Available online at www.sciencedirect.com

ScienceDirect

Procedia - Social and Behavioral Sciences 119 (2014) 349 – 357

Procedia
Social and Behavioral Sciences

27th IPMA World Congress

Perceptions of success and failure factors in information technology projects: a study from Brazilian companies

Pâmela Ramos[a*], Caroline Mota[a]

[a]*Production Engineering Department, Federal University of Pernambuco, Campus of Recife, 50.740-530 Recife, Brazil*

Abstract

The project area is not properly valued in many organizations because generally the company's projects are spread across several other areas. However, it is necessary to know how the projects and the project management provide the means for organizations to achieve their goals. The goal of this study is to understand the influence of success and failure factors on starting, developing and closing projects. Although many studies have explored success factors in projects, a few of them have included the perception of formulation and classification of what really are a successful project and/or a failure project. This paper considers the perception of success and failure by project managers through interviews and questionnaires made in Brazilian companies. Firstly, a theoretical survey on this topic was performed. Secondly, qualitative analysis was applied to group some important aspects of the interviews and questionnaires. Thirdly, the results of the answers were investigated through statistical analysis to confirm the positioning of all the respondents. The analysis of the interviews might be used to better understand the management perception about the determinant factors of success and failure of the companies surveyed and a reflection of what happens in Brazilian IT industry.

Keywords: project management, information technology, culture, success and failure.

* Corresponding author. Tel.: +0-000-000-0000 ; fax: +0-000-000-0000 .
E-mail address: pamelaadelino@gmail.com

doi:10.1016/j.sbspro.2014.03.040

1. Introduction

The majority of articles about projects include factors of success and failure but only a few of them include the perception of formulation and classification of what really is a successful project and/or a failed project. This article presents what are the determinants of success and failures are and how they are ranked, related and graded in the IT companies surveyed.

Analyzing these aspects enables there to be better knowledge of how project managers organize projects and the influence of internal and external factors. The aim of this research is to investigate which factors has influence in IT projects and also the relationship with the absence or presence of culture as an influencing factor.

There are some factors of projects such as there being an inadequate basis for the project, the wrong person as project manager, talks inadequately defined, lack of technical project management and lack of commitment to the project that contribute to the failure of projects (Munns & Bjeirmi, 1996). Other factors that can have an influence on why a project fails are to do with time, cost, and customer satisfaction (Thomas & Fernandéz, 2008), and also the management model (Haughey, 2010). To understand the perceptions of the factors of success and failure in information technology projects, answers to questions about what influences the outcome of the project are needed.

It is widely known that the number of IT projects that fail is high. There have been many attempts to explain and to determine what leads to this high number of failures and these include consideration being given to factors such as time, quality and price, but it is noteworthy that cultural factors are being forgotten.

This work aims to observe which success and failure factors are most often cited by IT project managers, as well evaluate their responses through a few sentences about behavioral attitudes in order to investigate its relationship with the perceptions of stakeholders. The remainder of this paper is structured as follows: Section 2 shows the state of the art of the researched subject, Section 3 explains the methodology of this research, Section 4 presents the research and its analysis, and finally, Section 5 discusses the concluding remarks and future work.

2. State of the art and Related Work

In this section, will be described some previous works concerning the contributions through state of art of project management and related work specifically in the area of information technology. To be accomplished, it took a deep study and research in the IT projects area. The theoretical framework is based on national and international articles, journals, books and several works done in the area of project management.

2.1. Determinants of success and failure in projects

As stated by (IPMA, 2006) in the IPMA Competence Baseline (ICB) a project is “a time and cost constrained operation to realize a set of defined deliverables (with the scope to fulfill the project’s objectives) up to quality standards and requirements”. And as reported by (Gustavsson & Zika-Victorsson, 2008) “the majority of real projects are of a completely different character and organizations rarely run only one project at the time. Organizations must have strategies, set for the projects which target satisfying stakeholders’ expectations. Management’s role is mediate situations of conflict between all the stakeholders.

The project manager is “is not responsible for achieving the business benefits of the project, which accrue to and are largely realized by the organization once the project is delivered” (IPMA, 2006). Effective management requires the manager to have certain characteristics such as: Knowledge of project management (good performance in terms of what he/she is able to perform while applying their knowledge); Attitude (sense of leadership and guidance); Ability to achieve objectives and balance restrictions. To manage a project, certain requirements need to be met that will result in effective implementation of the set of factors, methods, tools and techniques that the manager has at hand. Therefore, in addition to implement the best practices in project management by using tools and methods that are effective in helping to project management, it is also necessary that there be a concern with the technologies to be employed, because the company that best combines the use of best technologies will certainly develop better.

The success of project management has often been associated with the final result of the project. The management of a project and its success are not directly related (Munns & Bjeirmi, 1996). Thus, a project can be successful even when managed badly and can fail even though it was well managed. Nevertheless, for some researchers, management is the key to a successful project. According to (Haughey, 2010) it is necessary to evaluate: behavior and technical skills, potential for leadership, personal strengths and weaknesses and experience, factors that allow there to be a greater chance of better management.

Poor communication among stakeholders, managers and the project team causes a project serious problem since the team comprises various professionals who interact for the benefit of all. Often, the language used by the people who make up the IT field is so technical that the customer, for example, has difficulty in understanding the information that the expert wants to convey to the consumer. The communication process widely used shows that a failure at any point in the process causes a dysfunction which interrupts the way that the message is completed. (Chiavenato, 2005) said that "communication is the process of transmitting information from one person to another person then shared by both".

The traditional view of how the success of a project is measured uses three criteria: time, budget and requirements (Bakker, Boonstra & Wortmann, 2009). This structure, though criticized, is routinely used to determine the success factors in information technology projects, as can be seen in Figure 1:

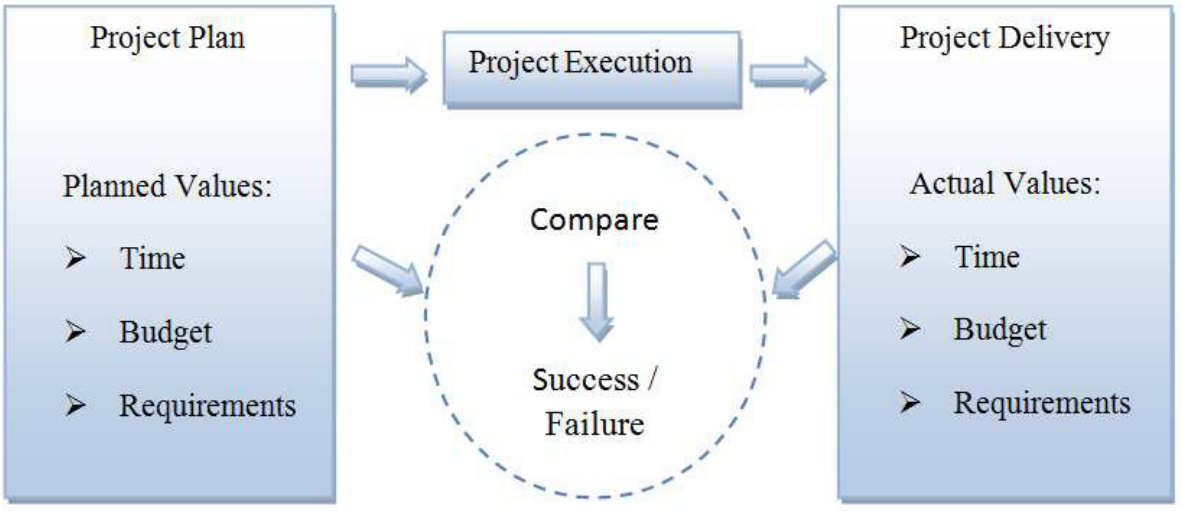

Figure 1. Traditional view of success and failure in projects.

However, failures in information technology projects are constantly the subject of research, but the results are always the same, which prompts questioning the depth of such analysis and the factors that are being evaluated to be called into question. Few studies have evolved to find new insights about the factors that lead to the success or failure of information technology projects, and there therefore remains the need to fill this gap.

With regard to success factors, (Cooke-Davies, 2002) lists twelve success factors of success that are implemented by many national and multinational organizations. There are: Adequacy of company-wide education, Maturity of an organization's processes, Adequacy with which a visible risk register is maintained, Adequacy in maintaining an up-to-date risk management plan, Adequacy of documentation of organizational responsibilities for the project, Keeping the project as far as possible below a duration of 3 years, Allowing changes to the scope, Maintaining the integrity of the performance measurement baseline, there being an effective benefits delivery and management process, Portfolio and programme management practices, A suite of projects, a program and portfolio metrics and An effective means of "learning from experience" on projects. However, as the (Cooke-Davies, 2002) reports in his article, the human factor is omitted as a determinant of the extent of project success. This omission is justified by two reasons: the research was focused on what people do and not the quality of their interactions and

decision-making and secondly, because there was no separation of human factors and process factors, the human factor is therefore implicit. And as reported by (Nahod, Vukomanović & Radujković, 2013) Cooke-Davies and others researchers "investigated the factors of project success, success in project management and factors for continual success of project realization, citing the omission of the human factor as the only possible omission in their research".

According to (Repiso, Setchi & Salmeron 2007) to succeed in information technology project management, certain peculiarities in existing IT projects need to be observed that make them different from other types of project and increases the chance of failure. Over the years it has been recognized that project management is an effective tool to deal with complex tasks such as those involving information technology projects, as these have evolved at a rapid pace in recent years.

Organizational change is necessary when the organization needs a new direction. According to (Jung et al., 2008) elements that make up the culture can have a significant effect on multinational companies when a new management practice is implemented in a particular location. Management can influence many elements of corporate culture; indeed all members of the organization exert some influence on the corporate culture (Mwaura, Sutton & Roberts, 1998).

Globalization, as a phenomenon generated by integrating social, cultural, political and economic issues, is present through the speed with which information is provided due to the emergence of new forms of communication that allows anyone to have contact with people of different races, nationalities and ethnicities. Projects and organizations are based and composed of people who need to communicate and understand each other. Dealing with differences enables a professional to become more complete and the market increasingly demands business to take place between countries. A multicultural team within an organization enables there to be interaction, knowledge and understanding of the various behaviors and cultures of different groups and nationalities. People must respect and know each other well if good commercial agreements are to be made.

Culture is identified as one of the areas wherein the main reasons for failure in projects is to be found, but there are those who discourage the relationship of the cultural dimension with success and failure in projects (Muriithi & Crawford, 2003). (Fishman & Kavanaugh, 1989) suggest that the culture of an organization and how people react to change and innovation is based substantially on the behavior of the leader. Therefore, a relationship is perceived between culture, manager and his management and the factors that lead to failure or success in projects. Studying this relationship can provide more evidence of causes of faults in the project; however it is important to have data to prove this assumption.

3. Methodology

The method applied in this research is that of an exploratory survey, using qualitative analyzes from interviews and questionnaires with project managers of information technology companies. The sampling is non-probabilistic intentional, which means the researcher chooses certain types of elements to belong to the sample. In this case, these are the people directly related to the company´s information technology projects. The criterion used was to find businesses in the area of management of IT projects that need to be better structured, organized and developed.

The research methodology was partially based on an exploratory study regarding perceptions of project success and failure, involving different countries (Ojiako, 2012). The first step taken in this article was to explore the results for Brazil.

First, interviews were held with project managers from ten information technology companies in Brazil; a primarily qualitative research was used, through observations *in loco*, in order to get insights about managers' perceptions. There were 10 interviews. The second stage of our study was based on a questionnaire applied in 33 information technology companies, during the second half of 2010, to understand some cultural contexts which may be related to the interview.

The study included visits and interviews, consisting of open questions that allowed the respondent to build his/her answer freely, while the data analysis made a comparison between the responses at interviews and some statements from the questionnaires, for which a Likert scale was used and which had values of 1 to 5 that

represent: 1 – Strongly Agree, 2 – Slightly Agree, 3 - Neither agree nor disagree, 4 - Slightly Disagree and 5 – Strongly Disagree. The data analysis was developed using tools of statistical methods and Statistica and NVIVO software.

The first phase of the study, the interviews, bring a better understanding of how success and failure factors in projects are ascertained and the relation with taking risks, the company rules, company norms and the achievement of objectives; How is success/failure in projects classified and the connection with who the manager is who takes the decisions; And if there are differences of opinion and perceptions among stakeholders, what portrays the process of conflict management, the participation in company decision-making, flexibility during negotiations and cooperation and disagreement with the other stakeholders.

4. Data Analysis

This research took place in information technology companies where people directly related to the company's projects, such as project managers, responded to the questionnaires. In the following sections, a descriptive analysis of the data collected from these companies is given. Thereafter, how the interviews were analyzed will be explained. The data analysis uses statistical methods and Statistica and NVIVO software to understand the relationship between the answers of the ten interviews.

Then, figures compiled by NVIVO software and adapted by the author for better preview of the questions and answers will be given. Figure 2 presents the relationship of the most important success factors of the project according to the companies interviewed. Each respondent mentioned the factors that they think are relevant for success in projects. As reported by the interviewees, the factors most remembered as determinants of success are complying with the requirements of the schedule, cost, quality and scope. The second factor most remembered is the team, working with a strong team that cooperates with each other determines success and the third factor is customer satisfaction, it being necessary to satisfy their needs and seek their feedback for the organization. These three factors can determine the success or failure of a project.

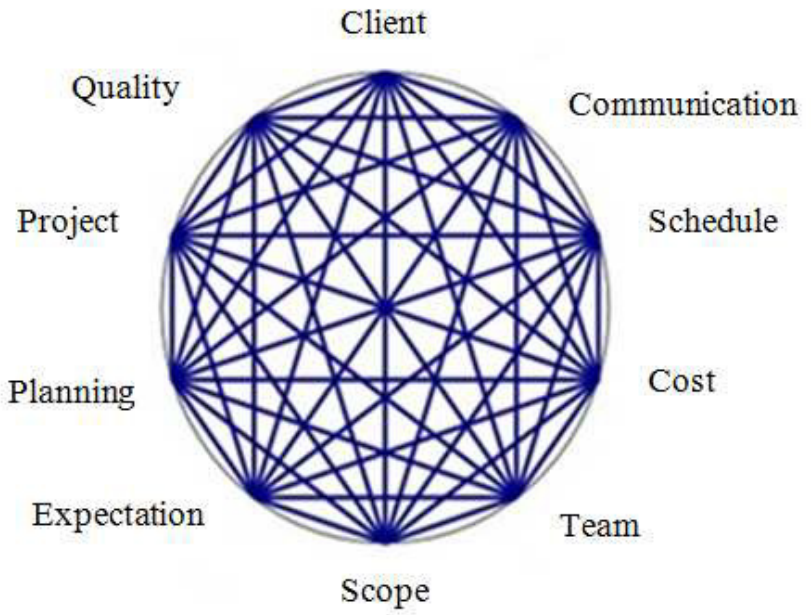

Figure 2. Circle graph of the success factors.

As can be seen in Table 1, most respondents said that non-fulfillment of the success factors determines failure in projects; in other words, the relationship between the factors of failure are inversely proportional to those that determine success.

Table 1. Evaluation of interviews regarding failure factors.

Factors that most define failure	Percentage
The relationship between the factors of failure are inversely proportional to those that determine success	50 %
Team (cooperation, communication, expertise)	30%
Customers' satisfaction	20%

How success and failure factors in projects are ascertained reveals that there is a relationship between determinants of success and failure in projects and individual or organizational factors. On analyzing the attitude survey, the authors note that most people define success and failure factors in accordance with the same behavior, as regards the affirmative ones: Enjoy taking risks, Company rules are always to be followed, it is important that people conform to company norms in order to reach company goals and People will achieve organizational goals without being pushed.

Figure 3 shows the scale of agreement and disagreement concerning the affirmatives of the attitude survey. The majority strongly agrees and slightly agrees enjoy taking risks, comply with the company rules and norms and they have divided opinions about the pressure to achieve organizational goals. This type of attitude shows the conservative behavior that implies they make judgments by using the most conservative factors of success (the requirements of schedule, cost, quality and scope) and failure (non-fulfillment of the success factors determines failure in projects).

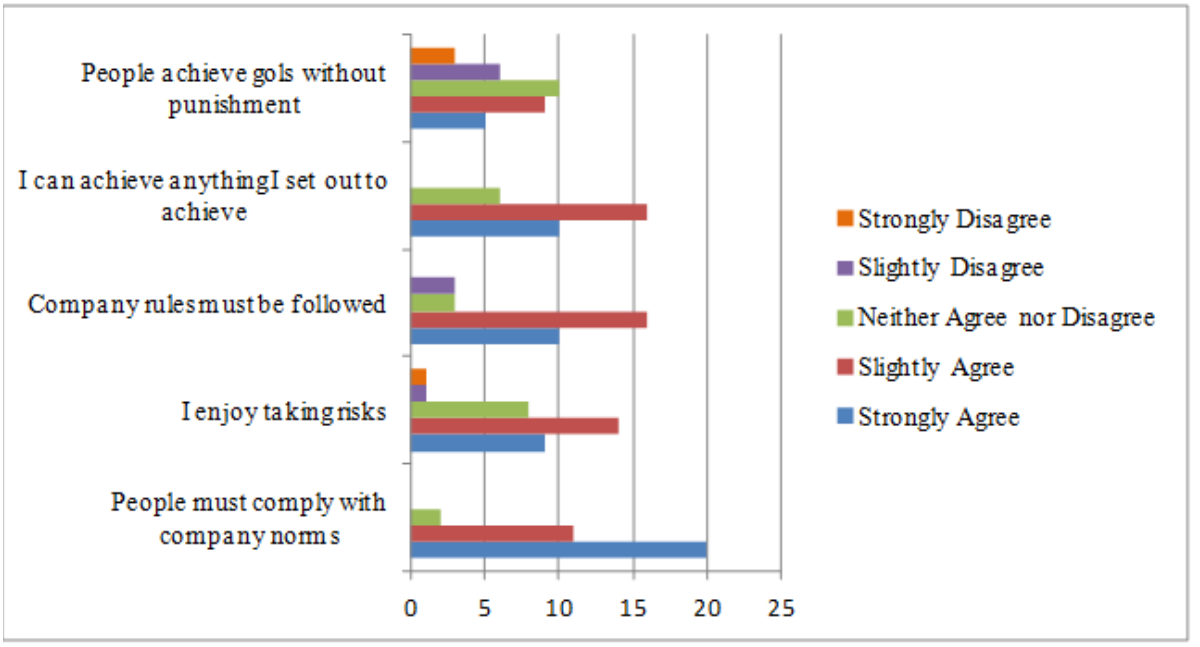

Figure 3. Scale of agreement and disagreement

Regarding how respondents classify success/failure in projects, note that the classification of which stage of project life cycle contributes to the understanding of success or failure in projects. Table 2 shows the classification of success and failure in projects. Notice that 60% of the respondents classified success and failure into three levels; 20% of the respondents classified them in two levels; and 20% in four levels. For the interviewees, the absence or presences of factors are responsible for this classification: extremely successful, a success, failure and a total failure.

Table 2. The classification of success and failure in projects

Classification	Rating of Success and Failure	Percentage
Two Levels	Success and Failure	20%
Three Levels	Extremely Successful; Successful; Total Failure	60%
Four levels	Extremely Successful; Successful; Failure; Total Failure	20%

Relating the classification of success and failure in projects and the affirmatives about the person who manages and takes the decisions, the majority of interviewees strongly agree and slightly agree that all the employees should participate in the decision making process and not just the project managers and also that they must be qualified for the job and not because of their length of service but on account of their specialization. Maybe this explains the differences in the classification of success and failure because there is no standardization of rating just as there is no standardization about who manages and takes decisions on how project success and failure are graded.

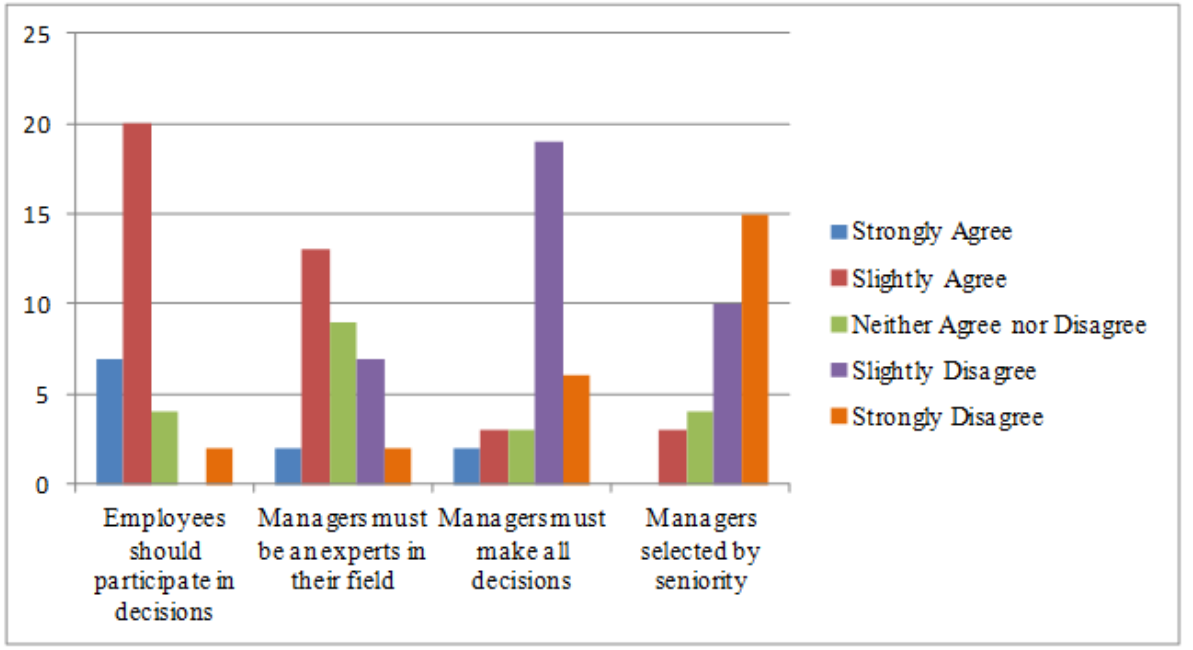

Figure 4. Scale of agreement and disagreement

Following interviews about how project managers classify success/failure in projects, we explore if there are differences of opinion and perception from stakeholders and the relation between how the company takes decisions and manages their conflicts and perceptions among stakeholders. The interviews showed that all of the respondents confirm that different stakeholders form different perceptions, and, everyone has moments of conflict with others involved in the project.

Negotiation is always used to try to manage this type of scenario. It was observed that lack of communication is the main factor remembered as a determinant of failure in IT projects. The formalization of procedures and clarity of communications goals is something deficient in this type of company, and the form of communication that projects require needs to be revised so that everyone in the organization understands its real intention. Notice that in Figure 5 the majority of the interviewees strongly agrees and slightly agrees that cooperation is important for group harmony; disagreement is necessary to question changes; organizational conflict can be healthy if it build new ways of working; flexibility during negotiations is necessary to give opportunities to everyone; there must be trust in and cooperation with other stakeholders.

The research validates the previous affirmation when it concluded that the company has the power to manage stakeholders' conflicts, and that when organizations do not give an opportunity to all stakeholders to voice their views, this result in stakeholders having different perceptions for each activity, project, and business. How the company manages its decision making process impacts how stakeholders contribute to facilitating the working process.

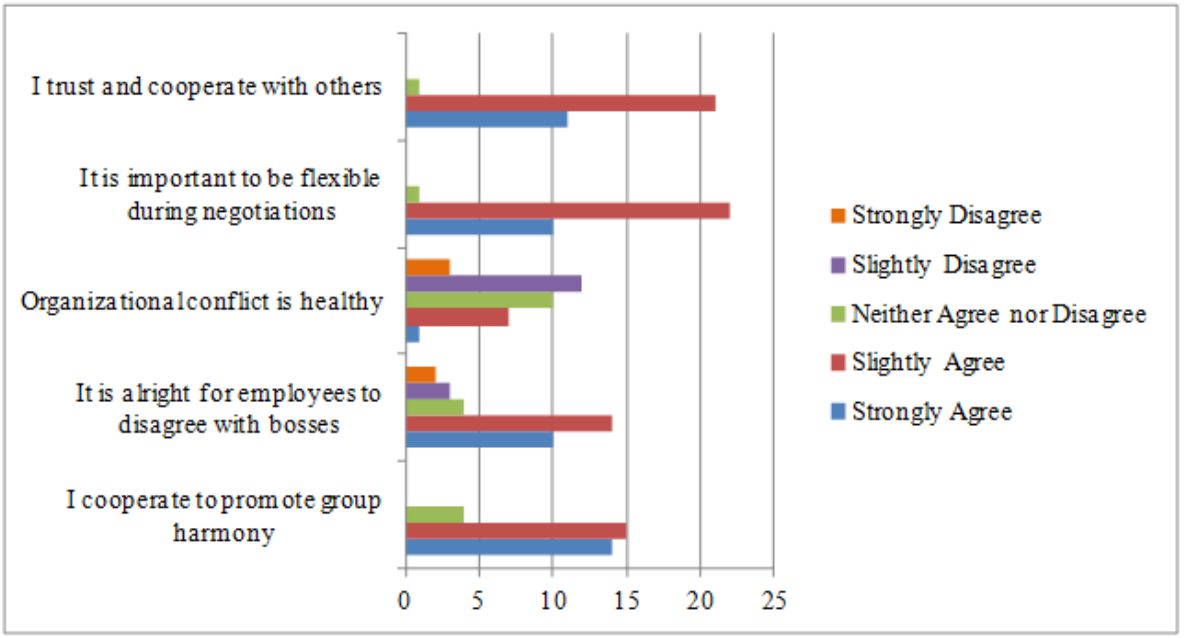

Figure 5. Scale of agreement and disagreement

5. Conclusion

This research, which was conducted on information technology organizations active in Brazil, concluded that internal and external factors interfere in a project, but only direct factors were pointed out by the respondents as research question 1 and 2 show. The project manager's behavior, in this sample, was still conservative, and he chose trivial factors such as schedule, cost, quality and scope as the most important ones to achieve a successful project and non-fulfillment of the success factors as determining failure in projects. As to the understanding of success or failure in projects, it was seen that this is not well formed. This shows that there is knowledge but not standardization.

The most remarkable result to emerge from the data is that there was a disregard of cultural factors as the main agent influencing the success or failure of IT projects, which partially explains why lack of communication has been considered as a determinant factor in the failure of IT projects, because communication is linked to how the organization interacts and how the organizational culture of the company is established. However, in all of the

companies interviewed, the human factor wasn't clearly considered through the cultural aspect as a determinant of success and failure.

There is a search for cooperation, flexibility and confidence intuitively by those involved in the process. However, according to the interviewees, there is dissatisfaction with the decision-making process and the authority function. Sometimes clients do not know what they want to and the project manager is not prepared to understand this client and get the organization to seek to do so. So, is not possible that project managers reflect on new factors that would help to improve projects and relationships.

Moreover, another important result of the study is that because of bad communication, stakeholders' perceptions are divergent and this results in a long process of decision making which involves the attempt to satisfy the consumer. What determines success and failure is different in each organization. Managing conflicts is an important area within companies and should be taken seriously, as seen on validation of research question 3.

It is recommended that future research should validate hypotheses in a representative sample of information technology companies. But this small sample managed to achieve the proposed goals, despite some limitations of time, distance and access to respondents.

References

Bakker, K., Boonstra, A. & Wortmann, H. (2009) Does risk management contribute to IT project success? A meta-analysis of empirical evidence. *International Journal of Project Management*. 28, 5, 493-503.

Chiavenato, I. (2005) Géstion del talento humano. (5rd ed.). Mc Graw Hill.

Cooke-Davies, T. (2002). The real success factors on projects. *International Journal of Project Management*. 20, 3, 185–190.

Fishman, N. & Kavanaugh, L. (1989) Searching for your missing quality link, *Journal for Quality and Participation*, 12, 28–32.

Gustavsson, T.K. & and Zika-Victorsson, A. (2008) Multi-project settings – too many balls in the air and some on the floor. *International journal of project management research*. Issue 3.

Haughey, D. (2010). How to recruit an IT project manager. *Project Smart*. 1-4.

IPMA (2006) *IPMA Competence Baseline (ICB*). Version 3.0. The Netherlands.

Jung, J., Su, X., Baeza, M.. & Hong, S. (2008) The effect of organizational culture stemming from national culture towards quality management deployment. *The TQM Magazine*. 20, 6, 622-635.

Munns, A.K. & Bjeirmi, B.F. (1996). The role of the Project Management in achieving project success. *International Journal of Project Management*, Scotland, UK. 14, 2, 81-87.

Muriithi, N. & Crawford, L. (2003) Approaches to project management in Africa: Implications for international development projects. *International Journal of Project Management*. 21, 5, 309-319.

Mwaura, G., Sutton, J. & Roberts, D. (1998) Corporate and national culture – an irreconcilable dilemma for the hospitality manager? *International Journal of Contemporary Hospitality Management*. 10, 6, 212–220.

Nahod, M.M., Vukomanović, M. & Radujković, M. (2013) The impact of ICB 3.0 competences on project management success original research article. Procedia – Social and Behavioral Sciences. 74, 105-115.

Ojiako, U. (2012). Cultural imperatives in perceptions of project sucess and failure. PMI, Pennsylvania, USA.

Repiso, L.R., Setchi, R. &Salmeron, J.L. (2007). Modelling IT projects success: Emerging methodologies reviewed. *Technovation*. 27, 10, 582-594.

Thomas, G. & Fernandéz, W. (2008). Sucess in IT Projects: A matter of definition? *International Journal of Project Management*. 26, 7, 733-742.