



# A CONCEPTUAL FRAMEWORK OF FINANCIAL INFORMATION SYSTEMS TO REDUCE CORRUPTION

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## ABSTRACT

Financial Information Systems (FIS) is an integral part of business and is fundamental to its stability, sustainability, and growth. In recognition of the importance of FIS, various countries have started to invest massively in such a system. The World Bank has financed several projects worth billions of US dollars, which have been designed with a better focus on the quality of information to reduce the risk of fraud and improve system reliability. This paper aims to develop a conceptual framework that examines FIS effectiveness in reducing corruption in the public sector. The research approach draws on extant literature in financial information strategies, information systems quality, strategic information systems planning, and international anti-corruption strategies to identify determining factors of information quality, system quality, service quality, FIS characteristic effectiveness, and financial corruption reduction. Results of the literature review suggest 19 propositions and 5 main factors grouped into determinants, including information systems quality, information quality and service quality. Linking financial corruption reduction with anti-corruption strategy, the proposed framework adopts the anti-corruption strategy four-perspective approach to examine the impact of increasing transparency, increasing accountability, decreasing discretion, and low enforcement. FIS characteristic dimensions in this research comprise monitoring, auditability, tracking, and controlling. Originality/value: The framework provides a starting point for researchers and practitioners to further investigate the use of FIS in governance. For researchers, the framework clarifies the determining factors that can successfully enhance the quality of FIS and the impact of these systems on financial corruption reduction through proposed relationships. For practitioners, the framework can be used to gain insights into the contributing factors of information systems quality and its effectiveness in reducing corruption.

**Keywords:** *Financial Information Systems, System Quality, Information Quality, Service Quality, FIS Characteristic, Corruption Reduction.*

## 1. INTRODUCTION

In recent years, corruption has become more recognizable and has become one of the most serious problems in both developed and developing countries. Financial, political, and administrative corruption exist simultaneously in almost every country. Financial Information Systems (FIS) is an integral part of business and is fundamental to its stability, sustainability, and growth. Dener, et al. [1] reported that since 1984, the World Bank has financed 87 Financial Management Information Systems (FMIS) projects in 51 countries, totaling over US \$2.2 billion. A majority of this amount was assigned for FMIS-related Information and Communications Technology (ICT) solutions. These systems were designed with a better focus

on their quality, functionality, reliability, and ability to reduce the risk of corruption [2]. An international coalition against corruption was likewise established [3], consisting mainly of financial organizations such as the World Bank, the Transparency International Organization, the International Monetary Fund (IMF), and the United States Agency for International Development (USAID) [3]. These organizations likewise spent a large amount of money to build and establish FMIS.

The aforementioned international organizations have prepared guidelines, forms, instructions, and ideals to ensure the success of FMIS projects in reforming public finance [1, 4]. The extensive literature review presents the need to use information systems as an effective tool in



fighting corruption. The literature likewise clarifies the lack of interaction between the two streams of research areas: FIS and anti-corruption. The present paper will attempt to propose a framework for harnessing FIS to reduce corruption. Recent studies, which deal with approaches to fight corruption, are focused on utilizing ICT as a means to fight corruption. Several pieces of literature likewise deal with functions of FIS that assist in reducing corruption[5].

Despite the growing importance of developing FIS in the public sector and the critical need to reduce corruption, the most extant research in these aspects are on information systems quality, utilizing ICT to reduce corruption, and FIS and its impact. Each focus appears separate from one another, but gaps exist for research that links FIS success to corruption-reduction strategies [5]. This paper investigates the said literature to conceptualize a framework for utilizing FIS in corruption reduction. The proposed framework will provide a common understanding of system implementation for researchers and practitioners. It will likewise assist practitioners during the planning, designing, and developing of financial systems by providing the needed vision to enhance the quality of this system in reducing corruption. Moreover, this framework will assist researchers by clarifying the key factors that can successfully improve the quality of FIS.

This paper has six sections. Section 1 provides the introduction and the research background. Section 2 discusses the research design. Section 3 presents the key factors that influence the utilization of FIS to reduce corruption, including the main factors and related sub factors. Section 4 discusses FIS characteristics as an impact of corruption-reduction effectiveness, as well as offers a proposition that links FIS characteristic effectiveness and corruption reduction. Section 5 presents the effectiveness of FIS characteristics and their relationship to FIS. A set of propositions and a conceptual research framework are also forwarded for further exploration. The last section concludes the paper.

## 2. RESEARCH DESIGN

According to Sekaran and Bougie (2010), a theoretical framework describes how variables, factors, or concepts are associated with one another. Sekaran (2003) stated that the theoretical framework conceptualizes how one theorizes the relationships among several factors that are identified as important to the problem. As such,

this paper intends to achieve the following vital goals:

Defining the research question is essential as a means to guide the purpose of the review. The research question is, “What are the determinants and impact of financial information systems effectiveness in corruption reduction?” The suitable approach to propose a conceptual framework for harnessing FIS in reducing corruption is an iterative design approach, which consists of three instigated techniques such as literature review, content analysis, and Web site analysis. The literature review is not only limited to academic literature, but encompasses non-academic documents as well, such as anti-corruption agreements, conventions, contracts, and reports. It likewise includes FIS global specifications, strategies, and development guidelines. The literature review provides a clear picture of the FIS that developed under the supervision and through the aid of international organizations and donors.

Based on the literature review findings, content analysis is used because it is a systematic and replicable approach for compressing documents into fewer content categories based on clear rules of coding [6]. Achieving the purpose of this paper entails identifying and analyzing the content of a range of documentation in terms of both anti-corruption and FIS, including project reports, legislation, government directives, agency and government documentation, and other available materials. Web analytics is likewise used as a tool for obtaining the necessary information about well-known financial systems and additional information on anti-corruption coalitions.

## 3. FACTORS THAT INFLUENCE FIS UTILIZATION TO REDUCE CORRUPTION

Proposing a conceptual framework for corruption reduction by harnessing FIS entails the consideration of all related factors. The quality factors of FIS, FIS characteristic factors, and corruption reduction factors were identified in this paper. A cross-section analysis was conducted to solve the lack of previous research in this context. Thus, importance was given to obtaining the common factors most effective in reducing financial corruption and to improving FIS quality in order to reduce the said corruption type. Worth mentioning in this context is the importance of presenting the main factors and sub factors, which influence the harnessing of FIS in corruption reduction.

### 3.1 Main Factors of FIS that Reduce Corruption

The main factors of FIS that reduce corruption were divided into five: system quality, information quality, system service quality, FIS characteristics, and anti-corruption. Table 1 summarizes key FIS components that were derived as main factors from past research. These components, as reviewed by numerous researchers, have a significant effect on corruption-reduction processes.

Table 1: Working Definitions of the Main factors of FIS that Reduce Corruption

Factor	Definition and the Related References
System Quality	System quality is concerned with the quality of the information systems processing itself, which includes software and data components, and is a measure of the extent to which the system is technically sound [7-17].
Information Quality	Information quality refers to the quality of output of the information system, which can be in the form of reports or online screens [8, 18, 19].
Service Quality	Service quality is defined as the degree of discrepancy between normative expectations for system service and perceptions of service performance [7, 20, 21].
FIS Characteristics	FIS characteristics refer to the main features of the system that differentiates it from others, such as the ability to monitor, control, and track transactions, as well as auditability [8-17, 22].
Corruption Reduction	Institutional anti-corruption strategies are complex tasks that prevent corruption in organizations through a variety of strategies, administrative reforms, law enforcement, and social change [12, 19, 23-25].

### 3.2 Main factors and sub factors of FIS that reduce corruption

Based on existing literature, a preliminary list of potential common factors is identified and compiled from successful models of strategies of anti-corruption, FIS development, and information systems. Reliability and factor analyses will be conducted subsequently to consolidate the groundwork list. The list includes 19 common factors that are categorized under four dimensions.

Each dimension comprises a group of factors, which is presented in Table 2 in the appendix 2.

## 4. RELATIONSHIP BETWEEN FACTORS

The multidimensional and interdependent nature of FIS quality requires careful attention to the definition and measurement of each aspect of this dependent variable. Measuring the possible interactions among these dimensions is essential to isolate the effect of various independent variables on one or more dependent dimensions [26]. This research deals with two types of variables: independent and dependent variables. This part of the paper describes the said variables to clarify the relationship among them.

### 4.1 Relationship between FIS and system quality

System quality in terms of the information processing system requires producing the output. It is concerned with the quality of the information processing system itself, which includes software and data components, and is a measure of the extent to which the system is technically sound [7]. Information systems quality is expected to have a strong impact on information systems effectiveness, which can be defined as the degree to which the information system can meet its intended purpose. With proper business/IT alignment, an effective information system is one that successfully plays a central role in the **fulfillment of strategic business goals** such as increased profitability or sustained growth [27]. System quality is considered as an independent factor and is predominantly concerned with the impact of three dimensions, namely, system accessibility, system availability, and system timeliness.

**System accessibility** focuses on accessing and securing systems and information databases. This dimension should be treated as the ability to access concrete information and as the absence of accessibility barriers to the concrete information needed [28]. The concept of accessibility explains that citizens can obtain government information widely, easily, and equitably as well as fulfill the citizen's right to know. Accessibility includes three principles. First, the channels should be widely open, numerous, and near the citizens. Second, procedures should be easy and effortless for citizens to understand. Finally, the method of providing administrative information should be official and direct [29]. The global program against

corruption emphasized that the public must have free, direct, and informal access to the ombudsman without introduction or assistance [30].

**System availability** refers to the correct technical function of the system. This factor is a vital part of system quality. It enables the system to be always accessible to the services offered by government agencies, which can help citizens have a clear idea of government agencies [31]. The availability of information through digital access can create more transparent rules, laws, and transactions, thus resulting in greater accountability [32]. The variable is a valuable indicator to determine if information on an organization is available [33]. The public should be provided with full information on past, current, and projected government fiscal activities [20]. For better or worse, information availability and accessibility

clearly play pivotal roles in determining the nature of an emerging country's political environment [34]. Availability of information on resources are received by service delivery units [15]. The availability of financial resources is essential to the entire FMIS cycle (design, implementation, evaluation, and maintenance) [4]. The increased availability of comprehensive financial information on current and past performance generally assists budgetary control and improves economic forecasting, planning, and budgeting [35]. Ensuring the availability of adequate financial resources is necessary at the start of an FMIS project [35]. Note that the general availability of public financial information is a challenge because of current difficulties to access such details, especially for external users [9].

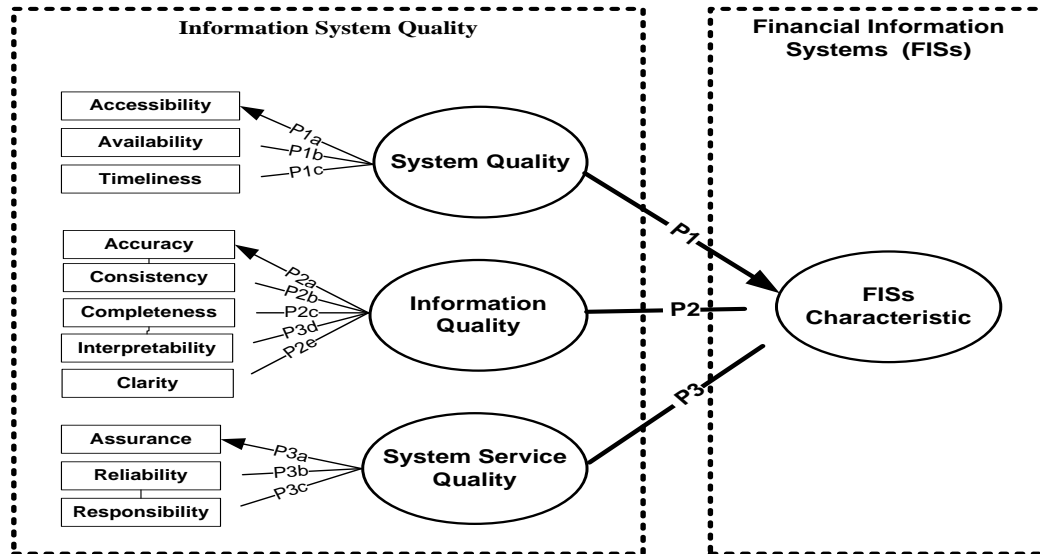


Figure 1: Relationship between FIS and System Quality

**Timeliness** refers to the extent to which data are sufficiently up-to-date for a task at hand [36, 37]. This factor has two components: age and volatility of information. Age or currency is a measure of how old the information is based on how long ago it was recorded and the average age of the data in a source. Thus, recorded value should not be outdated. Volatility is a measure of information instability, and likewise refers to the frequency of change of value for an entity attribute [38]. In this paper, timeliness is included in system quality because such factor is influenced by the hardware and software system. Timeliness is a vital player of FIS in the context of reducing corruption. The information producer addresses both the accuracy and timeliness of financial information as

important aspects of FIS [36]. Timeliness of audit reports increases the effectiveness of parliamentary oversight. Timeliness is a main player in the regularity of accounts reconciliation, in-year budget reports, and quality of annual financial statements, which are important parts of public expenditure and financial accountability performance indicators used in active FMIS projects [15, 39].

The relationship between FIS and system quality can be conceptualized in Figure 1, which presents a part of our proposed framework. Based on the aforesaid factors, linking practice with strategy, the framework proposed here adopts the balance of system quality in FIS. The main



proposal and three sub-proposals were suggested and formulated as follows:

**P1: A significant interrelationship exists among system quality factors (accessibility, availability, and timeliness) in financial information systems.**

*PIa: Accessibility is positively and significantly associated with system quality.*

*PIb: Availability is positively and significantly associated with system quality.*

*PIc: Timeliness is positively and significantly associated with system quality.*

#### 4.2 Relationship between FIS and Information Quality

The review of existing literature leads to different definitions of information quality, which can be defined as the characteristic of information to fit a purpose or to meet the specifications or requirements of the beneficiary's expectations as well as the property of information that is of high value to users. Information quality is the extent to which information has content format and time characteristics, which have enduring value to individuals. Information quality likewise refers to the difference between required and obtained information. As such, information quality is an attribute of information that meets the cognitive, functional, technical, and aesthetic requirements of information producers, administrators, and experts [40]. It is expected to have a strong influence on information system effectiveness, and can be defined as the degree to which the information system meets its intended purpose [27]. Information quality is at the heart of information systems quality. Nonetheless, poor information quality has adverse effects on organizations at the operational, tactical, and strategic levels [7]. The information processing system itself is assessed using system quality attributes. Information quality attributes are concerned with the input and output of the system [41].

**Information Accuracy** is the extent to which information is legitimate or valid according to several reliable reference sources [8]. It is considered a central criterion of information quality, where the substantial part of information quality literature with an IT background views the criterion as a central notion in the concept of information quality [42]. Information accuracy is the most vital information quality dimension, occupying the second order in importance after information believability [28]. Researchers deal with accuracy from three main perspectives:

system accuracy, information accuracy, and content accuracy. Technical level defines the efficiency and accuracy of the system to produce information [43]. Accuracy is an essential part of FMIS solutions, which were developed to improve interactions across various organizational units within the government in terms of execution, reporting, and accuracy of budget transactions [39]. Accuracy can be measured through its attributes, which include appropriate, accurate, error-free, and precise information [44].

**Information Consistency** in the use of processes to obtain information in the formats of information disseminated ensures comparability and thus allows assessment of changes over time [20]. Consistency is only stated as an explicit information quality criterion in three of the frameworks; it refers to the systematic and non-contradicting format and content of information [40].

**Completeness** of information refers to the possibility of accessing an overview of a great deal or the whole general account of the corresponding system. If a potential user of government financial information can access the whole of the general account, the system will be given one point, whereas if only an overview is available, then half a point will be given [9]. Completeness is defined as the extent to which a given data collection includes data that describe the corresponding set of real-world objects. Researchers defined completeness as the ability of an information system to represent every meaningful state of the represented real-world system [45]. Completeness is seen as a crucial information quality factor in four of the seven frameworks, and is viewed as a characteristic of a set of information that represents reality with all the required descriptive elements [40]. Completeness occurs when all values for a certain variable are recorded [36].

**Information Interpretability** is the extent to which the information can enable the user to understand, comprehend, identify points, interpret, and read the information [36, 38, 46]. The dimension of interpretability exhibits a cross loading with the ease of understanding dimension.

**Information Clarity** is advisable to ensure that rules will be understood and to support enforcement. Clarity of information is essential to understand the extent of financial reports and jurisdiction. Clarity and consistency in the principles governing the allocation of resources are likewise important elements of transparency [47]. Figure 1 presents the relationship between information quality and FIS, which includes five

sub-relationships: accuracy, consistency, completeness, clarity, and interpretability. Within the context of this paper, four characteristics were selected to represent the quality of information: consistency, accuracy, completeness, and interpretability. Based on the aforesaid factors, the main proposal and four sub-proposals were suggested and formulated as follows:

**P2: Information quality is positively and significantly associated with financial information systems.**

*P2a: Accuracy is positively and significantly associated with information quality.*

*P2b: Consistency is positively and significantly associated with information quality.*

*P2c: Completeness is positively and significantly associated with information quality.*

*P2d: Interpretability is positively and significantly associated with information quality.*

#### 4.3 Relationship between FIS and Service Quality

Service quality is focused on the types of service provided as a main dimension of this variable. This variable is defined as the degree of discrepancy between beneficiaries' normative expectations for services and their perceptions of service performance [7]. Delone and McLean [26] proposed an updated model of IS success by adding a "service quality" measure as a new dimension of the IS success model, and by grouping all the "impact" measures into a single impact or benefit category called net benefit. The importance of service quality in the FIS context led this study to deal with main factors such as assurance, reliability, and responsibility. These dimensions have significant influence on assessing FIS success to reduce corruption.

**The assurance of system services** within financial information is focused on the knowledge and courtesy of employees as well as their ability to convey trust and confidence [33]. Assurance is the ability of the IS staff to build user confidence [7, 31]. To ensure the integrity of fiscal information, it should be subjected to public and independent scrutiny [20]. Building capacity in line

#### 4.4 Interrelation within the Characteristics of FIS

**System Auditability** is the extent to which an information system is able to audit, which, in turn, requires that the disclosure be based on independent verification and observable facts, not the opinions or plans of managers [11]. No longer hidden, system auditability is an extremely

prominent part of building FIS based on standardized rules and procedures, across various regions, and is explicit. These features make the system amenable to reducing the discretion on the participation of civil servants and increasing the auditability of operations [23]. Auditing is required to ensure that allocated funds are spent as they ought to be. Likewise, auditing should be made transparent to the public so that the public can hold

ministries and local authorities is a challenge because spending units operate accounting and financial reporting systems that do not have adequate assurance of system services. The absence of assurance causes delays in the submission of budget execution reports and hinders automated consistency checks [15]. In this dimension, IS employees have the knowledge to perform their job well by focusing on user confidence, safe transactions, courtesy, and job competence [26].

**System service reliability** refers to the consistency of performance and dependability of an organization. It is the extent to which organizations are able to perform the promised service in a dependable and accurate manner [33]. Based on several empirical studies, reliability is the most influential dimension of service quality of information systems. In the virtual environment, importance is given to ensure that users trust the organization to perform what it promises to do. Reliability can likewise make users recognize the consistency and credibility of the organization [31].

**Responsiveness** is the willingness to help beneficiaries and provide prompt service [33]. It refers to the effective handling of problems and returns via the system. In FIS, an organization's prompt service to internal and external agencies via the Web can make users feel more comfortable when executing transactions and allow them to continue their jobs without interruption [31]. Figure 1 presents the relationship between service quality and FIS. Within the context of this paper, five sub-relationships are included: accuracy, consistency, completeness, interpretability, and clarity. Thus, the following were proposed based on the aforesaid factors:

**P3: Service quality is positively and significantly associated with financial information systems.**

*P3a: Assurance is positively and significantly associated with system service quality.*

*P3b: Reliability is positively and significantly associated with system service quality.*

*P3c: Responsibility is positively and significantly associated with system service quality.*

prominent part of building FIS based on standardized rules and procedures, across various regions, and is explicit. These features make the system amenable to reducing the discretion on the participation of civil servants and increasing the auditability of operations [23]. Auditing is required to ensure that allocated funds are spent as they ought to be. Likewise, auditing should be made transparent to the public so that the public can hold



the government accountable for its actions [19]. This system has the potential to improve the auditing function of ministries with a reputation for corruption [48]. It is designed to assist in auditing revenue, expenditure, and auditing processes across the central government, including local governments, other public sectors, and quasi-government agencies and operations [49]. By providing enhanced accounting, monitoring, and auditing systems, these processes ensure that public finances are fully accessible to senior managerial and external scrutiny[50]. The specifications of the system, which are prepared by international organizations, have considered auditability as an essential function in FIS [1, 49].

**System controlling** is the extent to which the system is able to control the discretionary power of multilateral government officials through a system of rules of right conduct without the need for human intervention. The design of the FMIS should establish an improved system of internal and external controls for financial management. Internal controls regulate the cycle of recording, analyzing, classifying, summarizing, communicating, and interpreting financial information. The internal audit function helps the organization to evaluate and assess compliance with these controls. The external control system is exercised through independent auditing carried out by a supreme audit institution [35, 51].

**System monitoring** is the extent to which the system is able to monitor financial operations such as procurement activities, expenditure transactions, and stream of revenue to reduce the potential for corruption. FIS assists in promoting the monitoring of government actions and expenditures. Thus, FIS facilitates the monitoring of fraud and corruption [12], and provides better information on performance for senior management monitoring and control purposes. FIS assists in monitoring and enforcement as well as limits the discretionary power that regulations grant to officials that implement them. Financial institutions should be supported to improve the flow of information, thus enabling transparency and trust [52]. Undoubtedly, the most important features of financial computerization include the ability to improve transparency, which allows extensive crosschecking of information, select taxpayers for audits, monitor audit procedures, and provide timely response to taxpayer requests for information assistance [52]. FIS also lays a foundation for anti-corruption reforms by monitoring actual cash flows.

**System tracking** is the most prominent feature that characterizes the information system, especially the FIS. The function of tracking transactions in FIS has led to the support of the process enabling budget tracking and monitoring of actual cash flows. Such process will eventually lead to the foundation for anti-corruption reforms [53]. Computerization can assist in tracking and can contribute to the provision of appropriate as well as necessary means for reducing corruption by promoting good governance and strengthening reform-oriented initiatives. Computerization can likewise allow citizens to track activities and corrupt behaviors, and to enhance, monitor, and control the behaviors of government employees. Worldwide, serious attempts have been made to harness the function of electronic tracking to reduce corruption, including the OPEN System in South Korea, the Boomi System in India, USASpending in the United States, and ChileCompra in Chile [12]. Computerized procedures make it possible to track decisions and actions. The tracking process assists in implementing the working procedures and flow of financial funds, the appointing procedure, and the bidding process of administrative examination and approval. Thus, electronic tracking serves as an additional deterrent to corruption [54]. Computerization has increased the chances of exposure by maintaining detailed data on transactions, making it possible to track and link corrupt officials to their wrongful acts [55].

Improved accountability has resulted due to the deterrence placed by the system, which include tracking all database changes, documenting all objections, allowing easy access to citizens, and providing the ability to back complaints with evidence [56]. These tools can track various events in electronic systems that signal not only illegitimate actions that have already taken place, but also proactively detect suspicious behavior before any crime is committed [23]. FIS is designed to enable budget tracking at both sides of revenue and expenditure [53]. The tracking function is a main player in the management of procurement and contracting, and is an essential part of FIS. Such function likewise assists in tracking contracts above a threshold level in all government agencies. The tracking function will also track the extent of competition in the process of selection according to justified and clear transparent regulatory requirements. The system will give exceptions based on reports on directives issued for corrective action [15]. Figure 2 presents the interrelationships within FIS, with a focus on

specific characteristics, and includes four sub-relationships: auditability, controlling, monitoring, and tracking. Based on the aforementioned factors, the main proposal and four sub-proposals were suggested and formulated as follows:

**P4: The properties of FIS characteristics are positively and significantly associated with financial information systems.**

*P4a: Auditability is positively and significantly associated with financial information systems.*

*P4b: Monitoring is positively and significantly associated with financial information systems.*

*P4c: Controlling is positively and significantly associated with financial information systems.*

*P4d: Tracking is positively and significantly associated with financial information systems.*

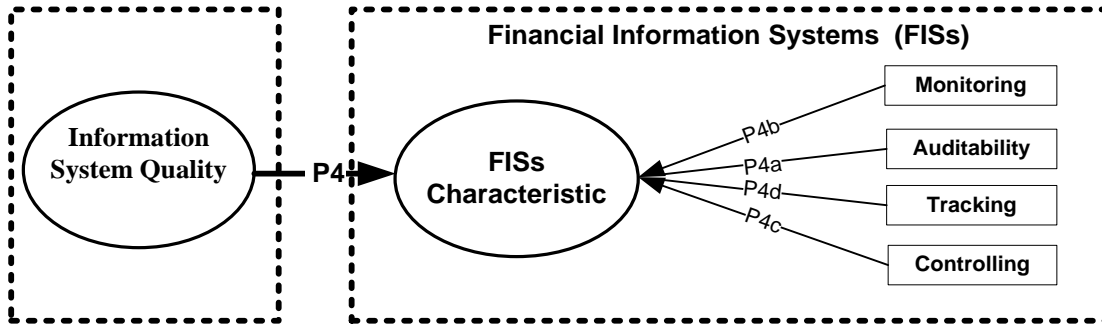


Figure 2: Conceptual Framework for using FIS in Anti-Corruption Strategies

**4.5 Relationship between FIS and Anti-Corruption Strategies**

Institutional anti-corruption strategies are focused on the large-scale level of a country and its respective public finance. In this research, the concept of “anti-corruption strategies” is considered as an independent factor and is predominately concerned with the impact of four dimensions: transparency, accountability, law enforcement, and servant discretion. Anti-corruption strategies are a set of complex tasks to prevent corruption in organizations through administrative reforms, law enforcement, and social change.

**Transparency** is the availability and clarity of information provided to the general public about government activities. Governments must not only provide information, but also ensure that as many citizens as possible have access to such information with the goal of increasing citizen participation. A lack of transparency creates and provides opportunities for government corruption and reduces public sector efficiency. The concept of accountability is likewise linked with transparency [57].

**Accountability** rests on the establishment of criteria for evaluating the performance of public sector institutions, which include economic and financial accountability brought about by

efficiency in resource use, expenditure control, and internal and external audits. Accountability improves the legitimacy of a government [57]. Within the context of this research, Figure 3 presents the interrelationships within FIS, with focus on the specific characteristics, includes four sub-relationships: transparency, accountability, law enforcement, and servant discretion. Based on the abovementioned factors, the main proposal and five sub-proposals were suggested and formulated as follows:

**P5: Financial information systems are positively and significantly associated with financial corruption reduction.**

*P5a: Transparency is positively and significantly associated with the reduction of corruption.*

*P5b: Accountability is positively and significantly associated with the reduction of corruption.*

*P5c: Law enforcement is positively and significantly associated with the reduction of corruption.*

*P5d: Servant discretion is negatively and significantly associated with the reduction of corruption*



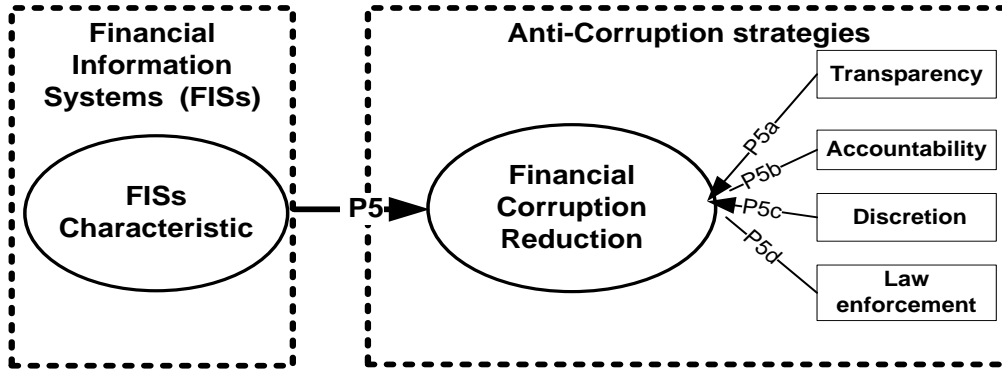


Figure 3: Conceptual Framework for using FIS in Anti-Corruption Strategies

**5. PROPOSING CONCEPTUAL FRAMEWORK FOR HARNESSING FIS TO REDUCE CORRUPTION**

The lack of prior research related to harnessing FIS to reduce corruption has resulted in the lack of an exact model to follow. Although numerous models can explain a conceptual framework, such can be defined as a set of coherent ideas or concepts organized in a manner that makes them more understandable to others. A conceptual framework is an organized way of thinking on how to measure the quality of these systems and their influence to corruption. The said concept was created based on widely used models that have been applied in various areas. Proposing a conceptual framework is vital to capture the quality factors of FIS, FIS characteristic factors, and corruption reduction

factors. Quality factors of FIS were adapted from the examined leading studies into information systems quality. Thus, the framework will propose to identify the common factors that are most effective in reducing financial corruption and improving FIS quality to reduce the said type of corruption. A number of factors were identified through a process of categorizing dimensions taken from previous studies and conceptualizing their relationship with one another in the anti-corruption context. The conceptual framework proposed in this paper is composed of system quality factors, information quality factors, and anti-corruption factors. Worth mentioning in this context is the importance of the main factors and sub factors, which influence the harnessing of FIS in corruption reduction.

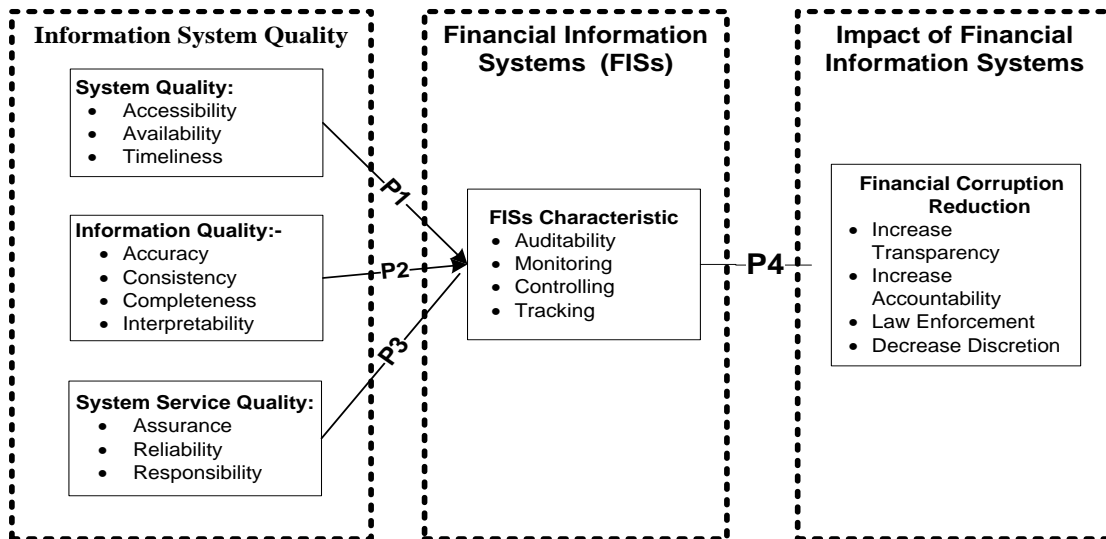


Figure 4: A Conceptual Framework for Harnessing FIS to Reduce Corruption



This paper will present the conceptual framework in general (Figure 4) and provide more detail in the next part (Figure 5). The said conceptual framework presents the main relationship between the quality of information systems, FIS, and the impact of FIS in financial corruption reduction. This paper contributes to the existing literature by examining how FIS can facilitate the corruption reduction process through enhanced system quality that benefit from anti-corruption strategies.

## 5. CONCLUSION

The extensive use and dependence on information systems have encouraged organizations to concentrate on enhancing and employing FIS in their respective operations. These systems play a crucial role in the management of public reform, and have enabled public and private organizations to deliver timely, perfect, and inexpensive public service. Furthermore, these systems benefit people in their jobs by providing improved public service, aiding public involvement, and assisting in community development. The purpose of this paper was to develop a conceptual framework to assist in enhancing the quality of FIS as an essential part of anti-corruption strategies. Background theories were used to develop the theoretical framework that was discussed with interrelated concepts, guide research, and determine what the study should measure as well as the sufficient statistical relationship to be utilized. It is a method of identifying a core set of connectors within a topic and showing how they fit together or are related in some way to the subject. This paper provided a clarification of the variables and perception developed to examine the relationship between the said variables. It likewise contributed to the existing literature by examining how FIS can facilitate the corruption-reduction process through the enhancement of the quality of these systems by benefiting from anti-corruption strategies. This paper discussed the theoretical framework, which provides a starting point for researchers and practitioners to further research utilizing FIS in governance practices. For researchers, the framework clarifies the key factors and related sub factors that can assist in enhancing the FIS quality and the impact of these systems on financial corruption reduction.

For practitioners, the framework can be used to obtain insights into the contributing factors of

quality of information systems and its effectiveness in corruption reduction. The framework will assist practitioners in international organizations and government agencies in the design, development, and maintenance of these systems.

This framework presents the structure and links between the model factors, which were also conceptualized based on an understanding of FIS quality and their outcome. For future studies, this paper suggests testing the proposed framework statistically to confirm its appropriateness and validity.

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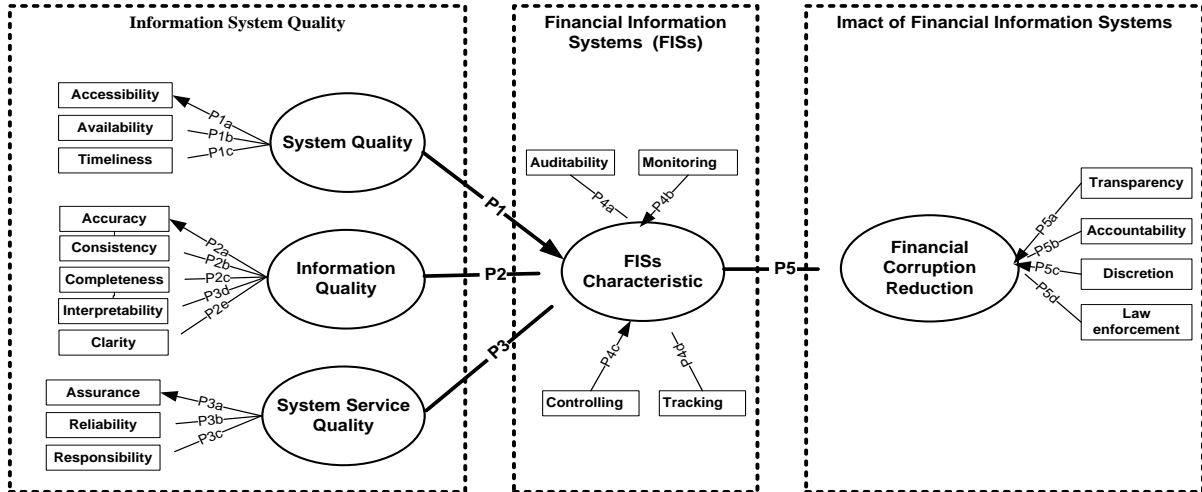


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Appendix 1: Figure 5: Detailed Conceptual Framework for Harnessing FIS to Reduce Corruption



Appendix 2:Table 2: Working Definitions of the Main and Sub factors of FIS that Reduce Corruption

Main Factors	Sub Factors	Definition	Related References
System Quality Factors	Accessibility	Presents the ease and speed of access to the system for locating and obtaining needed information	[9, 10]
	Availability	The extent to which infrastructure is available for information system, supplier, and user capabilities, as well as mode of service delivery.	[11]
	Timeliness	Reflects the currency of data with respect to the regularity of related tasks such as accounts reconciliation, interim reporting, in-year budget reports, annual financial statements, and others audit reports.	[16-18]
Information Quality Factors	Accuracy	The extent to which information is valid according to several stable reference sources such as a dictionaries and/or a set of domain constraints and norms.	[9]
	Consistency	The extent to which similar attributes or elements of an information object are consistently represented with the same structure, format, and precision required.	[9]
	Completeness	The extent to which an information object matches the precision and completeness needed in the context of a given activity.	[9]
	Interpretability	Represents the ease and correctness of use as understood by users, which are brought about by precise definitions, variables, and limitations.	[20]
Service Quality Factors	Assurance	Presents the ability of the information systems staff to convey trust and build user confidence.	[8]
	Reliability	The extent to which the information system is able to perform the promised service dependably and accurately.	[21]
	Responsibility	Presents the willingness of information to assist and provide prompt and beneficial service.	[22]
FIS Characteristic Factors	Auditability	The extent to which the information system is able to audit and disclose based on independent verification and observable facts, not on the opinions or plans of managers.	[12]
	Monitoring	The extent to which the system is able to monitor financial transactions such as procurement activities, expenditure transactions, and stream of revenue to reduce potential corruption.	[13]
	Controlling	The extent to which the system is able to control the discretionary power of multilateral government officials through a system of rules of appropriate conduct without the need for human intervention.	[13, 14].
	Tracking	The extent to which the system is able to track and trace the financial transactions, activities, and behaviors of government employees.	[15]
Corruption Reduction Factors	Transparency	Transparency can be defined as timely and reliable information accessible to all relevant stakeholders. Likewise, it is the availability and clarity of information about government activities provided to the general public.	[20, 24]
	Accountability	Accountability refers to the service guarantee of the government; the extent to which its actions are accounted for and corrected if not carried out correctly in the first instance.	[15]
	Law Enforcement	The extent to which the system is able to promote standard multidisciplinary procedures and functions that are designed based on financial laws to safeguard integrity and to prevent conflicts of interest.	[25]
	Servant Discretion	The degree of servant freedom or power to decide what should be done in a particular situation.	[15]