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Project Management of Information Technology: A Survey Exploration Based On Benefits, Costs and Risks

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ABSTRACT: Recently, relevant changes have made organizational boundaries more fluid and dynamic in response to the rapid pace of knowledge diffusion, and innovation and international competition. This helps to reconsider how to succeed with the information and innovation. In this perspective, a significant numbers of organisations are investing large amounts of resources into information and communication technologies as they seek to gain competitive advantage. In this perspective, this article aims at presenting an exploratory study of project information technology (IT) management based on benefits, costs and risks. The research was developed in light of the literature and consulting with experts, which were selected for technical and scientific criteria, with knowledge about the investigated object. The data were collected through an array of trial, where experts presented their views on the variable benefits, costs and risks. The results were satisfactory, validating the proposal.

KEYWORDS: Projects of Information Technology, Benefits, Costs and Risks Management.

I. INTRODUCTION

Recently, relevant changes have made organizational boundaries more fluid and dynamic in response to the rapid pace of knowledge diffusion (Abrahamson, 1991[1]; Griliches, 1990 [2]; Liebeskind, 1996 [3]; Teece, 1986 [4]), and innovation and international competition (Chesbrough and Rosenbloom, 2002 [5]; Feenstra, 1998 [6]; Santos and Eisenhardt, 2005 [7]; Christensen, 2003 [8]; Damanpour, 1996 [9]). This helps to reconsider how to succeed with the information and innovation (Teece et. al., 1997 [10]; Tidd et.al., 1997 [11]; Teece, 1986 [4]; Martin, Horne, Schultz, 1999 [12]; Wheelwright and Clarck, 1992 [13]). In this perspective, a significant numbers of organisations are investing large amounts of resources into information and communication technologies as they seek to gain competitive advantage. Information Technology (IT) is increasingly being implemented for strategic reasons, so as to enable improved efficiency and to improve the control and productivity of internal processes (Stewart, 2008 [14]).

In fact, currently it has been noticed by experts the growing concern of organizations performing management of their IT projects in order to obtain satisfactory results. Edmonds (2009 [15]) reports that in the 1990s the project management was an area in early growth, however, it is now almost impossible to find any organization where there is not a project or sometimes hundreds, being managed. This, by the way, has its origin in continuing society modernization, where technological advances in various fields have become indispensable, and why not say "essential" to human life. So that, in the current environment in which ones live it is impossible to think of life in society without relating to the frequent technologies use that are at ones disposal. Stewart (2008 [14]), for strategic reasons, the



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Information Technology (IT) has been increasingly implemented by organizations, aiming to increase the efficiency of projects and improve productivity, and control of internal processes. It occurs that only to design, indiscriminately, on a large scale, without worrying about a strategic project management, or rather, with a management that takes into account, among other factors, the risks, costs and benefits throughout the cycle life of these technological projects implies undertake time and other expenses without the certainty of a compensatory return (Stewart, 2008 [14]; Uzzafer, 2013 [16]).

By managing IT projects, it has become "the application of knowledge, skills, tools and techniques to project activities in order to meet their requirements." (PMBOK ® GUIDE, 2008 [17]). There is no way to separate the success of IT projects from the management performed during its life cycle. However, according to Garel (2013 [18]) it took a long time for humanity to come to see this fundamental role, it plays in project management, and delegated to this, at first in our history, a secondary function, merely connected to techniques or practice of certain professions. To the referred author as soon as it was observed the gains from good projects management, it has been adopted in various fields of activity, including in the technology information area. It should be noted that project management must be done efficiently and effectively, always focusing on the frequent market changes and other internal and external factors that can influence positively and / or negatively the development of projects. (Stewart, 2008 [14]; Uzzafer, 2013 [16]; Sudhakar, 2012 [19]; Mcgrew and Bilotta, 2000 [20]; Edmonds, 2009 [15]).

A major challenge to be considered during this second management to Islam (2011 [21]) is the fact that such projects usually contain a significant amount of uncertainty, such as: continuous change in the project scope in order to accommodate the latest demands of the market, an inaccurate estimation of budget and schedule, also the high complexity of the system. These factors according to the author increase the likelihood of potential risks throughout the project life cycle, among other problems causing schedule delays, economic loss, customer dissatisfaction, market discontentment and reduce the successful ability of a project completion. Therefore, it is essential to carry out management as risk factors (Islam 2011[21]; Kujawski and Angelis 2010 [22]), costs (Jorgensen and Shepperd 2007 [23]; PMP 2003 [24]) and benefits (Stewart, 2008 [14]; PMBOK ® GUIDE , 2008 [17]). Trying to avoid project failure which may happen if not given immediate and effective response when observed some risk as the need to increase the time for completion of a project phase due to some internal or external factor noticed during the project.

With regard to the above factors, by the way, it is worth to remember that risk management "includes the planning, identification, analysis, response planning, monitoring and controlling risks of a project." (PMBOK ® GUIDE, 2008 [17]). For Dey, Kinch and Ogunlana (2007 [25]), risks are conditions or circumstances arising beyond the control of the project team, which will have an adverse impact on the project if they occur. The mentioned authors argue that managers of successful projects anticipate the solution of these problems prior to their occurrence, which is the art of risk management. "A reactive project manager tries to resolve problems when they occur. A proactive project manager tries to resolve potential problems before they occur "(Dey, Kinch and Ogunlana, 2007 [25]). For cost management "includes the processes involved in estimates, budget and cost control, so that the project can be completed within the approved budget." (PMBOK ® GUIDE, 2008 [17]). Stewart (2008 [14]) states that the organization needs to estimate the direct and indirect project costs for each phase of the IT projects life cycle.

As for benefits management, this happens through the discovery, management and use of information obtained for good project management, which allows the parties involved in the project development from a positive perspectives, since such information is used to favor of its proper implementation. For Stewart (2008 [14]) the benefits may be tangible, it may include time and cost reduction which are relatively easy to assess / measure, or intangibles can be those that are harder to measure and usually include non-monetary elements that are considered strategic or tactical in nature and whose financial rewards are difficult to predict. Thinking about these, it was decided to prepare this article which aims to present an exploratory multiple case study of IT project management in the light of the risks, costs and benefits in order to demonstrate the importance of management as well as how this management is being carried out. The purpose is to highlight and contribute to the dissemination of good practice in managing IT projects as a determinant of the project quality and satisfying the parties involved, this is because a good and effective project management can increase the chances of obtaining the good results one desires. On the subject, indeed, Edmonds (2009 [15]) states that "any organization in any sector of business can be a victim of project management failure, but if they



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do not want to suffer long-term damage, they need to treat the cause and take action to improve their chances of success "(Edmonds, 2009 [15]).

However, the failure of realising expected IT induced benefits has led to a growing number of senior executives to question the value of IT investments (Stewart, 2008 [14]). The work is oriented to IT projects developed in the State of Tocantins and focuses on the verification of the most important management aspects. This article is structured in the following sections: theoretical background - IT project management - risk management - cost management - managing benefits - design research - results and underlying analysis - results of field research: risk management - results field research: cost management - results of field research: benefits management - level of importance given to risk management, cost and benefits- conclusion and implications.

II. THEORETICAL BACKGROUND

The management of IT projects has been an important ally to obtain satisfaction with regard to the final product in such projects results and it must be taken into consideration when conducting management factors such as: risks, costs and benefits. In this study, management is the application of knowledge, skills, tools and techniques to project activities in order to meet their requirements. "(PMBOK ® GUIDE, 2008, [17]). From the theoretical clippings were raised major variables involved in the management of IT projects. Stewart (2008 [14]), by the way, the effective management of IT project allows the achievement of desired goals, with the life cycle of these projects be divided into three phases, which should not be seen as separate steps, but as part of a continuous effort of an interdependent management. The PMBOK ® GUIDE (2008 [17]) regarding this interactivity management plan that clarifies the relationship between managed factors "occurs so that if any of them change, at least one other factor is likely to be affected." The quoted guide adds that "[...] the project team should be able to assess the situation and balance the demands in order to deliver a successful project. "Thus, one should bear in mind that the management takes place interactively, with the factors interconnected, since the changes occurring on one factor may reflect changes in the other or others. (PMBOK ® GUIDE, 2008 [17], Stewart, 2008 [14]).

Moreover, the progressive elaboration of the project management plan should be made in the course of its life cycle so there is a continuous improvement and a detailed business plan and the specific information is verified, also it estimates is done accurately, as it was stated earlier, the proportion that the project progresses, IT project managers can treat it based on major features, continuously improving the management plan. About this, Edmonds (2009 [15]) posts in the sense of being important to adopt a consistent approach when the management of a project ensure that it has a controlled and organized start, middle and end. According to the author the progress of the project plan should be regularly monitored and there should be a built-in mechanism to analyze and learn from their mistakes, as this allows the project to move forward, and the manager being flexible without losing sight of the business goal.

Despite all this, it should be stressed that good management practice of IT projects involves performing basic activities to be adopted by the project manager as possible situations: immediate and appropriate responses to risks as they arise throughout the cycle life of the IT project, ensuring the viability and continuity of the project; the realization of the estimation of project costs for each stage of the life cycle, as well as strategic planning, budget setting and control costs with these activities aiming to establish a more appropriate distribution of resources for each stage to enable completion of the project within the approved budget; the identification and management of information relating to managed so that, among other advantages and improvements, it has a greater availability of information for decision making and improving the quality of results. These activities, in short, contribute to the project to be developed with quality and that there is satisfaction among the parties involved.

II.1 PROJECT MANAGEMENT FOR INFORMATION TECHNOLOGY

Companies when funding the development of information technology projects should surround themselves with care not to see their projects fail, because in this fast and highly competitive today's technological market there is no room for acting with unpreparedness, as acting thus implies to undertake significant costs and time without any certainty of return. (Stewart, 2008 [14]; Mcgrew and Bilotta, 2000 [20]; Uzzafer, 2013 [16]). Care means managing risks, costs and benefits, among other factors, throughout the life cycle of IT projects. This management, by the way, "is accomplished



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through the appropriate application and integration of 42 logically grouped processes covering the five groups. The five process groups are: Initiation; Planning; Execution; Monitoring and Controlling, also Closuring. "(PMBOK ® GUIDE, 2008 [17]).

Edmonds (2009 [15]) adds that "training in project management needs to encompass the six variables that exist in any project: costs, schedule, scope, quality, risk and benefits, and all this has to be properly managed" (Edmonds, 2009 [15]). For PMBOK ® GUIDE (2008 [17]), the project manager of IT, in performing its activities, shall: 1 - Identify the guiding design requirements; 2 - Act as an adapter of different needs, expectations and concerns of the interested parts as the project is planned and carried out; and 3 - Balancing the conflicting design constraints: scope, quality, schedule, budget, resources, risk, among others.

This is because changes in one or more managed elements - risk, cost and benefits -may reflect changes in the other, because the management is given interactively where the factors are interrelated, in other words, the information and results must be observed when the execution of the activities related to the management of another or others, because any modification in the previous actions possibly affect the following factor or the followings factors. (PMBOK ® GUIDE, 2008 [17], Stewart, 2008 [14]). That is why according to the PMBOK ® GUIDE (2008 [17]) Management Plan project is interactive and goes through progressive elaboration throughout the life cycle of the project, which will result in continuous improvement and detailing a plan of activities as observed that more detailed and specific information and more accurate estimates. Therefore, as the project progresses, project managers IT can manage based on major features, continuously improving the management plan.

II.1.1. RISK MANAGEMENT

In the risk management process, the project manager, in an early emergence of these forms, it promotes the identification, qualification of these risks, as well as investigate the possibility of their occurrence. This allows the trader to furnish an immediate and appropriate response so that if the risk occur, one will make it possible to give continuity of the project. It is noteworthy that Stewart (2008 [14]) says the risk and is the result of the probability of the event, is also a product of gravity associated (loss), which can be classified as high, medium and low severity and / or frequency. It should be added that according to Besner and Hobbs (2012, [26]) "all standards of project management refers to the positive and negative impact of risk." These authors, by the way, after the reported survey in their literature says that "the better the project is defined, the more risk management is used, however, the more uncertainty there is, the lower the use of risk management. "(Besner and Hobbs, 2012 [26]).

II.1.2. COST MANAGEMENT

The process of cost management is to estimate the direct and indirect costs of the project for each stage of the life cycle of that (Stewart, 2008 [14]). It is thus made an assessment of how much one will need to spend on each phase of the project, strategic planning, estimation, determining the budget and cost control in order to establish a more appropriate method for allocating resources for each stage of the life cycle, where the project is completed within the approved budget. The IT project manager must estimate and control costs and determine the budget. It is noteworthy that according to the PMBOK ® GUIDE (2008 [17]) in phase cost estimating manager will develop an assessment of monetary costs necessary to carry out the project activities. For in the budget setting, the process is done aggregating the estimated costs of individual activities or work packages in order to set a baseline of authorized costs. (PMBOK ® GUIDE, 2008, [17]). By controlling costs means the monitoring activity, the status of the project to update, its budget as well as managing changes in the cost baseline. (PMBOK ® GUIDE, 2008 [17]).

II.1.3. BENEFITS MANAGEMENT

The managements of benefits are the advantages and improvements resulting from the adoption of an efficient and effective management of IT project throughout its life cycle, resulting in gains from a successful IT project. In summary, this is the achievement of expected results and, in some cases, unforeseen project. These benefits can be monetary, for example, improvement in sales and earnings of the company sponsoring the development of the project



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and it can be non-monetary such as higher satisfaction of the internal / external customer, internal process improvement (greater availability information for decision making and improving the quality of results).

III. DESIGN OF RESEARCH

This paper focuses on the presentation of an exploratory multiple case study of IT project management in the light of the risks, costs and benefits in order to demonstrate the importance of management as well as how this management is being carried out, being oriented the projects developed in Tocantins. In this section the methodological procedures adopted are presented. About it, it should be emphasized that the survey was developed based on specialized theoretical clippings, which data were extracted to identify the variables that make up the conceptual model. To verify the feasibility and plausibility of modeling, an exploratory study oriented to IT projects in development in the state of Tocantins where it was applied in order to obtain a perspective on the occurrence or not of risk management, costs and benefits throughout the cycle life of these projects and details considered by managers when it was realized, especially as regards the importance given to this management.

Data collection took place by means of interviews with the sending of an electronic questionnaire to 50 managers of IT projects in Tocantins, and in the preparation of the sampling frame was detected that 28 managers answered the questionnaire mentioned, however only 26 responded in a validly way, the remaining responses were done a dispose, because they responded to the questionnaire grounded in projects developed outside the state in question. In the interviews participated managers of IT projects in the following sectors: 80.8% from the public sector, 15.4% from the private / autonomous sector and 3.8% of mixed-sector activity. Furthermore, it was observed that 65.4% of the surveyed entities acted in education, 11.5% in the government sector, 15.4% in computer and 7.7% in other areas. To ensure the reliability of this questionnaire it was submitted to experts analysis.

IV. RESULTS AND UNDERLYING ANALYSIS

In this section the results and underlying analyzes are presented. The procedures performed are systematized as follows: (I) field research results; risk management; (II) search results: cost management; (III) results of field research: benefits management; (IV) level of importance given to the management of risks, costs and benefits.

A. SEARCH RESULTS: RISK MANAGEMENT

Figure 1 shows the main risks managed by managers.





As it can be seen in the graph above managers interviewed have skill and technical knowledge since they know how to differentiate and classify risks managed, this is because of the efficient and effective management of projects is a



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growing concern from the developers entities project. To Mengel (2008 [27]) and Leybourne (2007 [27]), cited by Alpert and Hartshorne (2013, [27]), moreover, project management is becoming a skill of leadership and management necessary in many companies. Thus, focused on quality management managers knew exactly that the main risks managed by them are: risk arising from technologies, with 17%; personal risk, 15%; technological risks, with 12%; and social risks, with 11%.



Figure 2: Management Techniques commonly used risk

In the chart above shows the use of good techniques for project managers, this is because 14% of respondents said they make use of interview techniques, while 13% reported using the checklist, since 11% of managers claim to use threat analysis and cost-benefit analysis. Such techniques used in larger scale demonstrate the search for a development project performed safely, what to Alpert and Hartshorne (2013 [27]) is something essential since the authors state that to define the time line and the steps required to complete a project, to identify the interested parts that are willing to help or hinder the progress of the project, to discover and mitigate project risks are just some of the benefits ones get when using an approach to project management.



Figure 3: Complexity degree of managed risks



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The focus on good management places on its knowledge and filmmakers increasingly refined skills that ultimately reduce the chances of managers to confronted with highly complex risks, given the ongoing management performed efficiently allows it to be given an immediate response to risks encountered, thus reducing its complexity. And it is in virtue of this that most managers reported having consulted projects managed risks of medium complexity (38%) and low complexity (23%).





Regarding the main tools used to measure the risks managed, it can be said that as the chart above shows mostly managers surveyed have adopted as the main tools of technical meeting, with 25%, flowcharts, with 15% and lists verification, with 13% on efficient tools that allow some margin of safety in decision making, it is important for achieving good management factor, since a team with appropriate skills and technical skills can play an important role in facilitating the positive results of the project (Barry and Lang, 2003 [28]; Jiang et al 1996 [28]; Keil et al 2002 [28];.Procaccino et al 2006 [28];.Somers and Nelson, 2001 [28]; Standish Group International, 1999 [28], cited Mcleod and Macdonell, [28] 2011).



Figure 5: Risks detected



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Being risk management an arduous task of some complexity there is no way in fact that managers can predict beforehand all the risks that will be faced throughout the life cycle of their projects, hence, it has been investigated in the research performed as the chart above, that 55% of respondents detected over its management a higher frequency of partially foreseeable risks. However, it is interesting that such professionals improve its technical risk detection thus trying to increase the level of risk provided in the initial phase of their projects, which, therefore, can significantly reduce the uncertainties of the scenario, contributing to a good management projects by presenting effective solutions to evolving risks, because when knowing it at first, what is the type of risk one can face, it is possible to draw a qualitative study in order to figure out how to beat them, mitigating them efficiently when they occur.



Figure 6: Levels of frequency

It can be seen from the chart above that the scenario in which managers surveyed have developed their projects was beneficial to them since 38% of respondents reported having experiencing a low frequency occurrence risks throughout the life cycle of their projects, though, they have provided only part of such risks as stated in the previous graph.



Figure 7: taken steps

Reading the result given in the chart above, in fact, it is clear that the managers surveyed have been conducting risk management, since in most cases, 58% of respondents were able to give an answer to evolving risks. This fact is supported by the previous graphs where it was possible to observe the use of good techniques and efficient tools, which demonstrates the concern for organizations and managers in performing such management focus on the success of projects, moreover, a situation widely reported in the literature. In this regard, it is important to note that according to renowned authors a developer with expertise, experience and training has an important influence on the success of the



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project (Baddooet al 2006 [28]; Fitzgerald, 1998 [28]; Fitzgerald et al 2002 [28]; Peterson and Kim, 2003 [28]; . Peterson et al 2002 [28]; Wixom and Watson, 2001 [28] apud Mcleod and Macdonell, [28])

B. SEARCH RESULTS: COST MANAGEMENT

Figure 8 shows the results on managing costs.



Figure 8: Costs observed

According to the results collected after analyzing the answers, the costs observed by the managers surveyed were mostly direct costs, this being the answer given by 35% of respondents, and lower overhead percentage, with 4%, it had been observed by 11% of respondents the fixed and variable costs. This higher incidence of direct costs observed by the managers interviewed demonstrates certain tranquility of the search scenario and this is justified by the fact that in most such projects are from the public sector, it is understandable that most of the costs are labor and materials directly in order to be developed in this IT environment project geared only for the services rendered to the population, without a focus on competitive market.



Figure 9: Percentage of relevance given the costs in decision making

It is possible to determine from the graph above that 54% of the respondents reported having used managed costs in decision making from the perspective of project management, which therefore demonstrates the importance given to the cost and technical skill of the professionals in knowing good management techniques in relation to costs, it was trying to obtain the desired results settled for the final project. One of the factors that allows this type of situation, by the way, is good "data management" then to Shaul and Tauber (2013 [29]) it is a critical success factor, this is because, a data that is an incomplete, inaccurate, inconsistent, inaccessible or unreliable can negatively impact the project, and to



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Xu (2002 [29], apud Shaul and Tauber, 2013 [29]) the later correction of the errors contained in such data, after the implementation of the system, leads to "increased operating costs" and like that it reduces the effectiveness by limiting the competitive advantage, since it may prove to undermine strategic initiatives and responsiveness to customers.



Figure 10: Percentage of relevance given the equilibrium point in the decision making

According to Figure 10 it was also possible to observe that most of the respondents, 50%, did not use the balance in decision-making, having delegated less importance to this management technique, this factor should be enhanced by such managers, since the point of equilibrium is reported in the literature as a technique with considerable scope for efficiency in project management.



Figure 11: Methodologies

As the chart above also ascertained that the main methodologies used for appropriate costs were direct / variable costs, with 38% and based on product life cycle costs, 19%, and these methods are the most appropriate for the researched type of scenario. The concern of managers in adopting effective management methods is something that has led several authors to research on the topic not only with respect to managing the cost itself, but mainly focused on obtaining the success of the project as a whole. Toney (2001 [30], cited Abdi and Kaddoura, 2011 [30]) asserts that best practice methodologies should be prioritized in terms of the gains that they can generate for the project. This point, according to Abdi and Kaddoura (2011 [30]), may influence the choice of the appropriate methodology, which could imply a greater chance of success as to be effective and produce the most positive outcome for an organization.



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Figure 12: Value range of managed costs

According to the exposed in the figure above the result observed was a balance with regard to the percentage of responses over the range of costs in the studied projects, since there is a huge gap between the percentages detected, with 31% of respondents that said managing projects with the range value ranging from 10000.00 to 100000.00; 23% of respondents said managing projects ranging up to 10,000.00; and 19% of managers surveyed said managing projects with costs above 100,000.00.



C. RESULTS OF FIELD RESEARCH: BENEFITS MANAGEMENT

Figure 13: Main benefits managed

According to the data obtained it was observed that major benefits are managed: improvement of business processes, a total of 31%; and improved information management, 24% of respondents. This way, the majority of respondents reported having managed benefits corresponding to the internal phase of the management process. At this time, it is worth remembering that the effective management of information turns out to imply precisely the improvement of internal processes, considering that by capturing, analyzing and carefully manage the various data collected throughout



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the project management, the manager now has vital information to a successful decision-making, which can fatally result in project success.

D. LEVEL OF IMPORTANCE GIVEN TO THE MANAGEMENT OF RISKS, COSTS AND BENEFITS:

The overview obtained after quantitative analysis of qualitative data extracted from the answers given by IT project managers interviewed, it was possible to confirm the dependent variable, it confirmed the importance given to risk management, costs and benefits as a factor greater certainty of project success. Like this, it was observed that managers surveyed usually conduct the management of risks, costs and benefits by means of the elementary activities described in the literature, in order to try reducing the possibility of their projects failure, which therefore demonstrates the importance delegated to this management.

The concern or importance given to the management of risks, costs and benefits is explained in the fact that when it is done this effectively it allows the satisfaction of the parties involved and the quality of the project and also on the developed product. On the subject, indeed, Dey, Kinch and Ogunlana informs that "effective risk management throughout the development of a software ensures the successful completion of project with customer satisfaction, with functional achievement, and generally with an improved financial performance of the organizations. (Dey, Kinch and Ogunlana, 2007, [25]) .In the research by Besner and Hobbs (2012 [26]) it was reported that these professionals believe IT risk management has considerable potential to improve project performance through the highest and the best use of this risk management. Zwikael (2008 [31]) to outline the methodology of his research entitled "Involvement of top management in project success, which are overcoming schedule, conquering costs, projecting performance and customer satisfaction. Consequently, customer satisfaction, or rather, the parties involved and the need to develop a quality product are factors that influence IT project managers, leading them to recognize the importance of effective risk management, cost and benefits and making these perform this management throughout the life cycle of their projects.

V. CONCLUSION AND IMPLICATIONS

This article aims at presenting an exploratory study of project information technology (IT) management based on benefits, costs and risks. The article has suggested an agenda for future research into some of the fundamentals of project management research. The study attempted to cover an existing space in the literature about project management. Being it a relevant topic, whose literature review would not heal the issues raised, which are: - What is the importance given by the current managers of IT projects regarding the management? It was chosen to conduct field research, which was done by sending an electronic questionnaire to fifty (50) managers of IT projects, where 28 of them showed responses however, only 26 managers answered the questionnaire validly.

Based on quantitative analysis of qualitative data collected in the cited research it was observed that most of the respondents have been carrying out the management of risks, costs and benefits of IT projects throughout the life cycle, which confirms the concern of IT projects managers fit the current prospects of the extremely competitive market, which is the segment of technology information, in which only succeeds who does good management of their projects in order to obtain with greater certainty the intended positive results. Therefore, confirming the hypothesis of this study which is the practice of managing risks, costs and benefits over the life of IT projects in pursuing quality and the concerned parties satisfaction.

To prove this point detected, below is presented the graphs extracted from the answers given in the questionnaire about the occurrence of managing risks, costs and benefits.



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Figure 14: occurrence of risk management, costs and benefits

As it is easily perceived in the graph above managing risks, costs and benefits has been done in considerable percentage of managers of IT projects in Tocantins, which, according to data obtained confirmed the hypothesis, because it was possible to observe the concern of project managers to perform all the basic activities that comprise the management and continues interactively in order to achieve the desired quality requirements within time and cost, which may allow better productivity and profitability, in other words, it has been given true importance for the realization of this management. It is hoped that this study evidences the practice of managing risks, costs and benefits, stimulates and contributes to the spread and increase of good practice management of IT projects as a determinant of the project quality and the satisfaction of the parties involved, where management is done effectively it can increase the chances of obtaining the good desired results. What one should, however, note is that the fieldwork was limited to analysis the management of IT projects developed in Tocantins, which is why the authors intend to apply this in the future study with managers from other locations in order to obtain greater scope for comparison and statistical study. It is recognized, therefore, that further studies are needed to build more robust results. In fact, the recognition that project success is multidimensional (Dvir et al., 1998 [32]) raises the question of whether different input factors may have different effects on different project outcomes (Denison et al., 1996 [33]). Shared, clearly enunciated strategic goals that are aligned to the organizational mission improve project performance (Pinto and Slevin, 1987a,b [34]).

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