

Results of the Information Technology Outsourcing Study from the Perspective of Internal Users in Public Organizations in the Province of Manabí - Ecuador

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Abstract—The participation of users of information technology (IT) is limited in the knowledge of the services provided by the IT Outsourcing of a company outside to the organization. The departments of public organizations in Ecuador use the services of IT Outsourcing and have as problematic the different common factors such as: linking users to projects, low level of knowledge, advances in technological resources innovation, organizational instability among others. The objective of this research is to present the results obtained from a survey from the perspective of the users to know the level of knowledge in the use of IT, knowledge about the services offered by the IT department, qualification of the management of outsourcing services of IT, knowledge of IT outsourcing, level of participation, areas of IT outsourcing that have problems and which are the risks of IT Outsourcing. The methodology used was a survey aimed at 100 people working in 20 public organizations. As the results and conclusions Users have a low level of knowledge in the use of IT, only 50% know about the services offered by the IT department, qualifying the management of services as high. 50% of users have knowledge of IT Outsourcing and their level of participation is nil. The area of IT outsourcing technologies have problems in the organization and the risks of innovation and technological complexity have an impact on public organizations.

Index Terms—IT Outsourcing Risks, IT Users Perspective, Areas of IT Outsourcing Organizations, IT Outsourcing Services, IT Outsourcing.

I. INTRODUCTION

In public organizations, technological services are essential to improve the processes they provide to users. These requirements have different expectations in the results that can be obtained. It is known that IT outsourcing is a technological tool that manages to improve administrative management through the use of electronic devices.

The decisions making of senior managers in public and private organizations are important in the use of IT by the demand for services that generate competition for the development of the business [10]. In recent years, there

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have been publications of different conceptual models in the IT governance environment [11], where they consider IT outsourcing as a service increasing their application within the different productive areas of the organizations.

With this, these organizations aim to focus on carrying out the processes that were initially created. The processes that have difficulties are designated to specialized information technology service organizations. IT outsourcing is a global phenomenon because they are decisions of strategies that are used to recognize what are the reasons and risks that should be considered in the implementation [7].

With the use of IT Outsourcing, organizations are more competitive and flexible, however, limitations are oriented on the project contract environment where the risks are presented [16]. The risks can be the exposure to a situation where there is the possibility of suffering harm or being in danger. The event of that threat may have a negative possibility towards someone who is exposed.

These organizations are managed by laws and rules of a given country allowing reforms to be changed by management at any given time. This instability is credited to varies currency, changes in internal policy, language, social environment, and technology among others. These variations of results in technology services are provided by public organizations and considered a as risk cause [31]. Among the main reasons that public organizations use IT outsourcing is to focus on a specific area. This allows the reduce of cost, improve service productivity, and lessen usage time [17].

Before the organization determines to use IT Outsourcing in one or several processes, it must first establish the reason for using it and determine which service process will be hired. It is recommended that organizations establish the limit of coverage of IT Outsourcing processes as a requirement, this defines which technological platforms will be used to transfer the activities of the organization. Once this procedure is completed, the IT Outsourcing will have to be compatible with the organization's environment in areas such as quality of service, updating of technological resources and the exchange of knowledge management among the organizations involved in the contract.

At present, Ecuador is in a transition of internal politics, but with stable economic stability in relation to previous years. This has different reactions in the obtaining of services by users, where the use of IT outsourcing is increased in the areas of services that meet the needs of improving the management of internal processes.

In the review of the literature, several problems of IT users and areas of IT Outsourcing were found, these are:

- Social changes, the most recent economic and technological changes influencing the problems in public organizations because they modify the instability of users in the environment of information technologies, causing uncertainty about the contracting of IT Outsourcing in organizations.

- IT Outsourcing has a number of positive aspects in the execution of IT projects in the public sector, but the disadvantages are that this sector does not prioritize the mitigation of risks.

- The public sector contracts the IT Outsourcing services management service for the satisfaction of users but forgets that the areas of the organization require technology changes according to the requirements of the project to be contracted.

- Technological innovation represents problems in decision making in public organizations because the growth of IT Outsourcing requires periodic evaluations of the control of the risks that are generated by the environment in which the organizations are developed.

Knowing the problems found in the literature on the areas, risks of IT Outsourcing and the participation of IT users. We propose the following research question to find out the perception of internal users in public organizations of the province of Manabí- Ecuador.

What are the areas and risks of IT Outsourcing in public organizations in the province of Manabí-Ecuador from the perspective of internal users?

To answer the general question, we pose the following questions:

- a. What is the level of knowledge in the use of IT?
- b. What knowledge do you have about the services offered by the IT department?
- c. What is the qualification of the users of the management of IT outsourcing services?
- d. What knowledge do you have about IT Outsourcing?
- e. What is the level of participation in IT Outsourcing?
- f. What are the IT outsourcing areas that have problems in the organization?
- g. What are the risks of IT Outsourcing?

The problem originates in public organizations in the province of Manabí, in the linking of the IT users of different areas in IT Outsourcing projects due to the low-level of knowledge and the accelerated innovation advances of the technological resources, and for organizational instability.

The objective on the research is to present the results of the surveys in the public organizations of the Manabi province on the areas and risks of IT Outsourcing from the perspective of IT users, highlighting their levels of participation.

This research work is structured as follows: Chapter 2 details important concepts such as the areas of organizations, risks of IT Outsourcing and the perspective of the users. Chapter 3 shows the methodology, which includes the way in which field research was developed. In chapter 4 the results are detailed by means of different tables and statistical figures, including a discussion of the relevant data of the investigation. Finally, we find the conclusions reached in this investigation.

II. THEORETICAL REVISION

This research is based on the following themes of the revision of literature:

A. Areas of IT Outsourcing

In the public sector, organizations have different regulations that are established by the governments of each country; but this does not influence the risks of IT Outsourcing that are present in the organization; but this does not influence the risks of IT Outsourcing that are present in the organization, whether public or private. In the areas of public organizations there is the presence of IT Outsourcing risks, identifying the literature in the following:

- Commercialization / Business. For [14] [18], establish that the areas of commercialization/business refer to the different changes in the processes that involve competitiveness, problems with the signing of new contracts and the commercialization of the service.

- Organizational. In the organizational areas, the problem of acquiring materials, managing knowledge and IT resources to develop new processes of IT projects and the creation of new facilities with the requirements requested by the initial project being involved. [18].

- Financial. In the financial areas, its objectives are the reduction of cost in relation to what service the provider offers, implementing controls to improve the cost through use in relation to the cost and the restructuring of the IT budgets in relation to the contracts that are not defined in the organization. [14] [18].

- Development Processes. In the areas of development processes, customers have difficulty meeting the requirements and performance needs because the products are designed in complex ways and are not willing to contribute with new knowledge to solve problems in the area of the organization [18].

- Technological. In the technological area, they refer to the accelerated advance of the technology, technical complexity, technology that is in development, innovation of technologies and the changes of needs and requirements of the organizations [14] [18].

- Human Resources. In the areas of human resources, the different problems of the workload and the difficulty of communication with the personnel involved in the IT projects are referred to [18].

- Clients / Users. The areas of clients/users refer to the lack of knowledge, support, and experience in IT projects [18].

- Externalization. The areas of outsourcing refer to the lack of management experience of the client and the supplier at the time of the contract, and small numbers of suppliers [18].

- Technical. In the technical areas, organizations have problems in the hiring along with the retention of personnel trained and experienced in IT projects. This makes it difficult for new technologies to be accessed by companies specializing in IT [14].

- Political Affairs. The policy areas, refers to the fulfillment of the decision making of the managers of the public organization, justifying new resources, an increase of physical space, equipment and personnel when it is verified

that the use of IT Outsourcing is not justified in the organization [14].

- Environment. The areas of the environment refer to the imitation of the different organizations that provide the same service, the pressure of the suppliers to increase the management service processes and the advertising coverage on the results obtained in the IT services [14].

B. Risks of IT Outsourcing.

Initially, the IT Outsourcing service was used by large organizations, but over time small organizations frequently resorted to these services to obtain unavailable or internally possible capabilities to improve services [7].

The risks of IT Outsourcing in organizations must be measured according to the market's competitiveness, being important that the top managers of the organizations have a professional group that supervises the management of IT Outsourcing processes, the actions of this group will be important in the evaluation of risks to significantly mitigate the problems that may arise in a certain sector [14].

According to several studies reviewed, there are 85 risks of greater affectation for IT Outsourcing. Table 1 details the risks with their respective reference.

TABLE 1.
RISKS OF IT OUTSOURCING

Nº	Description	Reference
R1	Economic and financial risks	[1] [3] [15] [26]
R2	Currency variation risks	[3]
R3	Risks of the legal environment of the contract	[4] [6] [15] [18]
R4	Risks of contract problems	[15]
R5	Policy risks, laws and contract protection	[3]
R6	Relationship risks and control of IT outsourcing	[15]
R7	Organizational environment risks	[2] [3] [15] [22]
R8	Communication risks of the work group	[5] [6] [14] [15] [18] [23]
R9	Staff risks	[3] [15]
R10	Risks of innovation and technological complexity	[3] [4] [5] [12] [15]
R11	Risks of the cultural environment	[1] [4] [15] [32]
R12	Risks of flexibility of the client	[1] [15]
R13	Risks due to lack of knowledge of services	[3] [15]
R14	Planning and control risks	[13] [15]
R15	Contract risks	[12] [15]
R16	Risks of the user	[15]
R17	Risks of the scope and requirements	[13] [15]
R18	Risks of execution	[13] [15] [32]
R19	Risks of being stuck	[15]
R20	Risks of expensive contractual modifications	[15]
R21	Risks of unexpected costs of transition and direction	[15]
R22	Asset specificity risks	[15]
R23	Risks of the small number of suppliers	[15]
R24	Risks of uncertainty	[15]
R25	Risks of measurement problems	[15]
R26	Risks of experience with the operation of IT	[15]
R27	Risks of poor management	[15]
R28	Risks of uncertainty in business	[15]
R29	Risks of outdated technological knowledge	[15]
R30	Risks of endemic uncertainty	[15]
R31	Risks of hidden costs of transition and administration	[5] [6] [15]
R32	Risks of lack of organizational learning	[15]
R33	Risks of dangers of the eternal triangle	[15] [30]
R34	Risks of technological invisibility	[15] [30]
R35	Risks of diffuse approach	[15]

R36	Risks of possible weak direction	[3] [15]
R37	Risks of instability of requirements	[4] [15]
R38	Risks of coordination between client and seller	[4] [15]
R39	Reliability risks of selected sellers	[4] [15]
R40	Programming or software risks	[1] [5] [15]
R41	Technician or maintenance risks	[1] [15]
R42	Supplier or seller risks	[1] [13] [15]
R43	Reputation risks	[1] [15]
R44	Intellectual property risks	[1] [3] [13] [15]
R45	Compliance or calendar risks	[1] [5] [15]
R46	Quality risks	[1] [5] [6] [15]
R47	Obsolescence risk	[15]
R48	Staff safety risks	[15] [32]
R49	Cost risks of negotiating and enforcing the contract	[15]
R50	Data or system security risks	[3] [6] [15]
R51	Risks of not caring for the interest of the client	[3] [15]
R52	Risks of outsourcing basic activities	[3] [15]
R53	Risks of difficulty of insourcing	[15]
R54	Requirements risks	[15]
R55	Risks related to users	[15]
R56	Project complexity risks	[15]
R57	Coordination costs risks	[15]
R58	Risks of flexibility and control	[15]
R59	Risks of lack of customer experience	[15]
R60	Risks of opportunistic behavior of the provider	[15]
R61	Risks of lack of supplier experience	[15]
R62	Risks of financial responsibility of the seller	[15] [27]
R63	Risks of control of seller's results	[15] [27]
R64	Contract duration risks	[15]
R65	Risks of loss of basic skills and information	[15]
R66	Risks of dealing with IT as an undifferentiated commodity to be outsourced	[15]
R67	Risks of lack of an active address of the contract provider and the consequent relationships	[15]
R68	Risks of failure to build and retain the appropriate knowledge and skills internally	[15]
R69	Asymmetry of power risks in favor of the supplier	[15]
R70	Risks of difficulties in building and adapting agreements in the face of rapid technological and business changes	[15]
R71	Risks of lack of maturity and experience in hiring to direct "total" outsourcing contracts	[15] [21] [29]
R72	Risks of short-term approach	[15] [27]
R73	Risks of unrealistic expectations with multiple outsourcing objectives.	[15]
R74	Risks of poor contracting for the development of new technologies	[3] [15] [32]
R75	Environmental and social risks	[15] [23] [24] [25]
R76	Risk of the natural environment	[3] [15]
R77	Time zone risks	[27]
R78	Language risk	[18] [27]
R79	Risks of contracting services	[31]
R80	IT insurance risks	[22]
R81	Transaction blocking risks	[5] [6]
R82	Geographical concentration risks	[3]
R83	Customer concentration risks	[3]
R84	Competitiveness risks	[3] [6]
R85	Strategy risks	[3]

C. Internal IT users

Within organizations, users internal of IT must have skills such as routines, processes, and resources specific to the organization, necessary for the objectives of IT Outsourcing [9]. The IT knowledge capabilities of the user are necessary to ensure the effectiveness of the start of the IT Outsourcing project [28]. This ability that the user achieves ensures that IT resources are acquired, distributed and managed in an appropriate manner to meet the requirements of a specific set of knowledge of technological functions in the organization [19]. This knowledge is used to manage and take advantage

of technologies to gain a competitive advantage in the organization [20].

III. METHODOLOGY

This research was carried out in 20 public organizations in the province of Manabi in the Republic of Ecuador, through a survey applied to 100 people (IT users) of the Autonomous Decentralized Governments of the cantons of the province, Districts of Education and universities of the public sector.

To collect the information, the visits were made with the permissions of the authorities of the organizations, with the knowledge of the norms, regulations, chronograms, and dispositions of each organization.

To fulfill the objective of this study, the survey was structured as follows:

1. General information of the participants
2. Related to risks
3. Open interviews

A. Context

Within the context of the development of the research, the public institutions of the province of Manabí were distributed as follows:

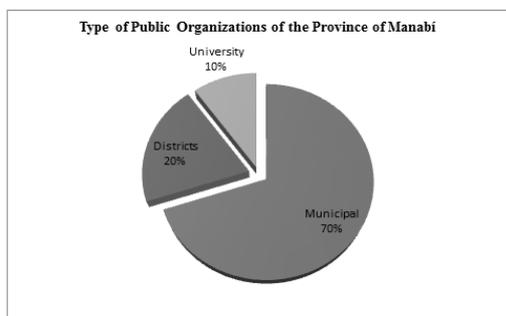


Fig.1.

TYPE OF PUBLIC ORGANIZATIONS OF THE PROVINCE OF MANABÍ

Fig.1, shows the public organizations that were considered for the research, having 70% of the results obtained from the Decentralized autonomous government (GAD), 20% of the districts and 10% of the universities of the province of Manabí. To carry out this research, a questionnaire was used, which was applied to the IT users who worked in the departments of the organizations involved.

In figure 2, we perform the tabulation with the results of the academic level of IT users in public organizations.

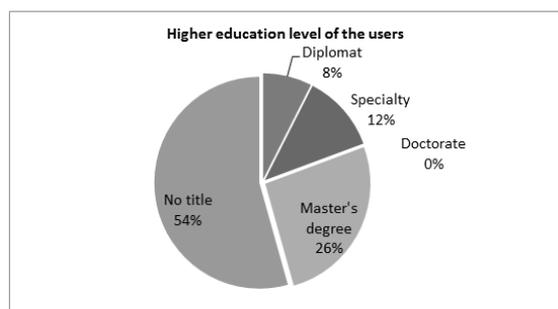


Fig 2.

HIGHER EDUCATION LEVEL OF THE USERS OF THE PUBLIC ORGANIZATIONS OF THE PROVINCE OF MANABÍ

According to fig. 2, 54% only have a university degree, 26% of the users have a master's degree, 12% have a specialty degree and 8% have a diploma.

IV. RESULTS AND DISCUSSION

In this section the results are presented according to the investigation. We begin with the level of knowledge regarding the use of IT in public organizations.

A. Level of knowledge in the use of IT.

According to the results found in the research on the level of knowledge in the use of IT in public organizations are the following:

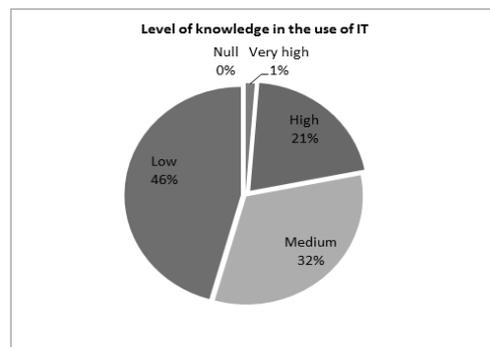


Fig 3.

LEVEL OF KNOWLEDGE IN THE USE OF IT

According to figure 3, the results obtained from IT users, 46% have a low level of knowledge because they only know the basic concepts of the use of IT, 32% the level of knowledge is medium due to having received training or has experience in the use of TI, 21% the level of knowledge is high because it has received training and has experience in the use of TI. The results show that the majority of IT users only know the basics of using IT because most of them are specialized in the areas that work in the organization.

B. Level of knowledge of the services offered by the IT department.

The level of knowledge of the services offered by the IT department according to IT users, are the following:

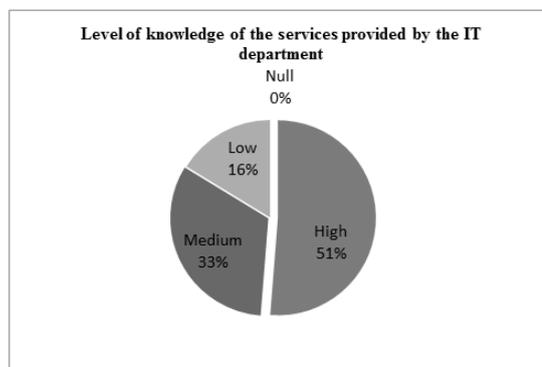


Fig 4.

LEVEL OF KNOWLEDGE OF THE SERVICES PROVIDED BY THE IT DEPARTMENT

According to figure 4, 51% have a high level of knowledge of the services offered by the IT department 33% the level of knowledge is medium because they know most of the management services that are of their utility and 16% the level of knowledge is low because they know a minimum of management services that are for their use. It is

important to highlight that the percentage is high because it knows all the services that have IT outsourcing in public organizations, there is technical support and support of technologies that support the management of services in different areas.

C. Qualification for the management of IT outsourcing services

The results in the research on qualification of IT outsourcing services are the following:

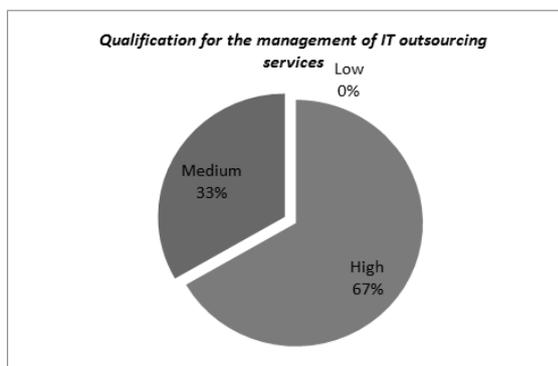


Fig 5.
 QUALIFICATION OF THE MANAGEMENT OF IT SERVICES

According to fig 5, the results obtained from IT users, 67% indicated that they would qualify it as high because it is very easy to access, while 33% indicated that it is easy to access, however the terminology is sometimes not understood. It is important to determine that IT users qualify as high access to information, this helps different areas provide a service with an optimal time.

D. Knowledge about IT Outsourcing.

The results in the research on knowledge of IT outsourcing are the following:

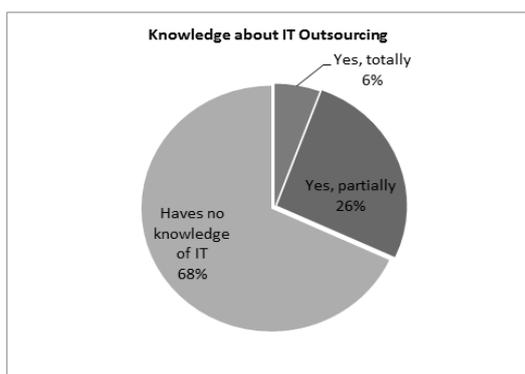


Fig. 6
 KNOWLEDGE ABOUT IT OUTSOURCING

According to fig. 6, the results obtained from IT users, 68% have no knowledge of IT Outsourcing, 26% indicated that they know about IT Outsourcing but partially, while 6% indicated that they know well. on the topic of IT Outsourcing. The results are very high indicating that they do not know about IT Outsourcing, this is notorious because in the investigation showed ignorance on the subject.

E. Level of participation in IT Outsourcing.

The results in the research on the level of participation in IT Outsourcing are the following:

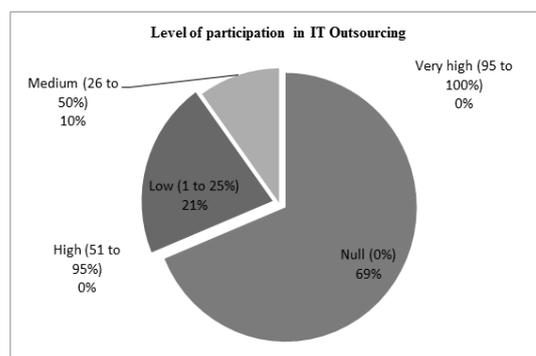


Fig. 7.
 LEVEL OF PARTICIPATION IN IT OUTSOURCING

According to fig. 7, the results on the level of participation of the IT users are: 69% indicating that it is null, that is to say that they have no participation, 21% participation is low (up to 25%) and 10% indicated that their participation is medium (26 - 50%). The results indicate that the participation of the users in IT Outsourcing is null, that is, they have no knowledge or participation in IT Outsourcing projects.

F. IT outsourcing areas that have problems in the organization

The results in the investigation of the areas of IT outsourcing where there are problems in the organization are the following



Fig. 8.
 IT OUTSOURCING AREAS THAT HAVE PROBLEMS IN THE ORGANIZATION

The results of fig. 8, indicate that the areas where the problems with IT Outsourcing are found present the following: 31% indicated the areas of technology, 23% are the areas of outsourcing, 17% are the technical areas, 13% are the processing areas of development, 9% are the areas of the organization, 6% are the marketing / business areas and 1% are the financial areas.

G. IT Outsourcing Risks

The surveys were conducted to 5 users randomly in the different departments of the public organizations of the province of Manabí, so it is important to determine the knowledge deficit of IT outsourcing. The results obtained in fig 9 show the number of people who selected some risks considering that several people did not respond to the question asked in the survey.

The results in the research on IT Outsourcing risks are the followings:

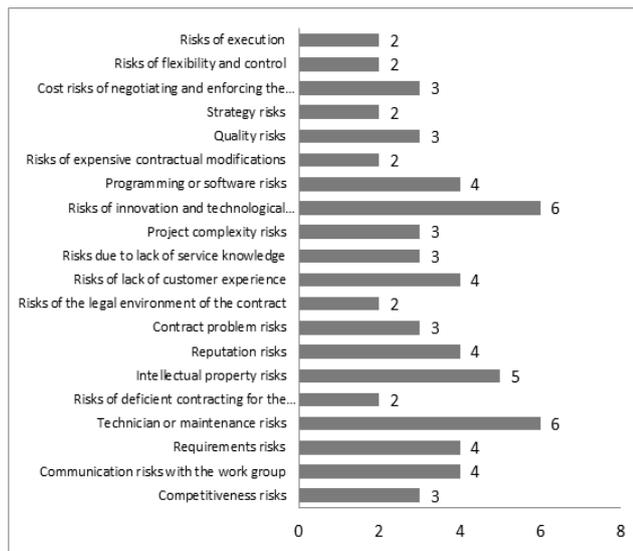


Fig. 9.
 RISKS OF IT OUTSOURCING

Of the 85 risks found in the literature, IT users indicated that 20 risks are the most frequent. For the tabulation of the results we selected the risks greater than 5. The results obtained 67 users of IT selected 20 risks while 23 users selected other risks with values less than 2. In figure 9 the risks that have higher scores and are: 6 IT users selected the risks of innovation and technological complexity and 5 IT users selected the intellectual property risks.

V. CONCLUSIONS

From the results obtained from the study carried out, the following can be concluded:

- According to the recruitment policy in public organizations in Ecuador, IT users must provide their services according to the needs of each department within the organization and the results of the surveys determine that 46% of IT users have a Low level of IT knowledge, because their knowledge is basic and limited in the IT area.
- 51% of IT users are aware of the services offered by the IT department of the organization. This is obtained by the experience that users get in the frequency of managing any requirement.
- The qualification for the management of IT outsourcing services is high for users because the service generated in the use of technologies reaches the satisfaction of the services provided by the organization.
- The participation of the users in the IT Outsourcing is null of 69%, considering it as null because the IT departments consider that the users do not have the level of knowledge to integrate them into an IT project.
- 31% of users indicated that IT outsourcing technology area have problems in the organization because technology presents innovation and changes of new technologies make it difficult for users to carry out their activities.
- The results found in the surveys carried out for IT users indicate that the risks of innovation and technological

complexity have a greater presence in public organizations, in addition to the programming or software risks because IT users have a basic knowledge of the technologies. The risks of intellectual property mean that users request permission from the system, and the risks due to the lack of experience of the clients originate from the job instability that users have in public organizations..

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