. The search on Google scholar was not limited to the abstract and the title, but it also included the full body of the respective paper. This feature was not available in EGRL. The remaining twenty-six papers in our initial sample were selected from other sources based on a snowball search. Although this was ad-hoc, it allowed us to include papers based on the authors’ understanding of their importance.

---

\(^1\) [http://faculty.washington.edu/jscholl/egrl/](http://faculty.washington.edu/jscholl/egrl/)
The titles, keywords, and abstracts of all papers were read by one or more authors in an initial reading exercise so that clearly irrelevant papers could be removed. These included papers which only indirectly mentioned corruption and related aspects, along with papers where corruption or related issues were discussed as an implication or impact but not as the primary theme of the study. We also excluded books keeping in mind their diverse focus but included specific book chapters, wherever available. This resulted in a total of 130 peer-reviewed academic papers. In the next step, each paper was read by one or more of the four co-authors to ascertain the relevance of the paper or parts of each paper to our study on the relationship between e-government and corruption. This step resulted in the elimination of non-relevant papers. The final tally of papers that were thoroughly reviewed was 105. Three graduate assistants helped in the review process on a random sampling basis to verify the categorization and coding.

We present below the findings from the analysis of the papers reviewed. To conserve space, elaborate tables are not being provided. We combine several categories that were used to analyze the papers.

**Preliminary Analysis**

Authorship: Most articles had multiple authors, two to three being most common. Average number of papers cited in each of the 105 articles reviewed is around 30 adding up to more than 3000 references in total. Few of these citations are repeats. About 50% of the articles reviewed are 2012 and later. Less than 20 articles are older than 2005.

Nature of Study: About 25% of the papers reviewed had a specific country context such as Argentina, Bangladesh, Brazil, China, Hungary, India, Indonesia, Kenya, Nigeria, Romania, and South Africa. Although a few papers were descriptive and conceptual, most used empirical data to validate the theoretical model. The majority of papers had a multi-country context to examine the hypothesized models utilizing country-level indexes available from world bodies like the United Nations, World Bank and Transparency International.

Theories Utilized: Most studies mentioned the theoretical lens that was used to understand the impact of e-Government initiatives on corruption. Theoretical foundations of our reviewed articles have been from several disciplines like sociology, organization theory, strategy, MIS and criminology. Some specific theories utilized in our reviewed articles include Diffusion of Innovation, Institutional theory, Unified Theory of Acceptance and Use of Technology (UTAUT), Theory of Procedural Fairness, Modernization theory, Transaction Cost Theory, Principal-Agent-Client theory, Economics of Crime, Structuration theory, Technology Acceptance Model (TAM), and New Institutional theory.

E-Government Systems: Although the e-Government literature has categorized applications in this area in several ways, we found the dominant classification used was that of the four stages of evolution or maturity of e-Government systems – Informational, Interactional, Transactional, and Networked (Integrated) [sometimes replaced with Participation or Decisional]. In developing countries, while many of the systems are either at informational or interactional stage, we found some papers mentioned e-participation and some others which mentioned analysis or decision support. Papers that examined e-government systems in developed countries mostly referred to systems in the latter two stages.

Research Methodologies Used: Despite the recent call to researchers to mention the paradigm of research explicitly, we found hardly any which did so. We, therefore, classified studies according to the dominant research method and data sources such as secondary data, survey, case study, ethnography or a combination of these. About 10 articles were conceptual or theory development papers; about 25 papers were based on primary case studies; another 30 studies were based on collecting data through questionnaires and then analyzing the data. One category that was not captured in our initial classification was the analysis of country-level indices of transparency, corruption, freedom of the press, human development and e-Government maturity. There were about 20 articles in this category. Units of analysis in the studies reviewed include citizen, stakeholder, business, civil society, other government departments and private partners, project, country, transaction or multiple units, the more common units being country, project, and individuals (citizens, stakeholders).

Type of Analysis: We classified the analysis in the research papers into two broad categories – qualitative and quantitative. The papers we reviewed had used a variety of qualitative analysis techniques such as textual analysis, content analysis, thematic analysis occasionally leading to theory building. Quantitative analysis included descriptive statistics, inferential statistics, regression, path modeling, correlation and
structured equation modeling, the most common being regression.

**Dominant Themes**

One of the key objectives of a systematic review of literature is to assimilate the key findings of the different studies and identify common themes of research which will aid in developing a holistic model. The purpose of this study is to consolidate perspectives on e-Government and corruption. In-depth and iterative analysis of the papers helped us evolve four dominant themes. The chosen themes reflect both quantitative and qualitative emphasis of the papers reviewed rather than a complete mapping of all possible variables of interest. The four themes relate to issues and factors which are associated with the relationship between e-government and corruption presented as higher-order constructs operationalized through lower-level factors. We introduce the four themes, categorize the research studies reviewed under each theme and present brief summaries of the studies. Given the space constraints, the studies presented are reflective of the themes, although not purely representative. We then present the holistic model of e-government and corruption through a diagrammatic representation.

**Transparency Factors**

A common line of thought which we identified in at least 34 studies was that of the e-government systems enhancing transparency in governance, government processes and thus reducing the extent of perceived corruption. One path for such increase in transparency is through increased access to information. Saquib and Shrivastava (2012) present a skeletal framework for e-Government service discovery which can help combine multiple related services into service bundles thus allowing citizens to access information and services through a single interface. The authors argue that such a single interface could potentially reduce corruption by increasing transparency in public e-service delivery. Murillo (2015) presents a similar line of thought by highlighting two conditions essential for transparency to effect a reduction in corruption. First is the **publicity** condition that enables stakeholders to acquire and process information. Second is the **accountability** condition that enables stakeholders to act based on the newly acquired information. However, the authors concluded that the government portals they evaluated failed to leverage the publicity condition. The accountability condition is discussed in other studies as well, although using financial transparency as the means to establish accountability. Wehner and Renzio (2013), for example, argue that domestic political factors including fair elections, dependency on rents and revenues from natural resources influence disclosures and transparency related to fiscal information. The basic tenet of this argument lies in the notion that transparency in budgets and allocation decreases corruption in governance.

The concept of open government where the bureaucratic machinery is exposed to public scrutiny especially through systematic ways of financial accountability and auditing adds to this rationale (Sturges, 2005). Transparency can be enhanced by providing greater freedom of information and at the same time protecting public interest often through investigative journalism and civil society campaigns – phenomena which have been known to contribute to building transparency in the government machinery. Transparency also has other sources such as voice and accountability. Public voice, i.e. the degree to which citizens are able to participate in the country's governance has been found to mediate the relationship between internet diffusion and government corruption especially in a developing country context in Africa and South America (Kock and Gaskins, 2013). Measures for these variables, in the literature, have been dominated by indexes and ratings from third party agencies. The existence of multiple indices measuring corruption viz., the EU Scoreboard, the Transparency International Corruption Index and the UN's EGDI allows for validation of relationships through alternative operationalization (Cox, 2014). While Kock and Gaskins (2013) used the Transparency International's country-level corruption index to measure government corruption similar to Sol (2013) who uses it at the level of municipalities in the Spanish context combining the TI index with information availability on the local government website. The use of the Corruption Perception Index (CPI) has also been fairly common in literature. Abu-Shanab (2013) used CPI to study the relationship between transparency and e-Government and found that the degree of transparency positively influenced e-Government maturity (measured by an e-Government readiness index). In other words, countries with higher levels of transparency are likely to experience greater usage of e-Government systems. Cox (2014) pushed the argument further by suggesting that the evaluations of overall e-Government capabilities should include
the measures of transparency and public corruption.

Transparency can also result from sharing data with stakeholders and therefore, exposing the rationale and logic in decision making, thus, reducing discretion of government officials (Wescott, 2001). A more technologically advanced mechanism would be one of automating certain government procedures and processes. Metaxiotis and Psarras (2004) argue that such automation provides an opportunity to reduce corruption. They believe that e-Government involves increasing the accountability of the government by making its operations more transparent and automation of government processes allows this.

Although process and decision support have been known to aid transparency, focus on data and information sharing has become increasingly common. e-Government systems are presumed to allow greater access to information, which has the potential to reduce corruption in the government machinery (Kluver, 2005). The amount of information in the economy and the interface between citizens and the government are both viewed as the two channels providing opportunities for corruption (Andersen and Rand, 2005) which can be eliminated by the use of ICT.

Researchers have also pointed out that some e-government initiatives have specifically aimed to use the opportunity to increase transparency and therefore reduce corruption. A comparative study by Ndou (2004) highlights two cases from Argentina and India where reducing corruption was one of the key objectives of the respective e-Government projects. Here, she argues, transparency focused on anti-corruption and therefore, accountability was one of the seven important opportunities that the e-government projects present. Kim, Kim and Lee (2009) and Sun, Ku and Shih (2015) describe projects where one of the main reasons for digitization was to combat the growing menace of corruption. Bjørn and Fathul (2008) indicate an increase in transparency and reduction in corruption as potential benefits of e-Government. These two potential benefits are more prominent in developing countries. Examples from India and Indonesia have been used to support this argument.

**Technology Imperatives**

Many papers assumed a technology imperative perspective to understand the impact of e-government systems on corruption. While some researchers argue that use of e-Government systems itself reflects user perceptions about transparency and corruption given that inherently such systems bring forth wider and easier access to information (Cox, 2014), other researchers are more nuanced in their view of the technology imperative in the impact of ICT applications on corruption, mobile, internet, social media in general and specific e-government systems, in particular. We summarize some studies in this theme below.

The use of social media as a means of increasing government transparency, e-participation, engagement with citizens and co-production of solutions for common problems has been explored by multiple researchers (such as Bertot, Jaeger and Grimes, 2012; Stamati, Papadopoulos and Anagnostopoulos, 2015). The theoretical rationale used by the authors to understand the impact of the use of social media on corruption differs. For example, while Bertot, et.al., 2012 argue that social media increases government transparency and therefore reduces corruption, Stamati et. al. (2015)’s premise rests on the fact that publicly and collectively monitoring government officials and policy makers helps prevent corruption. Through an analysis of 250 government-generated YouTube videos, Chatfield and Brajawidagda (2013) found that the use of social media platforms like YouTube coupled with the political will for transformation can help advance local government transparency and allow for higher levels of citizen engagement especially by significantly increasing the speed, reach and transparency of government information and interactions.

Using extant literature and published examples, Bertot, Jaeger and Grimes (2010) present an overview of the possible role that e-Government systems and social media can play in enhancing transparency and consequently reducing corruption in the government machinery. In discussing the challenges to using this, Bertot and others emphasize the need to build a culture of transparency, focus on increasing technology literacy while also ensuring the usability and functionality of e-government systems. The authors present many specific instances from across the world on how social media resulted in an increase in transparency through information sharing including Australian Prime Ministerial election, H1N1 flu outbreak, Wikileaks, Crime maps in the US, e-procurement systems in Chile and Philippines, etc. In contrast, Ionescu and Luminita (2015) use the building of trust as the route to reducing corruption
through the use of social media.

The technology imperative also includes the ripple effect of technology diffusion in general, especially the internet, mobile technologies and other infrastructure. Certain characteristics of mobile and wireless technologies have been found to influence specific attributes of procedural rules such as transparency, information accuracy and voice opportunity (Zhen-Jiao, Vogel and Zhao-Hua, 2014). Such attributes are likely to create a perception of procedural fairness which in turn can reduce perceived corruption. The internet is perceived to be a similar force to reckon with. Schroth and Sharma (2003) examined the leadership of South Africa in transnational law and the continent-wide potential of using the Internet as a force against corruption. Some research has also attempted to highlight a two-way causality between internet adoption and corruption (Lio et al. 2011).

Exploring the linkages between internet use, corruption and larger measures of economic development have also become equally important in the contemporary context. A country’s corruption rate and internet use rate seem to have a reinforcing effect on economic development (Jin and Cho, 2015). A mutually boosting effect observed between these two constructs seems to indicate that the level of national corruption and national development measured from a social perspective using consumer inflation have a mediating effect on the relationship between a nation’s ICT capacity and economic development.

Apart from the internet, social media and mobile and wireless technologies, providing widespread access to data itself have been seen as a means of combatting corruption. For example, the Open Government Data (OGD), it has been perceived to lead to decrease in corruption (Brito et al. 2015). A website which was primarily used by Brazilian citizens in the Brazilian elections of 2014 was analyzed and a survey revealed that people considered OGD based websites more useful than official government websites (Brito et al., 2015). They also perceived a positive role of OGD in reducing corruption. However, the authors caution that the precise level of corruption is hard to decipher and also that a direct association between transparency and a decrease in the level of corruption can be difficult to establish.

Andoh-Baidooa et. al. (2014) present an interesting twist to the traditional discussion on information technology, e-Government and corruption. They argue that along with economic performance, human development, and population statistics; corruption influences a nation’s ICT capacity. This is reflected in the ICT expenditure, per capita ICT expenditure, Internet users per 1000 people and mobile phone subscribers per 1000 people. Consistently across all four dependent variables, corruption seems to play a major role in increasing ICT capacity.

Much has been said about the impact of the information and communication technologies (mobile for instance); the Internet in general; social media platforms such as information sharing (such as departmental websites, blogs), video sharing (such as YouTube); and specific e-government systems, on reducing corruption. However, some reservations continue to be expressed on the need to go deeper than just the technology layer. An oft-repeated argument has also been the need to perceive the challenges and issues associated with the underlying government processes. Klusner (2005), for example, reiterates that if fundamental ineffective government processes are left unaltered, there are limits to what changes in technology can bring to the social fabric and to the benefits it can yield.

**Administrative Imperatives**

Studies that have examined perspectives related to administrative imperatives include four broad streams – augmenting government process efficiencies through re-engineering and administrative reforms; institutionalizing e-government systems; strengthening the effectiveness of government machinery by increasing the quality of decision making; regulatory quality and rule of law. We present a glimpse of some of the papers which discuss these imperatives.

**Reengineering and Administrative Reforms**

Literature in the area of public administration has helped understand the role of civil service reforms in reducing corruption (Neshkova and Kostadinova, 2012). Combined with such reforms, initiatives to re-engineer government processes prior to implementing e-government systems have been repeatedly emphasized in the literature (Bhatnagar, 2002; Wescot, 2008). Instances of failure of e-government
systems due to the lack of reform in the process have been extensively recorded in literature. Vasudevan (2006), for example, presents the case of a land record registration system in a state in India and concludes that although efficiency significantly improved since the land records process lent itself to computerization very well, the lack of reform in the process and culture has left corruption unchecked. Wescot (2008) explains the procurement process in public sector and how client organizations are stuck with choosing one of the two alternatives amongst re-engineering business processes or customizing the software being implemented. Apart from re-engineering processes, authors have also argued that building government commitment and strengthening legal support can ensure the success of e-government projects (Zhang and Zhang, 2009).

**Institutionalization**

Institutionalization has been used in the literature in this area in two connotations. The first is that of institutionalization of information technology and systems. Studies using this perspective propose that institutionalizing an e-government system, is likely to go beyond the primary purpose of enforcement and access to information to empowerment, prevention of corruption and thus capacity building. Kim, Kim and Lee (2009) observe this in the case of an e-Government implementation in Seoul where one of the openly expressed goals was that of combating corruption. The success of this system in Seoul led to its adoption for a nationwide e-Government system called “Saeol”. The authors argue that institutionalization operationalized through mechanisms such as regulatory or occasionally coercive influence; cognitive or mimetic methods; and/or normative approaches may facilitate use and diffusion of advanced e-government technologies to facilitate forms and direction of social order. The second connotation refers to institutionalization of high quality of bureaucracy. Coupled with rule of law, enforcement and establishment of professionalism, such institutionalization of government quality has aided traditional anti-corruption strategies and has been found to be an effective tool to control corruption (Shim and Eom, 2008).

**Rule of Law**

Rule of Law refers to the extent to which stakeholders trust and abide by the rules of society, particularly those relating to property rights, law enforcement, etc. (Krishnan and Teo, 2012). Elbahnasawy (2014) asserts that rule of law is a predictor of level of corruption. On the other hand, Krishnan and Teo (2012) argue that rule of law along with political structures, voice and accountability; and control of corruption are complementary assets, the presence of which ensures the success and sustainability of e-government projects. While the extent of trust and enforcement of the legal and regulatory framework impacts the extent of corruption, a direct relationship between the use of e-government systems and rule of law is yet to be conclusively established. The role of the Rule of Law can be hardly emphasized in countries like Nigeria where corruption is mostly perpetrated by politicians and police through election rigging; and lack of accountability, openness, transparency, and public engagement is rampant. Olasina (2014), whose country-context was Nigeria argues that despite the presence and availability of ICT support for legislators, it is grossly underutilized. The focus on e-parliament (e-participation) as an electronic means for citizens and legislators (politicians) to interact and thus to fight corruption, Olasina argues can hardly be considered successful.

**Socio-Economic Factors**

The very nature of citizen service delivery using e-government systems attracts the influence of socio-economic factors especially in its association with corruption. Such socio-economic factors include development indices such as level of literacy and state of healthcare in a country; social factors such as trust in democracy; political factors such as the political will to reduce corruption, good governance; demographic profile and variables and economic conditions including GDP.

Citizen trust on government bureaucracy has been an issue of interest in some of the studies reviewed. DiRienzo, Das, Cort and Burbridge Jr. (2007) examine the impact of e-Governance on government process services and policies and found both process-based trust and institution-based-trust have a role to play. Although political factors and perspectives have also been looked at by some studies, they have been quite rare. Sol (2013) found those municipalities with left wing leaders and where the local government has been formed with an absolute majority reveal greater degrees of transparency. The study
measured transparency as extent of citizen-relevant information available on the government website.

In the context of socio-political environment, some authors have argued that the absence of complementarities such as political will and the low levels of democracy may reduce the potential impact of internet adoption on corruption (Lio et. al. 2011). In a similar tone, Garcia-Murillo (2009) found that access to the internet measured by a number of users in the country and number of internet hosts in the country significantly influence lower levels of corruption along with political factors such as stability, confidence in the judiciary, freedom of the press, good governance, etc. However, the author did not find any significant role of the economic wellbeing of a country on lower corruption levels.

The Challenges

Despite the growing number of studies on the impact of e-government systems and information technology, in general, on reducing corruption in various forms, there is a parallel set of studies which express worry, concern and in the same tone, deep sarcasm in arguing that there exist multitude challenges in ensuring this impact can be achieved. These challenges can well be classified as technology-related, socio-economic, administrative issues and the anti-transparency challenge. We present below a glimpse of papers which have stressed the need to develop newer perspectives to the problem.

Technology-related challenges stem from security breaches such as those that were feared in e-voting systems. Dean (2012) argues that the possibility of corruption and fraud and security breaches even in a well-regarded e-voting system like Scantegrity, an Open Source program are not unthinkable. A typical balance in such highly sensitive technology systems is one between privacy and verifiability. These two objectives are often viewed as conflicting goals of a system. Hacking, therefore, of even the best e-voting system continues to be a possibility, howsoever low the likelihood.

Alternative explanations for the relationship between e-government and corruption have also been explored in the literature. Could the large-scale failure of e-government systems be attributed to cultural, economic, political and judiciary corruption? In analyzing e-Government project failure in developing nations, Aladwani (2016) classifies and explains project failures in terms of service failures, social failures, content failures and technical failures where corruption in various forms seem to be a dominant theme amongst the various causes of project failure. A further twist to this line of thought seems to appear in the form of resistance to e-Government projects being explained by the need to “up-skill” oneself in order to understand the new opportunities for corrupt behavior that the system now provides (Wescott, 2001). Such 'new' corruption opportunities augur well mainly with those who understand the new systems well. Wescott explains this as an inter-generational shift in corruption through "up-skilling" of corrupt behavior resulting from the technology implementation.

Socio-cultural issues surrounding the inability of e-government systems to reduce corruption have been an interesting point of the debate. While we believe that e-government applications are meant to increase process transparency, they can be accompanied by a reduction in the autonomy of frontline officers. Schuppan (2009) argues that a new form of corruption could arise as a result of outsourcing key services to intermediaries. Schuppan cautions that increasing proximity to private partners can, in fact, pose a risk of bringing forth new forms of corruption. Bhatnagar (2003) seems to echo Schuppan’s argument on how e-Government applications offer only a partial solution to the problem of corruption by reducing the discretion (curbing opportunities for arbitrary actions) and making it possible to track and link the corrupt actions. E-Government implementation, in certain situations, has also created new forms of corruption. Two implications therefore arise. The first is the need to be context-sensitive especially when migrating solutions created for developed countries to developing nations (Schuppan, 2009) and secondly, application features that simplify processes or enhance citizen engagement need to be consciously built-in to the system.

An interesting contradiction of sorts is that of a country like Kenya. Wachira and Arlikatti (2010) present Kenya as a case of limited success of e-Government. The extreme lack of ICT infrastructure in a Kenya high school even though it has been 11 years since the conceptualization of e-Government in 2004. Contrastingly, Kenya can, and rightly so, boast about the success of its Mobile Money Transfer (M-Pesa) program launched in 2007. This program reduced corruption by allowing cashless payments and receipts thus avoiding black money and non-payment of taxes. But, government policies like the "Official Secrets' Act" of Kenya, ostensibly, designed to protect corrupt public officials, favor anti-transparency and can
lead to the failure of e-Government initiatives. The authors draw comparisons between Kenya and Zimbabwe where corruption was far more endemic and rampant. In such situations, they argue, e-Government can help cover up scandals.

**Figure 2: A Holistic Model of E-Government to Combat Corruption**

**Implications**

E-Government is fundamentally the digitization of government processes and provision of citizen-centric services using technology. Such systems, it is believed can potentially combat both bureaucratic and political corruption. In attempting to present a comprehensive and systematic review of literature in the area, this study evolves a holistic model and within the model four dominant themes of research addressing the relationship between e-government, technology and corruption. Future research can choose to validate specific parts of the model or enhance the comprehensiveness of the model by including further factors to strengthen the themes. Although in this paper we have briefly mentioned the different methodologies used, it may be worthwhile to analyze the findings and conclusions specific to each methodological approach used to study the relationship between e-government and corruption.

A majority of the studies on corruption have focused on the perspective of the bribe payer much to the
exclusion of the bribe receiver, a concept modeled in a simple economic form by Vieira (2013). More
detailed studies which present the perspective of the corrupt agent's especially the changes brought to the
agent's costs and moral barriers if extensive e-Government systems are available. We urge researchers to
pay attention to this neglected area. Another possible area of exploration is to identify how old methods of
corruption (bribing) give way to new methods that circumvent restrictions imposed by e-Government.
While this has been somewhat referred to in the literature such as through up-skilling (Wescott, 2001)
and new forms of corruption (Bhatnagar, 2003; Schuppan, 2009), it demands more intense discussion
especially on the changing nature of corruption itself.

Conclusions

Digitization through e-Government brings in the prospect of efficient and effective government
machinery. However, the challenges to e-government implementation, use and large-scale diffusion have
persisted despite numerous initiatives to put in place systems to digitize government processes and citizen
services. A major reason for the inability to ensure success of e-government projects and a source of
resistance to adoption of such systems has been the fear of transparency. Public administration literature
attributes it to the deep-rooted social menace of corruption.

Clearly making governments at all levels corruption free is a top priority for any economy, large or small.
It is often believed that a less corrupt nation can also ensure a far more equitable distribution of country’s
resources for all segments of the population – not just the privileged ones. The need for digitized
government machinery is far greater now than ever before given the potential that technology now offers.
This study is an effort in that direction. A comprehensive review of the literature helped us evolve a
holistic model synthesizing perspectives related to the association of corruption and e-government using
themes based on the factors and constructs used in various studies in different contexts.

The paper contributes to the research on e-government and corruption in two significant ways. First, it
has attempted to consolidate the various perspectives on the inter-relationships between the use of e-
Government as a technology and as an organizational initiative and the different forms of corruption. The
systematic review of over hundred papers has led to the identification of four themes that seem to
dominate the research in the area including transparency, technology-specific factors, the administrative
imperative of e-government and factors related to socio-economic environments. Second, in presenting
the review, the paper has also identified broad gaps in each theme which we hope, can serve to generate
ideas for future research.

Acknowledgements

The authors wish to thank three graduate assistants - Ashlin Conroy (at LIU), Ayushi Tandon and Sharad
Sharma (at IIM Ahmedabad) for their help in categorization and coding of some of the articles.

Key References

Bertot, J.C., Jaeger, P.T. and Grimes, J. M. 2012. “Crowd-sourcing transparency: ICTs, social media, and
government transparency initiatives,” in Proceedings of Annual International Digital Government
Research Conference on Public Administration Online, Puebla, Mexico, pp. 51-58
Kock, N. and Gaskins, L. 2013. “Internet Diffusion and Government Corruption in Latin America and