



HAL
open science

Theorizing the Relationship of Corruption in National Institutions with E-Government Maturity

Satish Krishnan, Anupriya Khan

► **To cite this version:**

Satish Krishnan, Anupriya Khan. Theorizing the Relationship of Corruption in National Institutions with E-Government Maturity. International Working Conference on Transfer and Diffusion of IT (TDIT), Jun 2018, Portsmouth, United Kingdom. pp.177-193, 10.1007/978-3-030-04315-5_13 . hal-02068937

HAL Id: hal-02068937

<https://inria.hal.science/hal-02068937>

Submitted on 15 Mar 2019

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Distributed under a Creative Commons Attribution 4.0 International License

Theorizing the Relationship of Corruption in National Institutions with E-Government Maturity*

Satish Krishnan¹ and Anupriya Khan²

¹Indian Institute of Management Kozhikode, Kerala 673570, India
satishk@iimk.ac.in

²Indian Institute of Management Kozhikode, Kerala 673570, India
anupriyak09fpm@iimk.ac.in

Abstract. Though information and communication technologies (ICTs) are increasingly used in a range of governmental services in terms of e-government and smart government, many countries struggle to achieve a higher level of maturity owing to several challenges. In this study, we perceive corruption in a country is one such challenge, and take interest in understanding its impact on the growth and maturity of e-government. While the literature highlights a number of negative effects of corruption, its impact on e-government remains nearly unexplored, since most studies linking e-government and corruption have investigated the impact of e-government on corruption, but not the other way around. To address this void in the literature, we strive to provide a rich theoretical understanding of the mechanisms pertaining to the impact of corruption on e-government maturity. Adopting an institutional perspective to conceptualize corruption, we argue that corruption in three basic national institutions (political, legal, and media institutions) in a country can impede its e-government maturity. Specifically, we develop a conceptual framework by drawing on four key theoretical perspectives, namely, the agency theory, the control theory, the theory of X-inefficiency, and the rent-seeking theory to explain the negative influence of corruption in national institutions on e-government maturity. We believe that the proposed conceptual framework will guide further research on “corruption–e-government” phenomenon by offering theoretical insights, and help practitioners and policymakers dealing with e-government projects and initiatives.

Keywords: Corruption, E-Government Maturity, Institutions, Agency Theory, Control Theory, Theory of X-Inefficiency, Rent-Seeking Theory, Conceptual Framework.

1 Introduction

The use of information and communication technologies in all facets of governmental operations and services (e-government) has evolved in the last decade to enable more

*Both the authors contributed equally to the paper.

effective and transparent interactions between government and citizens (G2C), government and businesses (G2B), and among government entities (G2G) [22, 45]. Most recently, the trend appears to be shifting towards embracing smart government that seeks to leverage smart technologies and promote innovation in order to improve stakeholder participation and collaboration, government decision making, and overall governmental services and operations [50]. However, to provide the desired values, governments have to secure a higher level of online presence or e-government maturity for offering technology-enabled ways for the citizens to readily access various services and be engaged with governments [17]. E-government maturity is defined as the extent to which a government in a country has established an online presence [32, 57]. Attaining a higher level of maturity is quite challenging since it not only requires the adoption of new (smart) information technologies (IT) but also demands integration and interoperability in e-government. The current study thus focuses on understanding how e-government maturity in a country can be affected, and specifically takes interest in analyzing the impact of corruption in this context.

Corruption, defined as the misuse of entrusted power for personal or private gains [67], is one of the largest societal concerns that puts citizens in a continuous misery [31, 52]. The Transparency International [64] report notes that over two-thirds of the 176 nations surveyed scored less than 50, on a scale of 0 (highly corrupt) to 100 (very clean), indicating a severe corruption problem. Corruption in a country can disrupt its economy [42] by creating an environment of uncertainty [11], reducing investment incentives, and curbing the flow of foreign direct investment [18, 51]. Similarly, corruption in a country can be thought to affect its e-government initiatives by complicating regulations, manipulating information technology market, and actuating inefficiency in public workforce. However, theoretical underpinning explaining such predictions is quite sparse in the literature. Some studies though mention that corruption may be pivotal in affecting e-government growth and maturity [20, 27, 57], the mechanisms explaining the phenomenon are not theoretically driven [74]. This essentially incentivizes us to investigate the impact of corruption on e-government.

Corruption has gained increasing attention amongst e-government researchers of late. Broadly, two streams of research are evident that explore the linkage between corruption and e-government: (1) studies examining the impact of e-government on corruption; and (2) studies acknowledging the influence of corruption on e-government. While the first stream of research contains mixed arguments, in which, one group of studies considers e-government as an effective instrument to mitigate corruption [9, 59, 72] and another group questions its validity in reality [28, 71], this stream is reasonably well-developed as a vast amount of research falls into it. In contrast, the second stream is found to be under-developed owing to the lack of theoretical reasoning and guidance, and contains a handful of descriptive studies and anecdotes except a study by Aladwani [1]. The current study strives to address this void by contributing to this stream of research by developing an understanding of how corruption in a nation can affect its desired level of e-government maturity.

We intend to account for variation in the level of corruption across countries, and hence in line with Srivastava et al. [59], we adopt an institutional perspective to develop a more comprehensive understanding. Accordingly, we conceptualize corrup-

tion in a nation as comprising corruption in three basic national institutions—political, legal, and media institutions, and refer them as political-based, legal-based, and media-based corruption. As noted earlier, corruption is a prevalent issue across countries and affects many government operations including public welfare [36]. It is therefore reasonable to expect that corruption can also impact e-government maturity in a country. This is in line with Yoon and Chae who indicated that “corruption actually lowers the effectiveness of national e-strategy and its implementation” [73, p. 34]. Recently Aladwani [1] also reasoned that corruption could be a source of e-government failure in developing countries. Thus, acknowledging the potential impact of corruption on e-government, the key research question (RQ) that this study aims to address is:

***RQ:** How does corruption in national institutions of a country affect its e-government maturity?*

To address the above question, we propose a conceptual framework by drawing on four key theoretical perspectives: (1) the agency theory; (2) the control theory; (3) the theory of X-inefficiency; and (4) the rent-seeking theory. Specifically, the proposed framework offers rich theoretical explanations pertaining to the negative effect of corruption in national institutions on e-government maturity. We draw on the agency theory that is substantially established in the literature on corruption and information systems (IS) [59]. However, the agency problem is often identified with the lack of control by the principal [35] and control mechanisms are required for improving performance of IS projects including e-government projects; accordingly, we draw on the control theory perspective. As these two theories are more relevant under the assumption of benevolent principal, they may not be applicable for principals with non-benevolent goals [35-36]. Hence, we use two other theories—the theory of X-inefficiency and the rent-seeking theory. Thus, in an effort to explain the “corruption–e-government” phenomenon, we develop a conceptual framework by incorporating various theoretical perspectives that are relevant and complement each other [74]. We consider that this theoretical development is necessary to make researchers, practitioners, and policymakers vigilant of the adverse impact of corruption in the context of e-government. While the trend is to make progress towards smart government and smart cities, the study indicates the potential obstruction by corruption. Further, we believe that the study will enrich our insights and encourage further scientific investigations in future.

2 Literature Review

2.1 Existing Views on E-government Maturity

E-government is defined as “the use of information and communication technologies (ICTs) and the Internet to enhance the access to and delivery of all facets of government services and operations for the benefit of citizens, businesses, employees, and other stakeholders” [60, p. 100]. While a number of performance parameters exist to evaluate the progress of e-government, we focus on e-government maturity as it is a pre-condition for the success of smart government [17]. E-government maturity refers to the extent to which a government in a country has established an online presence.

This definition entails an evolutionary approach of conceptualizing e-government maturity [2, 37], according to which, e-government proceeds through a series of stages characterized by the level of complexity and the level of online activity [10].

E-government and more specifically, smart government are expected to deliver a number of benefits ranging from improvement in governmental service delivery, accountability, transparency to collaboration and integration of processes, systems and entities. Acknowledging this, a huge amount of resources is being invested to foster its growth and maturity [33]. Despite such efforts, many countries fall short of securing these benefits since the progress of e-government maturity remains uneven across countries [68]. Further, there are constant challenges pertaining to implementation, administration, and management of e-government projects, due to which the e-government projects sometimes confront with failure in many countries [4]. A recent global study by United Nations [69], for example, mentions about the difficulty involved in attaining integration between various government institutions. And, without achieving such integration and interoperability, initiatives such as smart government may not be successful. Therefore, it remains challenging for governments across most countries to achieve the growth in e-government maturity. Motivated by this, a number of studies have identified factors, such as gross domestic product (GDP), ICT infrastructure, human capital, governance, and trust, which could influence e-government development and maturity of a country [5, 33, 57-58]. While these are important determinants of e-government maturity, a key factor that is constantly overlooked in the literature but gaining relevance is corruption. Recently, Aladwani [1] discussed the impact of corruption in terms of e-government failure arguing that corruption misuses the resources dedicated to e-government, and called for a rigorous understanding of the issue. This study responds to that call by extending and enriching the linkages between corruption and e-government.

2.2 Existing Views on Corruption

Being a nebulous concept, corruption bears many definitions. The widely cited definition is that it is the misuse of entrusted power for personal or private gains [44, 67]. Corruption thus is a broad term and takes myriad forms, such as bribery, extortion, embezzlement, favoritism, nepotism, abuse of discretion, exploitation of conflicting interests, and improper political contributions [1, 70]. The literature attributes various political, economic, cultural, judicial, and individual reasons to corruption [12, 30, 44, 49, 55, 65]. However, there exist mixed perceptions regarding its consequences. First, some researchers [7, 24, 38] believe that corruption produces positive outcomes and aids the economy, especially under the circumstances of undue bureaucracy, complex regulation, or market restrictions. Second, as opposed to the first view, many scholars [48, 51] argue in favor of the adverse impacts of corruption and perceive that corruption increases transaction cost, consumes economic resources, complicates policies and regulations, reduces investment incentives, and hampers economic growth.

While economists largely adopt the second view and consider corruption as ‘sand’ in the gears of the economy, political scientists, for many years, have mostly considered it as the ‘grease’ [51]. However, most recent studies follow the second view as

these studies are primarily influenced by the spread of democracy in the Third World, and corruption is viewed as dysfunctional under democracy [51]. Hence, consistent with these studies, we aim extending the arguments concerning the negative effects of corruption on e-government maturity as corruption can curb the operational efficiency, accountability, and morality standards of public officials, and it can be detrimental to the administrative systems supervising e-government projects and initiatives [1].

As noted earlier, we draw on the institutional theory to conceptualize corruption since our objective is to account for variation in the level of corruption across countries. Moreover, most economic and psychological theories capture corruption at the individual level and therefore may fall short of explaining the differing levels of corruption across countries [59]. Hence, we identify three basic national institutions—political, legal, and media institutions that are considered as the major pillars under which all operations and activities of a nation are performed [59]. While political institutions largely encompass the political parties and the parliament or legislature in a country, legal institutions involve mostly the legal system or judiciary as well as the police system. In essence, by grounding the discussion on the institutional perspective for construing corruption, this study aims to explore the relationships of corruption in three basic national institutions with e-government maturity.

2.3 Linking Corruption with E-Government Maturity

The literature linking e-government and corruption mostly establishes two streams of research. Within the first stream, a number of studies view that ICTs (e-government) can reduce corruption by promoting transparency and accountability in government functions [9, 59, 72]. However, some scholars raise concerns if e-government can effectively mitigate corruption in reality [28, 71], as sometimes ICTs can create opportunities for corruption [19] by enabling opportunity for overinvestment in e-government. Though this stream contains mixed arguments about the impact of e-government on corruption, it is substantially developed, as evidenced from Table 1, which provides a summary of the key extant studies. In contrast, the second stream deals with the impact of corruption on e-government and remains mostly unexplored owing to the lack of theoretical development. To address this void, we focus on the second stream and argue that corruption in three national institutions would hinder the progress of e-government because corruption is “an evolutionary hazard, a strategic impediment [...], and an organizational deficiency” [40, p. 405].

Table 1. Key studies on the impact of e-government on corruption

Authors	Objectives	Key findings
Andersen [3]	Econometric modeling of secondary data	Corruption was significantly reduced in non-OECD countries during the decade 1996-2006 through the use of e-government
Elbahnasawy [14]	Panel analysis of secondary data for 160 countries for a period of 1995-2009	Corruption was reduced by e-government that facilitated telecom infrastructure and online services

Garcia-Murillo [16]	Econometric modeling of secondary data for 208 countries during 2002-2005, and 2008	The perceptions of corruption were reduced because of governments' web presence
Kim et al. [28]	Case study analyzing an e-government system for anti-corruption in Seoul metropolitan government	The regulation could be most important parameter in curbing corruption. Strong leadership was also necessary.
Krishnan et al. [32]	Cross-sectional analysis of archival data for 105 countries for a period of 2004-2008	E-government maturity is negatively related to corruption, which in turn affects economic prosperity and environmental degradation
Mistry [46]	Case study analyzing e-governance initiatives in India	Corruption could be mitigated through initiatives enabling transparency and accountability
Shim and Eom [54]	Statistical analysis of data for 77 countries	E-government could be useful as anti-corruption tool because it had consistent positive impact on reduction of corruption
Singh et al. [56]	Survey of 918 respondents in India, Ethiopia, and Fiji	E-governance has a positive impact on the government-citizen relationship and reducing corruption
Srivastava et al. [59]	Panel analysis of secondary data for 63 countries during 2004-2007	E-government could be helpful in alleviating corruption in some national institutions and stakeholder service systems

To conceptualize the negative effect of corruption on e-government maturity, we draw on four key theoretical perspectives that are grounded in corruption and IS project management literature (see, Fig. 1). First, we draw on the agency theory (also known as the principal-agent-client model), which is predominantly used in corruption as well as IS literature [30, 59]. This theory, as depicted in the disciplines of economics and political science, identifies governments as principals, who are characterized by limited control and power over agents' activities. Second, acknowledging the requirement of proper control mechanisms in IS projects to avert poor process performance and subsequent failure [26], we draw on the control theory perspective and argue that e-government projects and initiatives could fail if principals are unable to exercise adequate control over agents. These two theoretical perspectives usually hold the assumption that principals are striving for benevolent goals, which may not be quite true when there is a competition for the principal's position [35] as such competition can put their benevolent character into question. Moreover, the agency theory assumes that the benevolent principal has total control over the legal framework [36], which may not be the case in societies in which corruption can manifest in any public institution. Accordingly, it becomes less convincing to believe that those who control the legal framework and several governmental operations stay immune to corruption [36]. The application of the agency theory to corruption thus appears to be somewhat narrow and limited in case of large-scale corruption. Hence, to complement the agency theory's arguments in this context, we draw on two other theories—the theory of X-inefficiency and the rent-seeking theory. These two theories indicate that principals

with non-benevolent goals may lack commitment to serve public interests, and may be involved in evoking X-inefficiency among agents and/or creating economic rents.

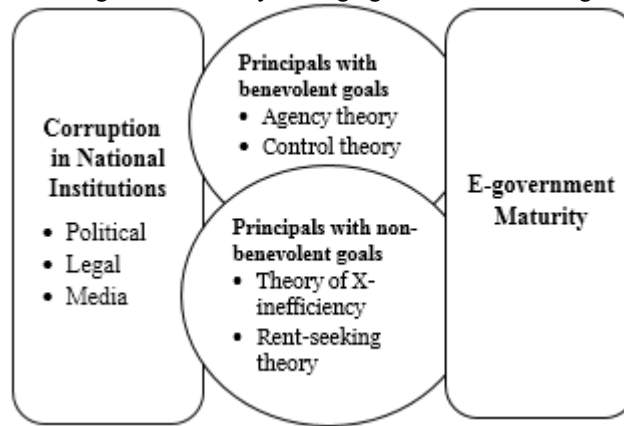


Fig. 1. Key theoretical perspectives used in this study

Agency Theory. The agency theory was initially developed to draw the relationship between private contractual parties—owners and managers, and eventually many researchers established its relevance in the context of corruption [25, 30, 48, 59]. This theory primarily underlines the role of three stakeholders—the principal, the agent, and the client, in which, the principal is usually considered as the honest government, the agents are public officials who have vested self-interest and offer services (e.g., licenses and contracts) to the clients (citizens and businesses) [30]. As per the theory, a conflict of interest arises between the principal and the agent, which further creates the agency problem [13]. While these two actors wish to maximize their own utility, the principal is said to be insufficiently skilled or have time constraints due to which tasks are delegated to the agent [35], who thus earns an informational advantage, tends to circumvent the control of principals, and works in his own self-interest. While there is some dissonance in the literature whether the self-seeking behavior of the agents can be termed as corruption or not, many scholars consider it appropriate in case of large-scale embezzlement and bribery [35]. The role of the client is also important in the agency theory as the client increases the opportunity for the agent to deceive the principal by colluding with the agent for obtaining various services (e.g., licenses and contracts). Prior studies have demonstrated the relevance of the agency theory in the context of corruption and suggested that as a result of corruption, under-qualified firms are granted contracts, inappropriate projects are given priority, inefficient technologies are applied, ineffectual policies are implemented, and poor administrative decisions are made [6, 30, 48-49, 55]. In line with the extant studies, we strive to extend these adverse impacts of corruption to the context of e-government.

Control Theory. The literature on IS project management suggests that poor process performance and management of IT projects can be effectively addressed by exercis-

ing formal and/or informal control [21, 29, 61]. Formal control comprises (a) behavior control, which is about prescribing steps and procedures of a task by the controller [29]; and (b) outcome control, which is about defining the targets to be achieved by the controlees [26]. Formal control is also about evaluating performance of the controlees—whether the appropriate steps are followed and the targets are attained [21, 29]. In contrast, informal control deals with interpersonal aspects and self-control behavior, and comprises clan and self-control. In clan control, the members of a group identify themselves with same values and work toward achieving group goals [29], whereas in self-control, a person sets his own goals, monitors it, and recognizes his efforts accordingly [21]. In line with these extant arguments, we contend that the maturity and subsequent success of e-government are contingent upon how effectively the projects and initiatives are managed by exerting proper control. Thus, if the principal fails to exercise adequate control over agents' corrupt practices and actions, the e-government maturity level could be at a disadvantage. In this study, we draw on the formal control perspective since the informal control perspective hardly refers to the involvement of controlee (as described in self-control), which makes the principal-agent relationship little relevant to the context of informal control mechanism.

Theory of X-Inefficiency. According to the theory of X-inefficiency, inefficiency could be an outcome of workers' lack of effort and motivation. This theory was initially used by Leibenstein [39] to explain efficiency losses due to minimal competition in private good markets. He argued that in a competitive environment, inefficient firms would be under pressure because the market tends to select those firms that are efficient in utilizing the factor inputs and transforming them to desired outputs. On the other hand, monopolistic firms usually do not face such pressure from market and may not pressurize the workforce to put effort and to work with efficiency. Similar situation can arise in public institutions as well. That is, when there is minimal competition for the principal's position, the principal may not be motivated enough to put effort and monitor the agents' actions. Being aware of such situation, the agents would have almost no fear of losing jobs and could become motivated towards collective nonperformance [35]. While the principal is expected to rein the agents from exerting their self-interest, he may not be inclined to do so, thereby providing powerful agents more leeway to quench their self-interest. Further, in situations where there exists competition for the principal's position, a principal having corrupt agents as his resources will be at an advantage as he gets the necessary political support from these agents [35]. Hence, the principal may not be willing to stop the agents from exerting their self-interest, rather he would allow some X-inefficiency among them. The agents therefore would continue to act towards fulfilling their self-enrichment. Taken together, we argue that the principal may not be able to motivate agents to serve the public and protect their interests, and this lack of effort and motivation would result in efficiency losses in public institutions running various e-government projects and initiatives, thereby hampering the overall e-government maturity in a country.

Rent-seeking Theory. Corruption is considered as a type of rent-seeking activity in which public officials are often engaged in bending their decision upon receiving bribes. This theory encompasses various forms of seeking preferential treatment or privileged benefits from public decision-makers [36]. To benefit from such treatments, private parties compete against each other by offering bribes. The literature notes at least two views regarding the role of the government or the politician [36]. As per the traditional rent-seeking approach, politicians themselves do not seek rents or impose restrictions, rather they are pushed and lobbied into such actions by private firms [43]. Criticizing this, the other viewpoint suggests that corrupt politicians have their own incentive (e.g., financial gain); hence they need not be impelled by the private sector for imposing restrictions [23, 43]. Corruption rather influences politicians and public officials to levy restrictions so as to extort donations from the private sector; corruption thus actuates the creation of rents [36]. In this study, we concord on the traditional view of rent-seeking by considering corruption as a form of preferential treatment by public decision-makers, and also acknowledge the criticism regarding the corrupt role of politicians. We contend that public rent-seeking officials may impose restrictions, due to which the e-government project contract can be granted to an IT firm which offers a large amount of bribe without judging the firm's ability to render an effective e-government solution, thereby impeding e-government maturity. In the next section, we provide insights of the phenomenon based on these theories.

3 Relating Corruption in National Institutions to E-Government Maturity

3.1 Relating Political-Based Corruption to E-Government Maturity

The agency theory centers upon the perspective of self-interest seeking individuals in the principal-agent-client model [30], in which, the principal is the politician or the public servant (the government) in charge of the agents (other public officials) responsible for the e-government development and its service delivery to the clients (citizens and businesses). The theory indicates that the agents work in their self-interest as the principal cannot effectively monitor the agents' work of online public service development and delivery due to the information asymmetry between them. Thus, when corruption manifests in political institutions, the agents have discretion in administering e-government projects and initiatives without sufficient accountability [41, 46]. Thus, we propose that:

Proposition 1a. *Political-based corruption in a country impedes its e-government maturity when there is information asymmetry between the principal and the agent.*

Further, to benefit from the agents' political support, the principal would allow X-inefficiency and bureaucratic slackness among them in the political institutions [35], leading to efficiency losses which can adversely impact e-government growth and maturity. For example, the agents may lack motivation to put effort towards completion of e-government projects on time and within budget to satisfy their self-enrichment. They may also be involved in bribery that would not only affect innova-

tion in e-government projects but also distort their decisions in various aspects of e-government development such as adopting suitable technologies, picking an IT firm, assigning the e-government project contract, and evaluating the features to be implemented on e-government platforms. Hence, we propose that:

Proposition P1b. *Political-based corruption in a country hampers its e-government maturity when the principal allows X-inefficiency among the agents.*

To minimize the negative effects of political-based corruption on e-government maturity, the control theory perspective suggests that the corrupt self-seeking agents require to be controlled. We assume that the principal serves as the controller of the e-government projects and initiatives, and he must exert adequate formal control mechanisms over the agents, the controlees of such projects, to improve the process performance of the projects. The agents are expected to accomplish the goals and objectives of e-government projects, and complete the targets within the scheduled time and budgeted cost. However, in a corrupt environment, the principal would fail to effectively exercise adequate formal control mechanisms over the agents' corrupt dealings as his role features limited control and power [35]. Moreover, when corruption permeates political institutions, the agents will become more powerful while principals are likely to struggle to retain their control, because politicians face competition from opposition parties and they are largely dependent on the political support of their agents to insure their own survival [35]. Further, as there can be multiple principals (owing to the division of power), the corrupt agents are more likely to occupy a strong bargaining position in favoring one principal over the other. As a result, e-government maturity in a country is likely to get hampered. So, we posit that:

Proposition P1c. *Political-based corruption in a country prevents its e-government maturity when the principal fails to exercise the formal control over the agents.*

Further, the rent-seeking theory indicates that due to corruption in political institutions, the principal may engage in imposing regulations that create artificial rents and invoke competition among private companies. The rents are useful to influence policies and rules to one's own advantage [36]. Due to the rent-seeking behaviors, an over-priced e-government contract may be awarded to an inferior IT company, which can subvert the overall development and quality of the e-government channels. Further, due to nepotism and favoritism (known as less competitive forms of rent-seeking behaviors [34, 66]) by the principal and the agents, underqualified and incompetent technical staff and administrators may be appointed to deal with the implementation and delivery of e-government services to the other stakeholders [1]. These staff might not be capable enough to understand user requirements, design appropriate features on e-government websites, and respond to user concerns; and their poor performance could eventually harm the maturity of e-government in a country. Thus, we posit that:

Proposition P1d. *Political-based corruption in a country impedes its e-government maturity when the principal and the agents engage in rent-seeking behaviors.*

3.2 Relating Legal-Based Corruption to E-Government Maturity

Corruption "could cast its dark shadows" on the legal institutions and "the prevalence of such kind of corruption has always far reaching effects on all governmental con-

texts including that of e-government's" [1, p. 109]. To elaborate, one of the major purposes of implementing e-government initiatives in a country is to better transparency and accountability in public institutions including the legal systems, therefore it would be difficult for the judiciary and the police personnel to derive personal gains from their corrupt dealings. In other words, as it would be hard for them to break ethical codes in a transparent and accountable legal environment of a country, corrupt judicial and police officials would be motivated to hamper its e-government development and circumvent its control [1]. According to the rent-seeking theory, corrupt judicial officials and the police, to benefit from economic rents, might work directly or indirectly by helping the principal and/or the agents, who have dominating societal powers. For example, in the context of offering an e-government project contract to a firm, while doing their background verification, the police in consultation with the principal and/or the agents, might demand a bribe to reduce the competition among the potential firms competing for the project contract [35]. In a similar vein, the corrupt judiciary might also favor the firm offering the largest bribe. That is, in exchange for successful verification, corrupt police officials and judiciary might create rents and hassle competing firms for bribe. As a result of such corrupt dealings among them, an ineffective firm might be chosen for awarding the e-government project contract, thereby hindering its overall maturity. Thus, we propose that:

***Proposition P2.** Legal-based corruption in a country impedes its e-government maturity when the judiciary and the police engage in rent-seeking behaviors.*

3.3 Relating Media-Based Corruption to E-Government Maturity

The media can make corrupt governmental activities more prominent, except when the media itself encourages corrupt practicing. The ownership of media companies can be considered as a crucial factor in determining the effect of corruption in these institutions on the e-government. The coverage by state-owned media than private media is often considered to favor the government. For instance, in Kenya, the reporting of the state-controlled Kenya Broadcasting Corporation (KBC) is said to privilege its government [15]. Even as compared to private media, the state-owned media is found to be less effective in monitoring governments [62], thereby creating opportunities for the government officials to engage in the rent-seeking behavior. In other words, according to the rent-seeking theory, the government and its agents would be better off if they could exert rent-seeking behaviors in various aspects including e-government projects and initiatives; and, when the media is state-run, the government agents could exercise strong influence on it [53] in such a way that the rent-seeking and corrupt behaviors pertaining to the e-government projects are suppressed and high profile cases are stifled. As the journalists, editors and media houses are bribed for not publishing unfavorable reports [47], it is more likely that the violation of regulatory requirements in the e-government project can go unreported, which not only undermines the neutrality of the reporting but also hinders the overall growth and maturity of e-government in a country. Adding to this, as privately owned media companies may be beholden to certain political leaders, public figures and individuals having dominating power [8], it is more likely that they might prefer promoting their image

and views, rather than providing awareness to the citizens in terms of e-government development and services. So, we posit that:

Proposition P3. *Media-based corruption in a country degrades its e-government maturity when it creates opportunities for the principal and the agents to engage in rent-seeking behaviors.*

In sum, we propose a conceptual framework, as shown in Fig. 2 that depicts how corruption in each of the three national institutions hinders e-government maturity.

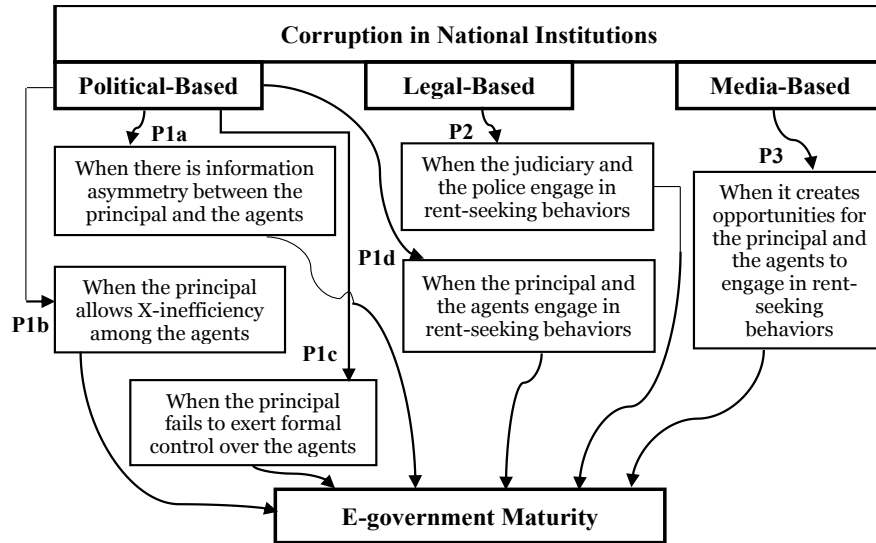


Fig. 2. Conceptual framework

4 Discussion

A recent global study on e-government by United Nations [69] indicates that though almost all countries have been able to establish an online presence, most of them have not achieved the desired maturity level. As a higher level of maturity is necessary to further technology-enabled initiatives such as smart government and smart city, it becomes imperative to understand the challenges and how they affect e-government. Our study thus analyses an important societal concern, corruption, and its impact on e-government maturity. Specifically, this study provides theoretical insights on the mechanisms concerning the adverse impact of corruption by construing corruption using institutional theory and drawing on four theoretical perspectives—the agency theory, the control theory, the theory of X-inefficiency, and the rent-seeking theory.

This study contributes to e-government research in several ways. First, while most extant studies analyzed the conventional relationship in terms of the impact of e-government on corruption, the current study views the relationship between these two in the other way (i.e., the impact of corruption on e-government), which remains nearly under-explored in the literature. Second, drawing on the aforesaid four key theoretical perspectives, this study provides an initial foundation offering rich theoretical

explanations concerning the relationships of political-, legal-, and media-based corruption in a country with its e-government maturity. Third, guided by the institutional theory to construe corruption, the study not only depicts an understanding of the relationships of each of the three national institutions in a country with its e-government maturity but also takes into account the variation in the level of corruption across countries. With reference to practical implications, this study cautions policymakers about the aspects of corruption that are yet not contained and can hinder the progress and success of e-government and smart government initiatives in a country. Second, the theoretical reasoning presented in this study facilitates the understanding of the mechanisms through which corruption in a country can affect its e-government maturity. Specifically, our conceptual framework serves as a guide for the policymakers to enhance the maturity levels by managing corruption in each of the three national institutions, under which most government activities are run. For example, they can make policies to contain corruption in political institutions and appoint impartial and skilled professionals in the administration and management of e-government projects.

The study has a few limitations that are worthy of further research. First, though we ground our study on three national institutions, corruption can permeate many other institutions and stakeholder service systems [59, 63], which in turn can adversely affect e-government maturity. Future research may consider studying corruption in other institutions such as religious bodies, non-governmental organizations (NGOs), and business and citizen service systems to extend our framework and establish a more comprehensive understanding. Second, while we conceptualize corruption using an institutional perspective, future research can perceive corruption as a cultural variant and theorize the phenomenon accordingly. Third, though we restrict our investigation to the negative aspects of corruption, future research may look into its positive impacts as well. Despite these limitations, the current study is one among the first few studies providing theoretical insights into the negative influence of corruption in national institutions of a country on its e-government maturity. We believe that this theoretical understanding will encourage further investigations on the subject.

5 Conclusion

In conclusion, corruption has numerous adverse effects; despite that, we know considerably little about the potential impact of corruption on e-government maturity. Such understanding is essential if governments across nations are willing to make further advancements by developing smart government and smart city. As an initial step towards providing important insights into the phenomenon, the current study theorizes how corruption in political, legal, and media institutions of a country can hinder its e-government maturity, and develops a conceptual framework by taking an institutional perspective to construe corruption and drawing on the four key theoretical perspectives. The study hence contributes to e-government research and practice by theoretically explaining a potential but under-explored linkage between corruption and e-government maturity, and guiding policymakers to achieve a higher level of e-government maturity by managing corruption within each of the institutions.

References

1. Aladwani, A. M.: Corruption as a source of e-government projects failure in developing countries: A theoretical exposition. *International Journal of Information Management* 36(1), 105–112 (2016).
2. Andersen, K. V., Henriksen, H. Z.: E-Government maturity models: Extension of the Layne and Lee model. *Government Information Quarterly* 23(2), 236–248 (2006).
3. Andersen, T. B.: E-government as an anti-corruption strategy. *Information Economics & Policy* 21(3), 201–210 (2009).
4. Anthopoulos, L., Reddick, C. G., Giannakidou, I., Mavridis, N.: Why e-government projects fail? An analysis of the healthcare.gov website. *Government Information Quarterly* 33(1), 161–173 (2016).
5. Azad, B., Faraj, S., Goh, J., Feghali, T.: What shapes global diffusion of government: Comparing the influence of national governance institutions. *Journal of Global Information Management* 18(2), 85–104 (2010).
6. Bardhan, P.: Corruption and development: A review of issues. *Journal of Economic Literature* 35(3), 1320–1346 (1997).
7. Bayley, D.: The effects of corruption in a developing nation. *Western Political Quarterly* 19(4), 719–732 (1967).
8. Centre for International Media Ethics, Media Ethics Survey, www.cimethics.org, last accessed 2018/01/20.
9. Cho, Y. H., Choi, B.: E-government to combat corruption: The case of Seoul metropolitan government. *International Journal of Public Administration* 27(10), 719–735 (2004).
10. Das, A., Singh, H., Joseph, D.: A longitudinal study of e-government maturity. *Information & Management* 54(4), 415–426 (2017).
11. Dawes, S. S.: Stewardship and usefulness: Policy principles for information-based transparency. *Government Information Quarterly* 27(4), 377–383 (2010).
12. Doig, A., Theobald, R.: Corruption and democratization. Frank Cass, London, UK (2000).
13. Eisenhardt, K. M.: Agency theory: An assessment and review. *The Academy of Management Review* 14(1), 57–74 (1989).
14. Elbahnasawy, N. G.: E-government, internet adoption, and corruption: An empirical investigation. *World Development* 57(C), 114–126 (2014).
15. Freedom House, Freedom of the Press 2012, <https://freedomhouse.org/report/freedom-press/freedom-press-2012>, last accessed 2018/01/06.
16. Garcia-Murillo, M.: Does a government web presence reduce perceptions of corruption? *Information Technology for Development* 19(2), 151–175 (2013).
17. Gartner, Smart Government Key Initiative Overview, <https://www.gartner.com/doc/2520516/smart-government-key-initiative-overview>, last accessed 2018/02/06.
18. Habib, M., Zurawicki, L.: Corruption and foreign direct investment. *Journal of International Business Studies* 33(2), 291–307 (2002).
19. Heeks, R.: Information technology and public sector corruption. *Information Systems for Public Sector Management Working Paper No. 4*. Institute for Development Policy and Management, Manchester, CO (1998).
20. Heeks, R.: Information technology and the management of corruption. *Development in Practice* 9(1/2), 184–189 (1999).
21. Henderson, J., Lee, S.: Managing I/S design teams: A control theories perspective. *Management Science* 38(6), 757–777 (1992).

22. Hamza, H., Sehl, M., Egide, K., Diane, P.: A Conceptual Model for G2G Relationships. In: Janssen, M., Scholl, H.J., Wimmer, M.A., Tan, Y. (eds) *Electronic Government. EGOV 2011, LNCS*, vol. 6846, pp. 285-295. Springer, Berlin, Heidelberg (2011).
23. Hirshleifer, J.: Toward a more general theory of regulation: Comment. *Journal of Law and Economics* 19(2), 241–244 (1976).
24. Huntington, S. P.: *Political Order in Changing Societies*. Yale University Press, New Haven (1968).
25. Jain, A. K.: Models of corruption. In: Jain, A.K. (ed.), *Economics of corruption*, pp. 13–34. Springer, Boston, MA (1998).
26. Keil, M., Rai, A., Liu, S.: How user risk and requirements risk moderate the effects of formal and informal control on the process performance of IT projects. *European Journal of Information Systems* 22(6), 650–672 (2013).
27. Kim, C.: Anti-corruption initiatives and e-government: A cross-national study. *Public Organization Review* 14(3), 385–396 (2014).
28. Kim, S., Kim, H. J., Lee, H.: An institutional analysis of an e-government system for anti-corruption: The case of OPEN. *Government Information Quarterly* 26(1), 42–50 (2009).
29. Kirsch, L.: Portfolios of control modes and IS project management. *Information Systems Research* 8(3), 215–239 (1997).
30. Klitgaard, R.: *Controlling Corruption*. University of California Press, Berkeley (1988).
31. Kock, N., Gaskins, L.: The mediating role of voice and accountability in the relationship between internet diffusion and government corruption in Latin America and Sub-Saharan Africa. *Information Technology for Development* 20(1), 23–43 (2014).
32. Krishnan, S., Teo, T. S., Lim, V. K.: Examining the relationships among e-government maturity, corruption, economic prosperity and environmental degradation: A cross-country analysis. *Information & Management* 50(8), 638–649 (2013).
33. Krishnan, S., Teo, T. S., Lymm, J.: Determinants of electronic participation and electronic government maturity: Insights from cross-country data. *International Journal of Information Management* 37(4), 297–312 (2017).
34. Krueger, A.: The political economy of the rent seeking society. *American Economic Review* 64(3), 291–303 (1974).
35. Lambsdorff, J. G.: How corruption in government affects public welfare: A review of theory. Discussion Paper (No. 9), Center for Globalization and Europeanization of the Economy (2001).
36. Lambsdorff, J. G.: Corruption and rent-seeking. *Public Choice* 113(1/2), 97–125 (2002).
37. Layne, K., Lee, J. W.: Developing fully functional e-government: A four stage model. *Government Information Quarterly* 18(2), 122–136 (2001).
38. Leff, N.: Economic development through bureaucratic corruption. *American Behavioral Scientist* 8(3), 8–14 (1964).
39. Leibenstein, H.: Allocative efficiency vs. "x-efficiency". *The American Economic Review* 56(3), 392–415 (1966).
40. Luo, Y.: Corruption and organization in Asian management systems. *Asia Pacific Journal of Management* 19(3), 405–422 (2002).
41. Mahmood, M. A., Bagchi, K., Ford, T. C.: On-line shopping behavior: Cross-country empirical research. *International Journal of Electronic Commerce* 9(1), 9–30 (2004).
42. Mauro, P.: Corruption and growth. *Quarterly Journal of Economics* 110(3), 681–712 (1995).
43. McChesney, F. S.: Rent extraction and rent creation in the economic theory of regulation. *Journal of Legal Studies* 16(1), 101–118 (1987).
44. McMullen, M.: A theory of corruption. *The Sociological Review* 9(2), 181–200 (1961).

45. Mellouli, S., Bousalam, F.: Multi-agent based framework for e-government. *Electronic Government: An International Journal* 6(2), 177–192 (2009).
46. Mistry, J. J.: The role of eGovernance in mitigating corruption. *Accounting & the Public Interest* 12(1), 137–159 (2012).
47. Ristow, B.: Cash for coverage: Bribery of journalists around the world. <https://www.cima.ned.org/resource/cash-for-coverage-bribery-of-journalists-around-the-world/>, last accessed 2018/01/12.
48. Rose-Ackerman, S.: *Corruption - A study in political economy*. Academic Press, New Haven (1978).
49. Rose-Ackerman, S.: *Corruption and government: Causes, consequences, and reform*. Cambridge University Press, Cambridge, UK (1999).
50. Scholl, H. J., Scholl, M. C.: Smart governance: A roadmap for research and practice. In: *iConference 2014 Proceedings*, pp. 163-176. iSchools, Berlin (2014).
51. Seligson, M. A.: The impact of corruption on regime legitimacy: A comparative study of four Latin American countries. *The Journal of Politics* 64(2), 408–433 (2002).
52. Senior, I.: Corruption, the government and the private sector: Why it matters and what can be done. *Economic Affairs* 24(2), 22–29 (2004).
53. Servaes, J.: Communication policies, good governance and development journalism. *Communicatio: South African journal for communication theory and research* 35(1), 50–80 (2009).
54. Shim, D. C., Eom, T. H.: E-government and anti-corruption: Empirical analysis of international data. *International Journal of Public Administration* 31(3), 298–316 (2008).
55. Shleifer, A., Vishny, R. W.: Corruption. *The Quarterly Journal of Economics* 108(3), 599–617 (1993).
56. Singh, G., Pathak, R. D., Naz, R., Belwal, R.: E-governance for improved public sector service delivery in India, Ethiopia and Fiji. *International Journal of Public Sector Management* 23(3), 254–275 (2010).
57. Singh, H., Das, A., Joseph, D.: Country-level determinants of e-government maturity. *Communications of the Association for Information Systems* 20, 632–648 (2007).
58. Srivastava, S. C., Teo, T. S.: What facilitates e-government development? A cross-country analysis. *Electronic Government: An International Journal* 4(4), 365–378 (2007).
59. Srivastava, S. C., Teo, T. S., Devaraj, S.: You can't bribe a computer: Dealing with the societal challenge of corruption through ICT. *MIS Quarterly* 40(2), 511–526 (2016).
60. Teo, T. S., Srivastava, S. C., Jiang, L.: Trust and electronic government success: An empirical study. *Journal of Management Information Systems* 25(3), 99–132 (2008).
61. Tiwana, A., Keil, M.: Control in internal and outsourced systems development projects. *Journal of Management Information Systems* 26(3), 9–44 (2010).
62. Transparency International: Global corruption barometer 2003, https://www.transparency.org/whatwedo/publication/gcb_2003, last accessed 2017/12/05.
63. Transparency International: Global corruption barometer 2013, <https://www.transparency.org/gcb2013/report>, last accessed 2017/12/05.
64. Transparency International: Corruption perception index 2016, https://www.transparency.org/news/feature/corruption_perceptions_index_2016, last accessed 2017/12/02.
65. Treisman, D.: The causes of corruption: A cross-national study. *Journal of Public Economics* 76(3), 399–457 (2000).
66. Tullock, G.: Efficient rent seeking. In Buchanan, J.M., Tollison, R.D., Tullock, G. (eds.), *Toward a theory of the rent-seeking society*, pp. 97–112. Texas A&M University Press, College Station (1980).

67. UNDP (United Nations Development Programme): *Tackling Corruption, Transforming Lives: Accelerating Human Development in Asia and the Pacific*. Macmillan Publishers, New Delhi (2008).
68. United Nations: *E-government for the people* (2012 report). http://www.unpan.org/egovkb/global_reports/08report.htm, last accessed 2017/11/15.
69. United Nations: *United Nations e-government survey 2016*. <http://workspace.unpan.org/sites/Internet/Documents/UNPAN97453.pdf>, last accessed 2017/11/16.
70. UNODC: *The global programme against corruption—UN anti-corruption toolkit* (2004 report). https://www.unodc.org/documents/corruption/Toolkit_ed2.pdf, last accessed 2018/01/20.
71. Wescott, C.: E-government in the Asia-Pacific region. *Asia Journal of Political Science* 9(2), 1–24 (2001).
72. Wong, W., Welch, E.: Does e-government promote accountability? A comparative analysis of website openness and government accountability. *Governance: An International Journal of Policy, Administration and Institutions* 17(2), 275–297 (2004).
73. Yoon, J., Chae, M.: Varying Criticality of Key Success Factors of National E-Strategy along the Status of Economic Development of Nations. *Government Information Quarterly* 26(1), 25–34 (2009).
74. Khan, A., Krishnan, S.: *Investigating the Impact of Corruption in National Institutions and National Stakeholder Service Systems on E-Government Maturity*. *International Journal of Information Management* (forthcoming).