

**QUALITY OF ACCOUNTING INFORMATION SYSTEMS FOR THE EFFICIENT  
DECISION-MAKING OF ITS USERS**

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**Abstract**

Resources such as technologies, especially information systems, must be improved as a result of globalization. In addition, the scrutiny to which companies are subject has led them to evaluate the value of accounting software. The aim of this study is to ascertain the effect of well-designed accounting information systems on users' ability to make the best decisions. The application of 100 questionnaires is used in conjunction with Structural Equation Modeling (Smart PLS) to achieve the goal. Results: (a) information quality has the greatest influence on users' decisions, and (b) users do not have a sense of system quality benefits for their decision making.

**Keywords:** Accounting Information Systems (AIS), decision making, systems quality, Average Variance Extracted (AVE).

**Introduction**

The world is in a new era, information has become the basis of knowledge, which together with information technologies (IT) are necessary in emerging markets where each Industries are increasingly converging and colliding (Pateli, 2009), requiring greater information processing and therefore a greater need for IT (Neirotti and Paolucci, 2011) in order to facilitate the efficient use of information (Hwang et al., 2013). One of these technologies is information systems (IS), which involve the intersection of people, processes, technology and the organization itself to improve individual, group and business results (Lowry et al., 2010). In this context, the IS were seen as static systems that helped routine decision-making and not systematic learning that could aid organizational learning (O'Connor and Martinsons, 2006), and normally a new IS is justified by the better performance of information that facilitates decision-making, with the help of increased technological capabilities (Hamill et al., 2005). Quality finds an important support in technology, therefore, organizationally, according to Reeves and Bednar (1994), it is described in terms of excellence, value, in accordance with specifications and meeting customer expectations; even, the quality of the information (QI) is one of the main determining factors of the quality of their decisions and actions (Stvilia et al., 2007), for which there are attempts to replicate the success of the quality of the products in the information systems (Juran and Godfrey, 1999); however, one cannot blindly trust their results when doubting whether the correct, quality information has been provided and that, furthermore, there is to learn to make effective use of it, to plan it, to integrate it, in itself, to manage it. However, all types of formally established companies require control of their financial and business activities; many of the times caused by failures in accounting-financial systems (Raiborn et al., 2011); in such luck, that With the

advancement of IT and IS, accounting information systems (AIS) emerge, which comprise a collection of data and accounting processing procedures that generate the information necessary for its users in order to create courses of action, always thinking of the benefit of the organization. Its emergence is due to the application of IT in the accounting and auditing environment (Sutton, 1996). When focusing on accounting issues, one of the most significant problems in Small and medium-sized enterprises (SMEs) is that their managers and users have used electronic sheets or out-of-date software over time, traditional accounting information systems, especially manual, have become so accustomed to it, and even feel proud of their ability to meet their internal objectives, which prevents them from realizing their limitations, making it difficult for them to replace them with a more efficient computerized system that is in accordance with the true business needs in today's world. Therefore, the objective of this research is to determine the influence exerted by the quality of an accounting information system (information, system and services) on the decisions made by its users in order to increase organizational efficiency. In order to reach the goal, 100 questionnaires are applied in 63 SMEs and the use of structural equation modeling statistics (SmartPLS) for inferential analysis. The development is based on the literature review of the dependent and independent variables, later the field work is carried out (application of the questionnaire and analysis and discussion of results), to end with the conclusions and specify the main contributions to knowledge.

## LITERATURE REVIEW

### Quality of the information

In recent years, illegal activities have been evidenced that show the vulnerability of information in companies; thus, the evaluation of its reliability has become critical in organizations, especially in financial information (Krishnan et al., 2005) taking into account that each information product has an intrinsic value for the user. The review of the literature indicates that the quality of the information is a multidimensional construct, in which each dimension represents an aspect of the information; Undoubtedly, it is a topical issue that no institution can neglect or ignore, because in modern times its dependency is vital, defined as suitable for use, without universal acceptance (Juran and Godfrey, 1999) and difficult to measure using this broad term. However, problems persist, such as incorrect data generated by software, capture of erroneous data, irrelevant data, malware, accidental data loss, changes in user requirements, among others. Goff (2003) found that experts estimate that 10 to 30 percent of company information that flows through systems is deficient (inadequate, inconsistent, poorly captured, etc.). Hence QI is described as the measurement of IT data outputs in terms of being accurate, timely, complete, reliable, relevant and precise (Pitt et al., 1995; DeLone and McLean, 2003), but according to Lillrank (2003) the most widely used definition is given by the American Society for Quality (ASQ) and ISO 9000-2000, which are based on customer satisfaction, an idea shared by Mueller and Nyfeler (2011), in which it can be achieved not only by meeting the requirements, but also by inherent characteristics of the product or service and the forms of its presentation to users. Therefore, QI is critical to organizations, and despite decades of research and practice, the field lacks comprehensive methods for its evaluation and improvement. without a systematic proposal (Ballou et al., 1998). In accounting aspects, which is the occupation of this

work, the higher quality of information is associated with lower liquidity risk (Ng, 2011). Information users should realize that they employ heuristics in evaluating the quality (often unconsciously) and that limit the estimation of the dimensions of the concept, such as precision and objectivity (Arazy and Kopak, 2011). In addition, users live in an information-rich environment, much more than before and for public sector organizations or private who operate in a competitive environment, the quality of information is a way to survive and generate competitive advantage (English, 1998), so the data process of business must be shared in a controlled manner; in which information visibility can reduce delivery times and costs and improve profits and decision making (Handfield and Nichols, 2002). Likewise, the high quality of the information is associated with the high organizational impact and through By linking IT strategy to business strategy, reporting results can be designed to provide data that increases organizational efficiency. Similarly, the Data storage and mining techniques provide relevant information (implicit and explicit) which improves decision making (Gorla et al., 2010). The data and information produced by the AIS should be used to plan, analyze, manage, direct and control the operations of the company; Unfortunately, this has not happened in many MSEs, therefore, it is necessary to duplicate efforts in order to make more efficient use of the IT that the organization has.

### Quality of the system

According to ISO 9126, the quality of the system (software) is defined as a set of properties and characteristics of a product or service. that confer its ability to satisfy expressed or implied needs (ISO/IEC 9126, 2001).It is also based on how well a computer application satisfies the requirements of the user, itself, the absence of failure of the software to perform its intended purpose (Edberg and Bowman, 1996). For Kahn et al. (2002) the quality of the system includes the related dimensions to the product itself and involves tangible measures of accuracy, completeness, and error-free.Also, in the review by DeLone and McLean (2003) they found that the quality of the system was measured in terms of functionality, ease of use, reliability, flexibility, data quality,portability, integration and importance. Rametal. (2013) add that flexibility, reliability, integration and ease of access have a significant impact on the quality of the information results in terms of format, accuracy, relevance and completeness. However, the quality of the QS is difficult to define and measure more precisely in terms of the impact on the end user (Stefani and Xenos, 2008), taking into account that an QS is available when it has the sufficient quality elements, specifically information (Hamill et al., 2005). Quality is a goal to be achieved, because it ensures that the IS complies with institutional standards and those required according to the area of competence; therefore, the community of Researchers has a lot to offer practitioners of the subject, unfortunately only a small fraction of the ideas have been applied, which date back beyond the 1970s and 1980s and are no longer in line with current realities such as mobile networks, the Internet, electronic commerce, among others, and few managers have implemented adequate strategies, in other words,It is not given the required importance. Thus, various tools have emerged such as Software Quality Assurance (SQA), Capability Maturity Model (CMM), European Foundation for Quality Management (EFQM), among others, that help improve its quality. In the administrative practice of the QS, the establishment of its

interoperability with those of other collaborating companies is indisputable, due to the high value of business that is generated with this type of process (Loukis and Charalabidis, 2013). They also add that QS managers should develop good relationships and systematic collaboration with the management of other departments, so that they can jointly examine the advantages and disadvantages of introducing this type of practice by exploiting the capabilities that offers the interoperability of the QS. Especially the AISs that must accumulate information from the various departments and administrative areas of an organization in order to concentrate the data for timely decision-making and the harmonious development of the institution.

### **Quality of Service**

The notion of IT service has traditionally been described as a form of human mediation delivered by IT department staff to business customers, and with it, supervisory support and help from the team (Jia and Reich, 2013). Service quality refers to the global judgment or attitudes related to the evaluation of the level of services and supports provided by IS and IT department personnel, including the manner in which they are provided (Rao and Kelkar, 1997), are intangible, are not kept in stock, and their attributes are difficult to measure (Reeves and Bednar, 1994). In the past, IT service quality was strongly associated with desired organizational outcomes, which was information quality or system quality, leading to the conclusion that managers in order to achieve the greatest organizational impact should set a high priority on IT service quality (Gorla et al., 2010). In last dates, more importance has been given to the services provided by the IS departments, because in general, they provide services to the stakeholders, which serves their needs and with the appearance of the End-user computing in the mid-1980s placed organizations in the dual role of providing information and providing services to them (Jiang et al., 2001). Some studies such as the one by Gorla et al. (2010), show that the quality of service of the IS is the variable that most influences their model (followed by the quality of the information and the quality of the system) and they highlight the importance of the quality of the IS service for organizational performance. This process includes providing services to users with accuracy, promptness and friendliness, knowledge of the staff, providing the right equipment and personalized attention (Watson et al., 1998), because computer users do not want a machine, they want a software that meets their computing needs (Pitt et al., 1995). Kettinger and Lee (1995) found that the quality of the service focused on the user helps to achieve the objectives organizations while meeting their needs. The SERVQUAL instrument has remained the most popular measure of service quality. For this reason, a part of it will be used in the present investigation, where it is sought to determine the level of services provided by the staff to the users of the AIS that at a given moment, is a means to increase the competitiveness in general of the companies that make use of it.

### **Decision making**

Decision making is defined as the selection of a course of action among alternatives; in other words, the generation, evaluation and selection of solutions in a rational way (Huber and McDaniel, 1989), in which a good decision maker always considers three fundamental elements such as the desired objectives, the existing alternatives and the probable risks (Schwarber, 2005).

As the world moves toward open and global markets, the need for access to timely, reliable and easy information will be the key to effective decision making (Hamill et al., 2005). And with the systems approach, people have to be sensitive to policies and programs of other organizational units, essentially with those who have a direct relationship and of the entire company. On the other hand, top management teams affect the performance of their companies in many ways, being the most direct through the strategic decisions they make (Finkelstein and Hambrick, 1996). Based on the above, it is necessary to consider the technological differences and administrative procedures for effective decision-making that help SMEs to obtain a greater productivity and competitive advantage, but the most appropriate ones will not be taken if the technology throws erroneous information, in such a way, the decisions that are made will also be wrong. A company's ability to make good decisions is particularly important in view of increasing global competition and the greater uncertainty of exposure to a greater number of competitors (Choudhury et al., 2006). In addition to the above and with respect to technology, Teng and Calhoun (1996) point out that the effect IT potential in decision making at all levels has been captured by practitioners of the IS since the beginning of the computer age. For systems that help make decisions or provide a service to the user, it is much more difficult to estimate the benefits, with few examples. Of these attempts, yes, the quality of the decision has been found to be more closely related with the current participation of the user. IT, including AIS, can support decision making by collecting, manipulation and dissemination of data and information; even the best, most accurate and appropriate, can result from the use of decision support system technologies (SST) if your information is accurate, complete, flexible, relevant, simple, verifiable, accessible, safe, reliable, timely and inexpensive (O'Connor and Martinsons, 2006). The process of making Decision making is influenced by many factors internal and external to the organization. If you move to financial, some researchers consider that decision-making is based on the efficiency of accounting (Wildy et al., 2004) and at the same time, accounting can be greatly improved measure the quality of information for decision making (O'Connor and Martinsons, 2006). In this nature, companies prefer a favorable accounting report, while users of accounting information are more concerned with its accuracy for decision making (Fan and Zhang, 2012). It is appreciated the importance of decision making for both organizations and companies. Undoubtedly, having the technical skills in computing and knowledge of the processes and how a AIS works will allow it to be more efficient in these activities that will impact directly in your sooner decision-making and with more possibilities of selection. After taking a brief tour of the state of the art regarding the dependent variables and to be analyzed, now the working hypotheses that will be tested in the study are presented

**Empirical:**

**H1:** The Quality of the Information is the fundamental basis for the users of the AIS to make better decisions for the benefit of the organization.

**H2:** The Quality of the System is the fundamental basis for the users of the AIS to make better decisions for the benefit of the organization.

**H3:** The Quality of the Services provided by the IT staff is the fundamental basis for the users of the AIS to make better decisions for the benefit of the organization.



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## METHOD

For this work, the questionnaire was selected to ensure the generalization and stability of the findings in a population, and in particular the SmartPLS tool that is based on the variances and by the minimum size of the sample, which according to Chin (1998) are between the range of 30 to 100 cases, compared to covariance-based equation modeling that requires a quantity largest of cases. The objective of this investigation is to determine the influence that the quality of a system of accounting information in their decision making. The Research Model was designed, based on the Literature review to support the hypothesized relationships. The variables, They are operationalized as follows:

1. Independent variables: Information Quality (accurate, timely, complete, consistent), System Quality (friendly, useful, fast processing, efficient -no crashes-) and Quality of the IT staff services (modern equipment, willingness to help, quick support, competent staff, aware of user needs).
2. Dependent variable: Decision Making (relevant information, quality decisions, solution alternatives, speed in decision making).

Once the indicators, variables and hypotheses were defined, we proceeded to design attentive questionnaire to be reviewed by professionals in the area. After being validated by academics and experts, the next step consisted in carrying out a pilot study, which helped to establish the validity of the items and the content, in other words, the application of the pretest of the instrument to improve it, requesting feedback on possible errors or General recommendations regarding the wording of the items, the possibility of adding more or, where appropriate, eliminating those that are not necessary. principal contribution that has been raised is in the sense of eliminating items that did not have sufficient reliability. The result was the determination of 4 items for the Information Quality variable, 4 for System Quality, 5 for Service Quality and 4 for Decision Making. All items were rated on a 5-point Likert scale (Strongly Disagree...Strongly Agree). Once the questionnaire was validated, it was applied and data collected from professionals who use a AIS, either a commercial package, made to measure by the company itself or developed by another organization. The Perceptual measurements were the same for all items. The final version was applied to 100 users. The data from The companies participating in the study remain anonymous since this was agreed with the managers or owners thereof. Subsequently, based on the information obtained, the development of its general description is derived. and analytics using SmartPLS software from Ringle et al. (2014) and bootstrap resampling (500 subexamples) to create variable crossovers, correlation matrices, factor loadings, Average Variance Extracted (AVE), etc. in order to test the hypotheses designed. Finally, we proceed to develop the conclusions taking into account the previous analyses.

## RESULTS

After implementing the tool application and analyzing it using the SmartPLS 3.0 statistical tool, taking into account that the sample size is within a specific area. The results were as follows: the majority of them were women (64%) and men 36%. They are young, with the majority of the age group (87%) between the ages of 21 and 30, with undergraduate studies at undergraduate level (88%), 6% having a postgraduate degree and the rest having a baccalaureate (6%) at least.

As for the company, the majority was in the services sector (88%), industry 2%, and trade 10%. Regarding the hours that users spend in front of the AIS, 34% spend between 11 and 20 hours a week, 21% up to 10 hours, 20% between 21 and 30 hours, 17% use it between 31 and 40 hours, and those who use it more than 40 hours are only 8%. Here is the deductive part:

**Measurement Model:**

1- Item reliability: it is assessed by examining the loads ( $\lambda$ ) or simple correlations. According Fornell and Larcker (1981), to accept an indicator, it must have a charge equal to or greater than 0.707. ( $\lambda^2$ , 50% of the variance is explained). The results show that the 17 reflective indicators present acceptable values (Table 1), the loads oscillate between .759 and .964, exceeding the suggested minimum.

2- Internal Consistency (Reliability of Constructs), evaluated by Cronbach's Alpha (0.7), in this case the Fornell and Larcker (1981) statistic is used, who argue that their measure is superior to Cronbach's due to the results they have obtained in their investigations of 0.707. Table 1 shows that the internal reliability is given in this research, exceeding the minimum requirements both in the Fornell statistic and in Cronbach's alpha.

3- Discriminant Validation: for this assessment, the square root of AVE is used (Fornell and Larcker, 1981); which must be greater than the variance shared between the construct and other constructs in the model, the corresponding matrix provides these values. The analysis shows in Table 2 (diagonally), the variables satisfy the necessary condition.

Convergent Validation: this evaluation is carried out by means of AVE, its values must be greater than 0.50, which establishes that more than 50% of the variance of the construct is due to its indicators (Fornell and Larcker, 1981); it can only be applied to reflective indicators (Chin, 1998). The data obtained (Table 1) show that AVE exceeds 0.50 in all of them (values range from 0.701 to 0.845). Resampling (500 re-examples) was carried out to obtain the values from T-statistic, in Table 3 indicates that two reached the minimum acceptable values of 1.964725835 and one did not.

Table (1). Individual Reliability of the Load of Reflective Indicators and Convergent Validity of the Coefficients.

Construct/ Item	Burden	Internal Reliability	AVE
Quality of the Information		.956	.845
QI1	.814		
QI2	.946		
QI3	.956		
QI4	.954		
Quality of service		.951	.795
QoS1	.779		
QoS2	.930		
QoS3	.888		
QoS4	.946		
QoS5	.901		

Table (2). Correlation of Variables (Discriminant Validity)

Construct/ Item	Burden	Internal Reliability	AV E		
Quality of the system		.903	.701		
QS1	.759				
QS2	.893				
QS3	.922				
QS4	.761				
Decision making		.955	.843		
DM1	.935				
DM2	.964				
DM3	.888				
DM4	.887				
Variables		QI	QoS	QS	DM
Quality of the Information(QI)		.919			
Quality of service(QoS)		.514	.891		
Quality of the system(QS)		.832	.639	.837	
Decision making(DM)		.830	.715	.797	.918

Note: Diagonal data is the square root of the mean variance extracted (AVE) between the construct and its measures. For discriminant validity, the correlations must be greater than the data in the same row and column (interconstruct).

### Structural Model

The structural model evaluates the weight and magnitude of the relationships (hypotheses) between the different variables. Two basic indices are used for this assessment: the standardized path coefficients ( $\beta$ ) and the explained variance ( $R^2$ ):

1.  $\beta$  represents the path coefficients, The conventional method of multiple regression is used to determine this coefficient. According to Chin (1998), the coefficients standardized path must reach a value of at least 0.3 in order to be considered significant.
2.  $R^2$  represents the variance explained by the construct within the model, its predictive power. Which should be equal to or larger than 0.19, because smaller values, even when significant, don't give much information. (Chin, 1998). Table 3 indicates the result of each of the hypotheses raised, empirically. They have Two hypotheses have been approved and one has been rejected.



Table (3). Summary of Smart PLS Results

Hypothesis	Path coefficient t	t-statistic	Comment
1. Quality of the Information → Decision making	.499	4.629	Accepted
2. Quality of the System → Decision making	.181	.1.453	Rejected
3. Quality of Services → Decision making	.314	3.766	Accepted

In order to answer the three hypotheses, it can be stated that the quality of the information is an acceptable means for users to make good decisions with the operation of the AIS. In Regarding the quality of the system, users do not perceive that this technological tool helps them to make decisions based on the AIS. Finally, the quality of the services, in how the staff operates In the IT area, the services they receive do help them make more and better decisions. The results also show that the explained variance ( $R^2$ ) for the dependent variable (Take of Decisions) is 77.7%, a high value that not only comes to analyze the correlations between its independent variables, if not that, can be a starting point as a predictor of quality in overview of accounting information systems.

## CONCLUSIONS

Globalization has reached every type of organization in the world, technology is a tool that serves as a means to achieve competitive advantage against the competition. Information systems have in turn been an important part of the implementation of such technologies, if we add to this that control by many governments has created uncertainty and the need to automate accounting activities; thus, the AISs have responded to these tasks, however, it is necessary to know its fundamental bases of quality and analyze whether they are truly helping the company to solve its accounting practices and at the same time the relationship it has with the users who operate them on a daily basis. The results obtained allow us to indicate that the Quality of the Information in the form of being exact timely, complete and consistent has been a means for the users of the AIS to have a reliable source for optimal decision-making with relevant information, with alternatives and with information at the moment, this can contribute to improve organizational efficiency, in the sense that the users studied here are normally managers or accountants (professionals accountants) of the companies analyzed. In the same way, the Quality of Service (modern equipment, competent personnel, fast help) are rendered in an efficient way that facilitates a prompt and variety of options for decision making decisions, that is, more alternative solutions to the problems that must be solved with the use of the AISs. On the other hand, and what is worrying, is the rejection that exists in terms of System Quality, more precisely in terms of friendliness, efficiency, without failures, this has not responded to the true needs for which they were created, to serve its users in the most productive way, who do not feel that they make the most appropriate decisions due to the appearance of the system and the processing that it has in the activities that are carried out., times have changed. Until recently, many organizations did not refuse to enter the knowledge era in which we live, but rather were not ready to enter it. New dynamics, today it is appreciated that information is beginning to be used to try to be more

profitable in organizations, therefore, one can speak of a possible successful transition from information management to knowledge management. But it must be made clear that the antecedents of the structures analyzed here, in theory, cannot be considered complete, and do not even come from a unified theory about the subjects covered. Likewise, although the software is robust enough with the cases presented, the fact that SmartPLS exists in its minified version allows only 100 cases to be analyzed.

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