

Training Users of Accounting Information Systems for their Satisfaction, Decision-making, and Competitiveness

J.M. Medina, Y. Loera, K. González, and A. Mora

Facultad de Comercio y Admón., Universidad Autónoma de Tamaulipas. Cd. Victoria, México

Abstract - *Information technologies are rapidly changing the world. Therefore, more scientific research that can contribute to the development of our understanding regarding information technology is needed. In particular, research that addresses the role of accounting information systems is urgently needed as financial problems in all types of organizations are common worldwide. For this reason, this research is aimed at determining the impact that training in the operation of Accounting Information Systems has on their users regarding Satisfaction, Decision-making, and Competitiveness. A questionnaire was administered to 92 users. The positive impact that training has on competitiveness (financial performance, market share and customer satisfaction) is highlighted.*

Keywords: IT, Decision-making, Competitiveness, User Satisfaction

1 Introduction

Accounting is the engine that moves an enterprise forward, and helps it face its competitors' efforts, trade agreements, fiscal issues, etc. The accounting's aim is to mirror an enterprise's estate, financial statement, and outcomes. Decision makers in a company benefit from this information when they receive it. For example, they can decide on what direction they can give to the company or what policies they can develop. Similarly, information related to accounting is also beneficial for an enterprise's partners as a good performance of the company can determine the benefits they will obtain from it.

However, in order to achieve the above mentioned and with the support of the information technology (IT), the accounting information systems (AIS) have emerged which have widely facilitated these activities. Training, though is needed to obtain a competitive advantage, users' satisfaction, and more informed decision-making. This study seeks to link these elements in the operation of the informatics applications/systems.

To achieve this aim, a transversal study is proposed. A questionnaire was administered to 92 users of these AIS in 46 enterprises located in the central region of Tamaulipas (Mexico). After that, a regression analysis was conducted

using the SPSS software package version 18, from which the results are derived. Finally, the hypothesis is answered and the main contributions to knowledge are discussed.

2 Literature review

2.1 Training

Training is defined as an educational act and a systematic effort made by enterprises in order to increase the potential of their three main areas such as cognitive, psychomotor, and affective. In other words, training is the action aimed at developing workers' aptitudes, attitudes, and skills so they can perform their job effectively. Chiavenato [2] considers it as a short-term educational process, which is systematically applied and organized through which people develop competences such knowledge, skills and attitudes according to predefined aims.

Nevertheless, small enterprises offer less training to their employees. Moreover, small organizations tend to prefer in situ training to that provided by companies devoted to it [13]. The lack of time, high costs, slowness and scarcity of information are frequently cited reasons for not offering external training. Compared to large companies, small ones have less capability to make up for the temporal losses in productivity which can be present in the formation stages. In other words, small companies are less able to allow their employees to be absent or replace them when they are in training. Several studies show that employee training has a positive impact on the enterprises' performance. These studies usually establish the hypothesis that training helps employees improve their productivity level, which is then translated into a better organizational performance [1].

2.2 Satisfaction

The need to assess the effectiveness of information systems (IS), coupled with the difficulty of operationalizing economy based variables have accelerated the search for easily measurable variables, in this case, user satisfaction and system use [4]. There have also been attempts to measure users' satisfaction with information as a substitute for IS total effectiveness in the organization [16]. Even then, user friendliness and interface are both associated with IS

satisfaction, but the lack of positive benefits leads to a decrease in the use and eventual disappearance of the system or even the IS department [4].

The IS user's satisfaction and performance is an important assessment parameter [21], this variable has been the research object since the 1970's; despite this, there is not an understandable theoretical assessment. The scale developed by Ives, Olson and Baroudi [10] is one of the most popular. No doubt, satisfaction has been a widely researched topic; however, the analyses conducted correspond to particular contexts. Therefore, such studies share the belief that they need further research due to the complexity of the concept and the multidisciplinary nature of the elements they contain. The lack of agreement in the conceptual definition of the user satisfaction variable leads to a situation in which there are many operationalizations and definitions. It refers to a positive orientation that an individual has towards an information system [9], an attitude/feeling that he or she has as a result of a transaction [23], affected by a variety of factors in a situation and associated with the perception of an application.

Having reviewed the literature, the hypothesis for these variables is now introduced:

H₁. Training is an influential factor in the AIS users' satisfaction.

2.3 Decision-making

Decision-making is defined as the selection of a course of action from several alternatives; it is at the center of planning. Sometimes, managers view decision-making as their main task, as they constantly have to decide what to do, who does it, when to do it and even how to do it [22]. The IT includes all the range of operations and decision-making activities. This is both a beneficial aspect and a difficulty, Eisenhardt [5] argued that little research on decision-making had been undertaken until the late 1980's; other scholars such as Teng and Calhoun [20] state the potential effect of information technology on decision-making at all levels has been captured by the IT researchers from the beginning of the informatics era; since the world is moving towards open and global markets, the need to have access to timely, reliable and easy information will be essential for effectiveness in decision-making processes [7]. For this reason, managers of enterprises need to determine the extent to which IT helps in the achievement of decision-making aims.

The IT decisions have the potential to change individuals, businesses and societies at large. However, they need to be made in an accurate, fast and timely manner. Arguably, technologies help improve productivity, and decision-making [8]. Research has found that IT can change the hierarchy in decision-making activities, which lowers the cost of information acquisition and distribution [14].

H₂. Training is an influential factor in the IT users' decision-making processes.

2.4 Competitiveness

Competitive advantage is a phenomenon that occurs when a firm experiences returns that are superior than those of its competition (rents) [12]. The classical conception of competitiveness was very similar to competition as it denoted rivalry among economic agents. If understood like that, a high concentration of enterprises with scarce differentiation attributes can occur. However, what is needed is to defeat the competitors through competitive advantage. Therefore, competitiveness should be addressed beyond competition since competitive advantage is not only about defeating competitors, but defeating them with superior qualities. Another approach adopted by the Organization for Economic Cooperation and Development [18] defines competitiveness as the capability that an enterprise, industry, region, or nation has to generate revenue and high employment rates in a sustainable manner when international competition exists.

Generally speaking, competitiveness is considered to be meant success. Competitiveness can be considered a multi-dimensional variable with a series of variables that need to be adopted jointly in order to be measured [15]. On the way to meet that aim, it is important to recognize that competitiveness does not rule out cooperation, particularly from a national perspective. But even more significant is the fact that this aim requires entrepreneurs to be willing to construct companies which can build their way on their own. This way starts by giving priority to the domestic market, as the internationalization requires them to face the demanding world market challenges [19].

In addition, Lavon and Todd [12] state that those organizations that refuse to invest in IT are likely to miss the opportunity to improve their efficiency and effectiveness. If such companies operate in a highly competitive environment, which is the current tendency as a result of globalization, then they will be more likely to fail in the market in which they operate. The need that small and medium sized enterprises (SME's) have to address the concept of competitiveness is evident. The addressing of such a concept can allow them not only to face competition, but also to survive over time.

H₃. The training of AIS' s users is an influential factor in the enterprise's competitiveness.

3 Method

All today's IT, which were unimaginable a few years ago, have made a significant progress in the study, treatment, analysis and outcomes of large amounts of information in all knowledge areas. That is to say, the methodological limitations are no longer a critical issue for those who seek empirical evidence. On the other hand, a clear definition of the dependent variable enhances the reliability of the results obtained; otherwise, the research becomes speculative only.

For this study, the definition and operationalization of the variables were carried out as follows:

- Dependent variables: Satisfaction (trust in the accounting information system, feelings of efficiency and effectiveness) and Competitiveness (financial performance, market share, innovation levels in products/services, customer satisfaction).
- Independent variables: Training (updating in informatics, continuous program, personal skills).

The empirical part of this project took place in the central region of the Mexican state of Tamaulipas. The process followed to meet the stated aim started with the state-of-the-art review of the variables to test, mainly in scientific journals, prestigious books and official websites. A questionnaire was designed which included 10 open ended and 88 five point Likert scale items. The open ended items were about demographics and the Likert scale items covered the variables under study. The questionnaire was piloted with 12 enterprises, and resulted in the elimination of 10 items which lacked the minimum recommended statistical loading. Therefore, the final version of the questionnaire included 78 items. For this study, only four variables are considered, with 5 items for Satisfaction, 4 for Decision-making, 3 for Competitiveness, and 3 for Training.

According to the National System of Entrepreneurship Information (<http://www.siem.gob.mx>), a total of 1463 SMEs were registered in the state of Tamaulipas (in Mexico, small enterprises are those which have between 11 and 50 employees and medium-sized enterprises are those with a range of 51 and 250 employees). The region under study has 365 SMEs. Unfortunately, managers/leaders' participation in research continues to be poor. Therefore, the final version of the questionnaire was administered to 46 enterprises (92 valid questionnaires for their analysis). Those people who make the most use of information in enterprises such as the manager, owner and the person in charge of the computers department answered two questionnaires per enterprise. Two masters' students who have an active professional live and two undergraduate students provided support in the data collection process. The respondents were given a week to return the completed questionnaires so they could have the freedom and sufficient time to answer it appropriately. The researched enterprises represented different types of enterprises as the study was transversal in nature. Based on the data collected, the analysis of results is presented mainly using descriptive statistics and regression analysis with the help of the SPSS software package version 18.

Results

The first step was to analyze the descriptive data of the respondents in order to obtain a profile of them. The analysis reveals that 67% of the AIS users are females. Therefore, it is recommended that the training provided be *accessible* to all the participants, especially female participants, in terms of knowledge acquisition and skills development. The most

predominant age group of the respondents is that between 21 and 30 years (87%). That is to say, while their age suggests that they are likely to embrace IT, they are also in need of continuous training. 52% of the AIS users are accounting assistants, 39% are accountants, 7% are administrative staff, and 2% are data entry operators.

In the hypothesis assessment, reliability degrees of each of the variables measured with the Cronbach's Alpha: Training=.733, Satisfaction=.933, Decision-making=.929 and Competitiveness=.701. In order for a variable to be considered acceptable, its value needs to be greater than 0.7 [17]. If so, it indicates that the questionnaire is valid; and its results can be interpreted as reflecting the current reality.

It is important to indicate that according to Chin [3]: R (Relation) represents the *path coefficients*, which should obtain a value of 0.2 if they are to be considered significant, with above 0.3 being an ideal value. R² on the other hand, indicates the variance explained by the variable within the model. This should be equal or greater than 0.1, as lower values provide little information even if they are significant. Similarly, the significance should be lower than 0.05 (p<0.05). Of the three dependent variables, only one meets the previous requirements; and therefore, it is the only one accepted as true as the summary provided in Table 1 shows.

Hypothesis	R	R ²	Sig	Remark
H ₁ . Training → Sat.	0.221	0.048	0.393	Rejected
H ₂ . Training → DM	0.229	0.052	0.394	Rejected
H ₃ . Training → Com.	0.362	0.131	0.050	Accepted

Table 1. Hypotheses Testing Summary

Sat. : Satisfaction, DM : Decision-making, and Com.: Competitiveness

Figure 1 shows the tested research model, which includes a graphical representation of the data as stated on table above. It also includes the levels of relation between the independent and dependent variables with their respective hypothesis.

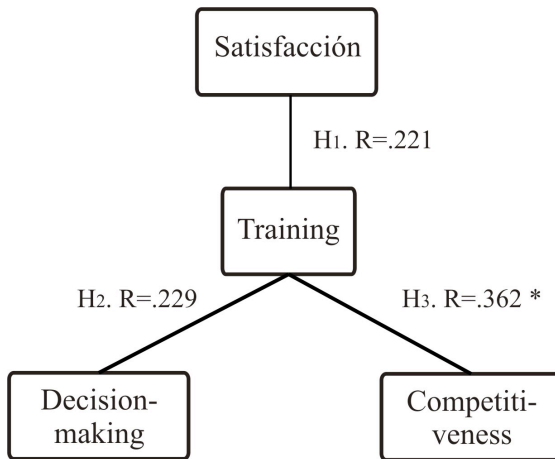


Figure 1. Tested Research Model

This figure shows that of the three stated hypotheses, only one (H₃) is accepted. Therefore, the following conclusions are drawn:

H₁: Rejected; although it achieves an R=.221 level, which is greater than recommended, it falls behind the variance explained (R²), with only .048 and with little significance (it is greater than 0.05, achieving 0.393) (See Table 1). This may mean that the training program provided to the AIS users is not working effectively for their satisfaction. This is especially true for the little confidence that users have in the data they enter and obtain. In other words, users do not clearly perceive efficiency in the operation of the AIS. Two situations might explain this. Either there is a lack of training or the training provided is inadequate.

H₂: Rejected; even though it achieves an R=.229 level, which is greater than recommended, it falls behind the variance explained (R²), with only .052, and with little significance (it is greater than 0.05, achieving 0.394) (See Table 1). This can also be interpreted that the training received by the AIS users is not helping them make good decisions. In other words, the AIS is not providing them with relevant information than could be useful for their decision-making practices.

H₃: Accepted; it achieves a level of R=.363, which is greater than recommended, the explained variance (R²) achieves acceptable levels of .131 and with a significance of 95% of reliability (lower than or equal to 0.05, achieving 0.05) (See Table 1). This suggests that training always has an impact somewhere in the organization. In this case, it appears that training has an impact on competitiveness. That is to say, the AIS users seem to believe that their organization is obtaining a market gain, a certain degree of innovation, a higher level of profit margin, and above all, a higher level of customer satisfaction. They seem to attribute all these benefits to the training they receive in the operation of these IT.

4 Conclusions

The world is rapidly changing and creating large amounts of information which have not been exploited sufficiently by institutions. This is so even though it is widely known that information exists in both the physical world by which we are surrounded and the mental world of the human thoughts also known as *the computer limbo*, as information is created, stored, managed, and organized for its own benefit and that of the human capital. The accounting information systems have become essential in organizations as they are the main generators of information for their users which can later be used in a wide range of activities of the administrative process.

The aim of this study was to determine the degree of influence that Training, has on the Users of the Accounting Information Systems of the Small and Medium Sized Enterprises for their Satisfaction, effective Decision-making, and Competitiveness. With the support of the review of the literature, the three stated hypotheses have been answered. Now, answers to the stated aims and the research questions will be provided next.

In that context, it is important to recall that the training provided to the users of the accounting information systems is of paramount importance. However, in this case, it is only having a positive influence on the competitive levels of the organizations. Unfortunately, there are other aspects of organizations such as customer satisfaction that are equally, or even more, important. In particular, the results show that users satisfaction is an aspect that is not being successful. Therefore, it is highly recommended that organizations should make every effort to attempt to maintain the AIS users' motivation so they can remain productive and can make contributions to the organizations. Failing to perceive the usefulness of the information generated by the AIS can lead to a lack of trust in the AIS processes. Therefore, if the AIS users do not trust the AIS, they will be very unlikely to take advantage of all the benefits that these technologies can bring to themselves as users and to the enterprise at large.

Similarly, the procedures followed during the decision-making processes also need to be further assessed. The AIS users seem to be under using the information generated by the AIS as they consider it insufficient for their decision-making practices. They seem to believe that they need a wider range of alternatives at their disposal that can assist them in their decision-making practices, which unfortunately the AIS is not providing them. Further research can have this as a starting point as the worldwide tendency is the emphasis placed on the importance of empowering employees so they can make their own decisions, especially, if based on information generated by the AIS.

Likewise, it is important to recognize that training is being perceived by the organizations and their employees as valuable for their competitiveness development efforts. This was reflected in their confidence that the organization is

making progress in terms of financial performance, market share, and customer satisfaction thanks to training. Therefore, the training in the operation of the AIS that they have received has had a direct impact on competitiveness, which is an important variable for the development of positive relationships between different parties such as users, organization, and technologies.

5 References

- [1] Betcherman, G.; N. Leckie; K. McMullen. "Barriers to Employer-Sponsored Training in Canada", *Réseauxcanadiens de recherche en politiques publiques*, Ottawa, p. 28, (1998)
- [2] Chiavenato, I. "Las etapas de evaluación de un proceso de capacitación, Administración de Recursos Humanos". 8va edición, Mc Graw Hill, México, (2007).
- [3] Chin, W.W. "Issues and Opinion on Structural Equation Modeling". *MIS Quarterly*, 22(1), pp. vii-xvi, (1998)
- [4] DeLone, W.; E. McLean. "The DeLone and McLean Model of Information Systems Success: A Ten-Year Update". *Journal of Management Information Systems*, 19(4), pp. 9-30, (2003)
- [5] Eisenhardt, K.M. "Making Fast Strategic Decisions in High-Velocity Environments". *Academy of Management Journal*, 32(3), pp. 543-576, (1989)
- [6] Escobar, I.; E. Tamayo. "Contabilidad". EDITEX. Madrid, (2008)
- [7] Hamill, J.; R. Deckro; J. Kloeber. "Evaluating Information Assurance Strategies". *Decision Support Systems*, 39(3), pp. 463-484, (2005)
- [8] Hubbard, T. "Information, Decisions, and Productivity On-Board Computer and Capacity Utilization in Trucking". University of Chicago and NBER. DRAFT. September, (2001)
- [9] Ishman, M. "Measuring Information Success at the Individual Level in Cross-Cultural Environments". *Information Resources Management Journal*, 9(4), pp. 16-28, (1996)
- [10] Ives, B.; M. Olson; J. Baroudi. "The Measurement of User Information Satisfaction". *Communications of the ACM*, 26(10), pp. 785-793, (1983)
- [11] Koontz, H.; H. Weihrich; M. Cannice. "Administración. Una Perspectiva Global y Empresarial". 13a. Edición, McGraw Hill, México, (2008)
- [12] Lavon, G.; M. Todd. "Information Technology and Its Role in Creating Sustainable Competitive Advantage", 6(1). Consulted: jul 5, In: [<http://www.jimsjournal.org/pi.html>], (2011)
- [13] Leckie, N.; A. Léonard, J. Turcotte; D. Wallace. "Pratiques des ressources humaines perspectives des employeurs et des employés". Statistique Canada, Ottawa, (2001)
- [14] Malone, T.W. "Is Empowerment Just a Fad? Control, Decision Making, and IT". *MIT Sloan Management Review*, 38(2), pp. 23-35, (1997)
- [15] Mayer, T.; J. Mucchielli. "Hierarchical location choice and multinational firms' strategy: a nested logit model applied to Japanese investment in Europe". *Multinational Firms: The Global and Local Dilemma*, London: Routledge, pp. 133-158, (2002)
- [16] Miller, J.; B. Doyle. "Measuring the Effectiveness of Computer-Based Information Systems in the Financial Services Sector". *MIS Quarterly*, 11(1), pp. 107-124, (1987)
- [17] Nunnally, J.C. "Psychometric Theory". McGraw Hill Editorial, New York, U.S.A., (1978)
- [18] OECD (Organisation for Economic Co-operation and Development). "Industrial Competitiveness". Paris, (1997)
- [19] Rozzo, C. "Internacionalización y Competitividad". *Política y Cultura*. No. 2, México, pp. 307-318, (1993)
- [20] Teng, J.; K. Calhoun. "Organizational Computing as a Facilitator for Operational and Managerial Decision Making: An Exploratory Study of Managers' Perceptions". *Decision Sciences*, 27(4), pp. 673-710, (1996)
- [21] Torkzadeh, G.; X. Koufteros; W. Doll. "Confirmatory Factor Analysis and Factorial Invariance of the Impact of Information Technology Instrument". *Omega*, 33(2), pp. 107-118, (2005)
- [22] Weihrich, H.; M. Cannice; H. Koontz. "Management: A Global & Entrepreneurial Perspective". McGraw Hill. Edition 11th, (2010)
- [23] Wilkin, C.; B. Hewitt. "Quality in a Respecification of DeLone and McLean's IS Success Model". In: M. Khosrowpour (Ed.). *Proceedings of IRMA International Conference*. Hershey, PA: Idea Group Publishing, pp. 663-672, (1999)