WHICH PROJECT CHARACTERISTICS ARE IMPORTANT? WHAT ARE THE PROJECT SUCCESS FACTORS?

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ABSTRACT

The evaluation process of real investment projects must consider not only the traditional financial approach, but also non-financial aspects that can provide additional relevant information about projects. We investigate financial and non-financial areas most relevant in project appraisal, main critical success factors and areas of analysis that lead to the perception of project success, through nine hypotheses that are empirically tested. Companies are also segmented to verify their financial and non-financial practices, considering industries, type of project, size and duration of the project. The results show that non-financial factors affect the investment decision with larger importance than financial ones, specifically the strategic, technical and commercial areas. Perceived success of a project is related to the consideration of strategic, political and human resources aspects in its evaluation. There is a greater perception of success when companies attribute greater importance to financial and commercial aspects in project appraisal. The existence of many financial and strategic factors is associated with a greater perceived success of the project. We found that there is a greater perception of success in companies with larger projects, when the chairman of the board has higher tenure and when the project manager has a higher education degree and has variable reward.

1. INTRODUCTION

Investment decision making is relatively simple when only financial criteria are taken into account (Lopes and Flavell (1998). However, if we use non-financial criteria to improve our evaluation it is important to understand that there are a lot of aspects which we have to take into account, and most of them are not easily measured. Non-financial analyses can provide additional relevant information to the decision making.

The non-financial aspects that we have to consider in project appraisal, in addition to the financial aspects, are strategic, technical, commercial, political, social, environmental, organizational, human resources and management (Skitmore, et. al., 1989; Adler, 2000; Chen, 1995; Meredith and Mantel, 2000; Love et. al., 2002; Kendra and Taplin, 2004; Moutinho and Lopes, 2010). The best way to analyse an investment project is to take into account all financial and non-financial areas.

Several authors refer to different variables as being able to explain the practice of companies. Pike (1983) states that investment procedures depend on the "nature of the company (size, capital intensity, and organizational structure), the characteristics of the external environment, and the complexity of the projects reviewed". According to Chen (1995) "deciding which features to investigate is not a trivial task, due to our limited knowledge of the relationships between the characteristics of business and technical analysis of projects". Given the relevance non-financial aspects can take in evaluating an investment project, it is very important to know how the characteristics of the company, the project, the administration and the project manager can affect the analysis.

As in Graham and Harvey (2001), the most interesting results come from the study of responses conditioned by the characteristics of the company and company management, such as size (Drury and Tayles, 1996 and 1997; Schall et. al., 1978; Kim, 1982), debt and payment of dividends, debt rating, and industry (Belassi and Tukel, 1996; Belout and Gauvreau, 2004), management ownership, age, tenure and CEO qualifications. Rodrigues (1999) adds that the academic qualifications and the manager's compensation scheme should also be considered. In this sense, Block (2005) concludes that the characteristics of firms affect investment decisions.

Moreover, Dvir et. al. (1998) suggest that "the success factors of a project are not universal for all projects. Different projects exhibit different success factors". As the most relevant features, we find, in the existing literature, the type of project (Chen, 1995; Dvir et. al., 1998; Petty et. al., 1975; Klammer, et. al., 1991), size (Chen, 1995; Schall et. al., 1978; Belassi and Tukel, 1996; Dvir et. al., 1998), duration (Mohamed and McCowan, 2001), and risk (Ho and Pike, 1991; Petry and Sprow, 1993).

This paper is organized as follows: In next section, we present our hypothesis. In section three we present the research methodology used. Then we present and discuss the results. Finally, we give our conclusions.

2. Research Hypothesis

The evaluation of non-financial aspects tends to influence investment decisions through the cash flows and/or the discount rate of the project. However, we may not see any impact of non-financial aspects in the investment decision if they are not relevant to the project. Thus, we seek to study the importance of financial aspects, as well as the strategic, technical, commercial, political, social, environmental, organizational, human resources and project manager's dimensions. Thus, we will analyze the following hypotheses:

Hypothesis 1*: The financial and non-financial project evaluation areas are relevant to the investment decision.*

Non-financial areas may take relevance in project appraisal. So, it is important to know how the characteristics of the company, project, management and project manager can affect the analysis of each area. It is therefore important to know which factors may influence the analysis of each area:

Hypothesis 2: *The analysis of each dimension in project evaluation is associated with:*

H2a*: company characteristics*
H2b*: project characteristics*
H2c*: management characteristics*
H2d*: project manager characteristics*

The success of the project, whose definition remains ambiguous because it can have different meanings to different people due to various perceptions that exist anywhere (Liu and Walker, 1998), is the result of the previous analysis of financial and non-financial factors, which may lead companies to a certain investment decision.

Many authors show a number of factors that lead to the viability and success of a project (Lopes and Flavell, 1998; Belassi and Tukel, 1996, among others). These factors are basically aspects of strategic, technical, commercial, political, environmental, organizational, social, human resources and project manager areas.

Before analyzing individual factors, we must first be able to identify what critical dimensions they belong to a better evaluation of the project. One of the advantages of grouping the factors in various homogeneous dimensions is that even though identifying specific success factors is difficult, identifying if the success or failure is related to each dimension of analysis is much easier. Based on the idea that each dimension of analysis can contribute to project success we test the following hypothesis:

Hypothesis 3: *The success of the project is associated with the analysis of each dimension of evaluation.*

After the identification of critical areas for the project success, we would like to clarify which factors are critical to the success of the project. Pinto and Slevin (1988, 1989), Pinto and Prescott (1988), Belassi and Tukel (1996), Shenhar et al (2002), Belout and Gauvreau (2004), Dvir et. al. (1998), Skitmore et al (1989), Ashley et al (1997), White and Fortune (2002) and Cooke-Davies (2002) suggest a variety of critical success factors for a number of different dimensions of analysis. Based on this evidence, we analyse, within each dimension of analysis:

Hypothesis 4: *Which factors are associated with the success of the project.*

Dvir et. al. (1998) suggest that "the success factors of a project are not universal for all projects. Different projects exhibit different success factors". The importance of the factors conditioning the project is supported by extensive literature (eg: Chen, 1995; Graham and Harvey, 2001; Shenhar et. al., 2002). These suggest that the practices of companies may be constrained by the characteristics of the company, project, management and project manager. Belassi and Tukel (2004) suggest that critical factors are differ accross industries and project sizes. Shenhar et. al.(2002) show the project type as a conditioning feature. Thus, we will study the following assumptions:

Hypothesis 5: *The success of the project is associated with:*

H5a*: company characteristics*
H5b*: project characteristics*
H5c*: management characteristics*
H5d*: project manager characteristics*

This study also takes into account the impact of industry in the project analysis and success. Belassi and Tukel (1996) suggest that the study of various non-financial aspects and the success/failure factors may prove critical to the project and tend to vary in importance depending on the sector. Pinto and Covin (1989) refer that the industry (of the project) influences the importance of different success factors. Also Belout and Gauvreau (2004) refer that the relationship between several aspects to the success of a project depends on the sector. Moreover, Graham and Harvey (2001) show differences in attitudes of the companies, in the financial area. So we test the following hypothesis:

Hypothesis 6: *The critical areas in project success and the analysis of each area of project evaluation depend on the industry.*

The success factors are not universal, as they may diverge with different features of the project. For Dvir et. al. (1998) and Shenhar et. al. (2002) the success and the importance of various aspects may differ depending on the type of project. We seek to confirm this idea:

Hypothesis 7: *The critical areas in project success and the analysis of each area of project evaluation depend on the type of project.*

Another factor that could influence the success and evaluation of various areas is the size of projects. Graham and Harvey (2001), Belout and Gauvreau (2004) and Dvir et. al. (1998) show size as one of the factors that can affect projects, so we study the following hypothesis:
Hypothesis 8: *The critical areas in project success and the analysis of each area of project evaluation depend on the size of the project.*

Finally, the projects are analyzed for their period duration. For Mohamed and McCowan (2001) the period duration is a relevant factor to consider for the success of the project.
Hypothesis 9: *The critical areas in project success and the analysis of each area of project evaluation depend on the period duration of the project.*

3. Methodology

After developing a preliminary version of the questionnaire, we have made two personal interviews with financial directors of companies in the sample, in order to validate the points covered. This test allows the clarification of the importance of the study. The data for this study were obtained from a questionnaire sent to the biggest Portuguese companies in 2005 and we have obtained a response rate of 9,6%. This questionnaire is the same as in Moutinho and Lopes (2010).
Concerning the characteristics of the firms surveyed, we distinguish among the sectors where they operate, the type of project implemented, the size and duration of the project. Of the respondents to the questionnaire 37 (39.8%) are in the manufacturing industry, 24 (25.5%) are in the commerce industry, 16 (%) are in the transportation/energy industry and the remainder are from other sectors. Companies execute a variety of types of projects, with 47 (49%) companies having implemented expansion projects, 38 (39.6%) projects to modernize and 16 (16.7%) replacement projects. We analyze 29 (34.5%) large projects and 36 (42.9%) small projects, while 35 (39.8%) projects are implemented in the long term (more than 24 months) and 53 (60,2%) projects are implemented in the short term (implemented in less than 24 months).

4. Research Results

Hypothesis 1: *The financial and non-financial project evaluation areas are relevant to the investment decision.*
In order to know the area of analysis considered in projects we analyze which percentage of those surveyed have done each type of analysis. Panel A of Table 1 reveals that strategic analysis (95.8%) is the most used project evaluation area, followed by financial, technical and commercial evaluation, which were analyzed by 85.4 %, 83.3% and 78.1% of the companies, respectively. On the other hand, only 40.6% of the companies took into account social aspects and 43.8% consider the political aspects in project evaluation.

[Insert Table 1]

From panel B we find that the most important areas in the project evaluation are strategic analysis and technical analysis. The financial analysis only comes in third place, together with the commercial analysis. The sample also shows that 69.8% of companies consider project manager aspects important or very important. Political analysis and social analysis are the least relevant in this context.
In the factors that influence the economic value of the project (Panel C) we highlight the importance given to strategic analysis (94.8%), followed by technical analysis (78.1%). Financial analysis (74%) only comes in third place. Again, political analysis (19.8%) and social analysis (21.9%) have very little influence in the economic value of the project.
For the importance of each of these aspects (financial or non-financial) in decision-making (Panel D), we show a high relevance of strategic analysis (97.8%). However, other areas are also relevant, such as technical analysis (79.6%), financial analysis (76.3%) and commercial analysis (72%). Social analysis (15.1%) and political analysis (16.1%) are the least relevant for decision making. Once again the importance attached to each analysis is similar to that in previous analyses.
The data presented reveals the possible areas of evaluation more relevant to investment decision. The companies consider the strategic analysis as the most relevant for the project appraisal, followed by the study of technical, financial and commercial aspects. In contrast, political and social analyses are pointed out as having the least relevance to investment projects. These results confirm the importance of studying the factors that influence the project evaluation. We show that there are other factors, in addition to financial, that affect the investment decision with great prevalence.

Hypothesis 2: *The analysis of each dimension in project evaluation is associated with:*

- ***H2a***: *company characteristics*
- ***H2b***: *project characteristics*
- ***H2c***: *management characteristics*
- ***H2d***: *project manager characteristics*

To analyze this point we have to do different analysis for each type of features. First, we want to identify the company´s characteristics that can influence the likelihood of considering each area in project appraisal.
Table 2 reveals that commerce industry is less likely to perform financial, technical analysis and policy analyses. The manufacturing companies are less likely to

make commercial analysis. The probability that companies carry out social analysis is greater in large companies. In the transportation/energy industry the companies are more likely to perform social analysis. Project manager analysis is more likely to occur in large companies and companies with low debt.

[Insert Table 2]

Then, we seek to understand which project´s characteristics might influence the study of numerous project evaluation aspects, as shown in table 3. The data show that companies that implement modernization projects are less likely to consider financial and social analyses. The results show a higher probability of making technical analysis on projects of longer duration, political and environmental analyses in large scale projects, organizational analysis in small scale projects, and project manager analysis in large projects. In expansion projects there is a greater probability of performing the commercial analysis.

[Insert Table 3]

Then, we identify the company's management characteristics that influence each dimensions of analysis. Table 4 shows that the younger the chairman of the board, the more likely it is that the company performs strategic analysis. Technical analysis is less likely to occur when the company's manager is also a shareholder. While environmental analysis have a propensity to be done by companies in which the chairman of the board is at least graduated, organizational analysis tends to be carried out when management is also owner of capital. If the chairman of the board has low tenure there is a great probability of doing the political analysis in project evaluation.

[Insert Table 4]

Next, we analyze how project manager aspects can affect the probability of doing each analysis. Table 5 shows a greater likelihood to perform financial analysis when the project manager has a position in the company´s management and when his reward is fixed, political analysis when the project manager is older, and environmental analysis if the manager has higher education level, and project manager analysis when he is older. On the other hand, it is less likely that companies perform technical analysis when the project manager is in the company management and has extensive experience in project management, organizational analysis in the presence of an older manager, human resources analysis when the manager has a lot of experience in project management, and project manager analysis in the case of belonging to the company's management.

[Insert Table 5]

Finally, we also examine whether investment decision by different stakeholders in the company can influence the likelihood of performing each of the different analysis. In conclusion, through regressions not reported, the investment fact that the decision is made by management or by another member of the company outside management does not interfere in the practices of companies running various analyses and does not influence the perception of project success.

Hypothesis 3*: The success of the project is associated with the analysis of each dimension of evaluation.*

Although there are many factors under the control of managers, there are many others beyond managers' control that determine the success or failure of the project (Belassi and Tukel, 1996). Due to the unique nature of each project, many of the success factors are not applied to another project and the success is typically a combination of many factors.

Apparently, there may be ambiguity in determining the success or failure, because different parties involved in a project perceive the success or failure differently (Pinto and Slevin, 1989). A project that is perceived as successful by some may be perceived as a failure by others.

Although Baccarini (1999) lists the main features of the criteria for project success and Dvir et. al. (1998), Freeman and Beale (1992), Lipovetsky et. al. (1997) and Collins and Baccarini (2004) point out various criteria and measures of success, de Wit (1988) concludes that "to think you can objectively measure the success of a project is an illusion". Thus, Baker et. al. (1988) suggest the use of the term perceived success of a project, a suggestion that was adopted.

Panel A of Table 6 highlights that the perception of success of a project is related to the consideration of strategic, political and human resources analyses in project appraisal. In this analysis we also find that social and organizational analyses tend not to contribute very much to the perceived success of projects in the sample companies. Based on Panel B we verify a greater perception of success when companies attach greater importance to financial and commercial aspects. Panel C shows a positive relation between financial and strategic factors and the perceived success of the project. Companies that take into account a large number of organizational factors tend to have a low perception of success.

[Insert Table 6]

Hypothesis 4*: Which factors are associated with the success of the project.*

Moutinho and Lopes (2010) found that the critical success factors are dispersed in various areas of analysis. They found "a wide array of non financial

aspects was considered critical in the project evaluation". They also mention other factors as main critical success factors: deadline, quality, costumer's satisfaction, speed of implementation and partnership with clients. In this study, in order to identify the critical success factors, we have done regressions, not reported, between the perceived success of the project and each one of the factors considered in each area of analysis. Table 7 presents, summarizing, all variables to which the perception of success is significantly associated.

[Insert Table 7]

***Hypothesis 5**: The success of the project is associated with:* ***H5a**: company characteristics*
***H5b**: project characteristics*
***H5c**: management characteristics*
***H5d**: Project manager characteristics*

Table 8 shows that there are several characteristics associated with the success of a project. The results show a perception of success in companies with larger projects, when the chairman of the board is already in that job for a long time and when the project manager has a higher degree and his compensation is variable.

[Insert Table 8]

***Hypothesis 6**: The critical areas in project success and the analysis of each area of project evaluation depend on the sector.*

Because of sample size, we only study the most important areas in manufacturing, in commerce and in transport/energy industry. In addition to studying the relevance of each analysis, we try to also analyse the influence of each in the success of the project.

[Insert Table 9]

In manufacturing industry, panel A of Table 9 shows a greater importance of strategic and technical analysis, with the financial analysis appearing as the third most important. Although commercial analysis can be considered the fourth most important, environmental and human resources analyses are further analyzed by companies in this sector. Social and political analyses are the less relevant. In the success of the project, the analysis of social undertakings in manufacturing companies tends not to be perceived as contributing to the success of the project. While the allocation of great importance to financial aspects in project evaluation is associated with a high perception of success in these projects, the importance attributed to political analysis has not the same effect. Furthermore, although the consideration of many of strategic factors (measured by the construction of the index, in panel A.5) is associated with the perceived success of the project, the same is not the case with organizational factors.

Also in commerce industry (see panel B of Table 9) strategic analysis is the most important, followed by commercial and financial analysis. Although nearly 70% of companies consider aspects of human resources, they consider that this area contributes relatively little to the economic value and for investment decision making. There is a low relevance of technical aspects in this sector. Panel B.3 shows that environment and human resources analyses contribute positively to the perceived success of the project. The assignment of high importance to financial analysis in project evaluation is associated with perception of project success in these companies.

In transportation/energy industry, the strategic, technical and commercial analyses are the most relevant, followed by financial and political analysis (see panel C). All companies examined strategic and technical areas. Despite the lack of importance attributed to political and social aspects, over 80% of the sample companies take these into account in project evaluation. From the remaining analysis, the companies also highlight the environmental analysis. While assigning importance to financial and human resources analysis in the assessment is associated with perception of success of these projects, organizational aspects has not the same effect. Although the considerations of many financial and technical factors (measured by the index) are associated with perception of project success, is not the case with the factors of human resources.

In conclusion, the results seem to confirm the differences in the success of a project and the areas evaluated in the project depending on the sector.

***Hypothesis 7**: The critical areas in project success and the analysis of each area of project evaluation depend on the type of project.*

Due to the characteristics of the sample, we analyze projects of expansion, modernization and replacement. In expansion projects (see panel A of Table 10) all companies consider strategic issues in assessment. In addition, commercial, financial and technical aspects are also very relevant. Although the study of environmental, human resources and project manager analyses is relevant to project evaluation, these are not important to the economic value of the project or to the investment decision making. Although the importance of financial evaluation and the consideration of financial and human resource factors are associated with perception of project success, the same is not true with commercial and organizational factors.

Technical analysis is more relevant in evaluation of modernization projects, as shown in panel B. Strategic, financial and commercial analyzes are of great importance in the evaluation of investments. The social and organizational aspects are the least relevant. From the other analyzes we highlight the project manager aspects. Perceived success of a project is positively

related, with higher importance on financial aspects during the evaluation of the project.
Technical analysis is the most relevant, followed by strategic and financial analyses in replacement projects. The data allow us to observe that 62.5% of companies look at environmental aspects and 75% of companies look at human resources analysis. When compared with other types of projects, there is a small importance attributed to commercial analysis and we observe consideration of the political aspects in half of the projects. The regressions presented allow us to verify the absence of analyses that significantly influence the perception of project success by the company.
These findings support the conclusion of hypothesis 9 for the reason that the type of project can determine the success factors and the importance given to the areas of assessment.

[Insert Table 10]

Hypothesis 8*: The critical areas in project success and the analysis of each area of project evaluation depend on the size of the project.*
Here we study the factors most relevant to small and large projects. Panel A of Table 11 shows the importance attributed to several areas of analysis in large scale projects. The strategic, technical and financial analyses are the most relevant to the project appraisal. Even though commercial aspects are also important, they appear less relevant to the economic value and decision making. Furthermore, environmental issues are analyzed in 86% of companies and prove to be of great importance in this context. Although not relevant, political and social aspects are taken into account in the analysis of large projects by 68.97% and 55.17% of companies, respectively. The regressions suggest that the importance attributed to financial aspects in project evaluation and the consideration of a large number of technical, human resources and project manager factors are associated with perception of project success, while the use of technical and organizational factors do not have the same effect.
In small projects strategic analysis is the most relevant, followed by commercial, technical and financial analyses (see table 11 below). Note that the financial analysis, which is performed by almost 82% of companies, has a relatively small importance when compared to other analyses. Social, political and environmental analyzes are the least relevant. Panel B.3, B.4 and B.5 emphasize that social and organizational aspects are not related to higher perceptions of project success by companies. Moreover, the attribution of importance to technical and political aspects in evaluation is associated with higher perceptions of project success. Again we note that another constraint factor, project size, tends to affect the type of analysis to be performed and success factors.

[Insert Table 11]

Hypothesis 9*: The critical areas in project success and the analysis of each area of project evaluation depend on the period duration of the project.*
Panel A of Table 12 shows that, in short-term projects, a larger relevance is attributed to strategic issues, followed by financial, commercial, and technical aspects. The fifth aspect further analyzed in evaluation of short-term projects is human resources, with little importance. Social and political analyses are even less relevant. The regressions show a perception of project success when political and environmental aspects are taken into account, when high importance is assigned to financial and environmental aspects and when a large number of environmental factors is considered in project evaluation. When social and organizational analyses are performed, when importance is attributed to social aspects in the assessment and when many commercial and organizational factors are considered, the perceived success of a project tends to be lower.
Panel B presents strategic and technical analyses as the most relevant in assessing long-term projects, followed by financial analysis. Even though the political dimension is analyzed by 65.71% of companies, it is not given great importance, as happens with the social analysis. There is a relative importance of organizational analysis in the context of long-term projects. It is also obvious that the attribution of importance to financial aspects and the consideration of many strategic factors in project evaluation are related to the perception of project success, which does not occur with organizational factors.
It is concluded that period duration of a project can also lead to identification of different success factors and relevance of different analysis.

[Insert Table 12]

5. Conclusion

We have verified the importance of financial and non-financial aspects during the evaluation process and in investment decision making. We show companies´ characteristics (like industry, project, management and project manager) are associated with the use of each type of analysis. In this sense, we find which methods and structure are used by companies when they have to analyze each area of the analysis. Another relevant issue is not only the dimensions of analysis relevant to the perceived success of projects, but also the critical success factors for projects, including the critical success factors by area of analysis. Finally, we have done similar tests separating the companies by industries, project types, duration and size of projects.
The results of our analysis allow us to draw some conclusions. It is evident that there are other important factors in addition to financial that affect the investment

decision. Companies consider the strategic analysis the most relevant for the project appraisal, followed by the study of technical, financial and commercial areas.

In the commerce industry there is a lower possibility of performing the financial, technical and political analysis. The manufacturing firms are less likely to make the commercial analysis. The probability of companies to do social analysis is greater when the company is large. The transportation/energy industry is more likely to perform social analysis. The analysis of project manager aspects is more likely to occur in large companies and in low debt companies.

Companies that put into practice modernization projects are less likely to perform the financial and the social analysis. There is a higher probability of making technical analysis on projects of longer duration, political and environmental analyses in large scale projects, and organizational analysis in small-scale projects. The expansion projects are more likely to include commercial analysis.

Furthermore, in company's management characteristics, the younger the chairman of the board, the more likely it is that the company performs strategic analysis. Technical analysis is less likely to occur in cases where the company's manager is a shareholder. Environmental analysis tends to be performed by companies in which the chairman of the board has a degree, and organizational analysis tends to be carried out when the management is also owner of capital. If the chairman of the board is not long in that position, political analysis is more likely to be carried out in project evaluation.

With regard to the characteristics of the project manager, it is more likely to find financial analysis is performed when the project manager occupies a position of management in the company and when his reward is fixed, political analysis when the project manager is older, environmental analysis if the manager has higher education, and project manager analysis when he has an advanced age. On the other hand, there it is less likely to find: technical analysis when the project manager is in the company's management and when he has extensive experience in project management; organizational analysis in the presence of an older manager; human resources analysis when the manager has experience in project management; project manager analysis in the case of belonging to the company management.

The perceived success of a project is related to the consideration of strategic, political and human resources analysis in their evaluation. There is a greater perception of success when companies attribute greater importance to financial and commercial aspects in evaluation of projects.

In our analysis we show the critical success factors for each area of analysis and the characteristics of the company, project, management and project manager associated with the perceived success of the project. We found that there is a greater perception of success in companies with larger projects, when the chairman of the board is already in that job for a long time and when the project manager has academic training and variable reward. When we split the sample by segments, it seems to confirm the differences in the success of the project and the areas evaluated in the project according to the industry, the type of project, size and duration of the project.

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Table 1: Analyzing Financial and Non Financial Area

This table presents four tests. Panel A indicates the dimensions of analysis used in evaluating projects. Panel B shows the importance attributed to each of the areas in the project evaluation. Panel C shows the influence of each area of analysis on the economic value of the project. Panel D indicates the importance of each area of analysis for making investment decision. Source: Moutinho and Lopes (2010). (N = 96)

Analysis	*Panel A*		*Panel B*		*Panel C*		*Panel D*	
	Freq.	**%**	**Average**	**% Important and very Important**	**Average**	**% Important and very Important**	**Average**	**% Important and very Important**
Strategic	92	95,8	3,45	91,7	3,44	94,8	3,67	97,8
Technical	80	83,3	3,28	86,5	3,06	78,1	3,02	79,6
Commercial	75	78,1	2,9	75	2,68	67,7	2,76	72
Political	42	43,8	1,47	20,8	1,28	19,8	1,11	16,1
Finance	82	85,4	2,97	75	2,91	74	3	76,3
Social	39	40,6	1,8	33,3	1,31	21,9	1,22	15,1
Environmental	60	62,5	2,3	55,2	1,99	44,8	1,96	44,1
Organizational	59	61,5	2,43	57,3	1,98	45,8	1,97	46,2
Human Resources	67	69,8	2,3	53,1	1,85	36,5	1,78	32,3
Project Management	53	55,2	2,71	69,8	1,96	44,8	2	41,9

Table 2: Financial and Non-Financial Analysis by Company Characteristics

This table shows the results of multivariate analysis, by logit model, between the likelihood of analyzing each of the dimensions of the project evaluation and the characteristics of the company. In addition to the coefficient of the variable is presented in brackets, the standard deviation associated to it. ***, ** And * show the existence of statistical significance at 1%, 5% and 10% respectively. (N = 86)

	Finance	Strategic	Technical	Commercial	Political	Social	Environmental	Organizational	Human Resource	Project Manageme
Constant	-2.458	-0.898	0.482	-0.266	0.324	-7.292	-10.601 **	-0.625	-4.618	-1.529
	(-0.398)	(-0.077)	(0.073)	(-0.053)	(0.071)	(-1.506)	(-2.286)	(-0.158)	(-0.971)	(-0.362)
Ln(sales)	0.653	-0.062	0.338	0.341	-0.108	0.580 **	0.340	-0.164	0.319	0.699 **
	(1.565)	(-0.107)	(0.756)	(1.067)	(-0.397)	(2.190)	(1.416)	(-0.731)	(1.149)	(2.337)
Ln(debt)	-0.333	0.289	0.073	-0.183	0.151	-0.161	0.287	0.220	0.027	-0.577 **
	(-1.213)	(0.494)	(0.161)	(-0.814)	(0.723)	(-0.765)	(1.346)	(1.126)	(0.128)	(-2.369)
Public	-1.071	39.761	-1.140	-1.277	0.226	-3.041 **	-0.309	0.211	0.750	0.118
	(-0.768)	(0.000)	(-0.582)	(-1.119)	(0.228)	(-2.004)	(-0.315)	(0.222)	(0.633)	(0.126)
Dividends	0.231	0.849	-2.352 **	0.253	-0.596	-1.321 **	-0.221	0.027	-0.915 *	-0.676
	(0.282)	(0.601)	(-2.128)	(0.393)	(-1.105)	(-2.329)	(-0.434)	(0.055)	(-1.689)	(-1.346)
Private Firm	0.124	1.277	-2.049 *	0.494	-0.714	-0.347	-0.008	0.095	-0.434	0.399
	(0.156)	(0.905)	(-1.755)	(0.803)	(-1.317)	(-0.629)	(-0.014)	(0.189)	(-0.761)	(0.761)
Commerce industry	-2.559 *	-0.744	-5.123 ***	-1.908	-1.888 **	-0.560	-0.456	0.201	0.330	-1.074
	(-1.914)	(-0.418)	(-2.726)	(-1.636)	(-2.304)	(-0.712)	(-0.628)	(0.293)	(0.406)	(-1.478)
Manufacturing industry	-0.642	-0.939	-1.417	-2.109 *	-0.545	0.158	0.912	0.228	0.197	-0.972
	(-0.467)	(-0.532)	(-0.816)	(-1.864)	(-0.822)	(0.223)	(1.295)	(0.356)	(0.268)	(-1.428)
Transport/Energy industry	-0.995	40.191	38.074	0.168	1.131	2.547 **	-0.330	0.286	-0.201	0.364
	(-0.613)	(0.000)	(0.000)	(0.106)	(1.169)	(2.387)	(-0.395)	(0.345)	(-0.218)	(0.395)
McFadden R-squared	0.148	0.141	0.542	0.138	0.201	0.209	0.119	0.019	0.071	0.115
LR statistic	9.142	3.665	41.422	12.169	23.799	24.324	13.667	2.139	7.184	13.672
Probability(LR stat)	0.330	0.886	0,000	0.144	0.002	0.002	0.091	0.976	0.517	0.091

Table 3: Financial and non financial analysis by project characteristics

This table shows the results of multivariate analysis, by logit model, between the likelihood of analyzing each of the dimensions of the project evaluation and project characteristics. In addition to the coefficient of the variable is presented in brackets, the standard deviation associated to it. ***, ** And * show the existence of statistical significance at 1%, 5% and 10% respectively. (N = 79)

	Finance	Strategic	Technical	Commercial	Political	Social	Environmental	Organizational	Human Resources	Project Manager
C	0.981	-49.109	-1.328	-1.242	-14.291 ***	-3.198	-10.141 ***	4.967 *	-0.363	2.999
	(0,292)	(-1.173)	(-0,336)	(-0,366)	(-3,577)	(-1,163)	(-3,231)	(1,809)	(-0,137)	(1,083)
Replacement	0.449	-4.299	-0.165	0.543	0.942	-1.252	0.048	-0.114	0.492	-0.705
	(0,497)	(-1,343)	(-0,155)	(0,644)	(1,029)	(-1,287)	(0,065)	(-0,166)	(0,632)	(-1,026)
Modernization	-2.006 ***	6.868	-0.632	0.594	-0.401	-1.959 **	0.049	-0.562	-0.543	0.255
	(-2,653)	(1,012)	(-0,603)	(0,737)	(-0,463)	(-2,154)	(0,067)	(-0,854)	(-0,754)	(0,397)
Expansion		47.579	-1.212	1.701 *	-0.666	-1.221	0.251	-0.307	-0.406	-0.278
		(0,000)	(-1,132)	(1,837)	(-0,699)	(-1,326)	(0,322)	(-0,431)	(-0,535)	(-0,394)
Duration	0.023	0.000	0.117 **	-0.014	0.040	0.018	0.001	0.027	-0.007	-0.017
	(0,783)	(1,539)	(2,057)	(-0,668)	(1,616)	(1,003)	(0,061)	(1,488)	(-0,419)	(-0,976)
Size	0.086	3.028	0.150	0.081	0.897 ***	0.250	0.729 ***	-0.328 *	0.113	-0.187
	(0,352)	(1,169)	(0,526)	(0,334)	(3,409)	(1,322)	(3,308)	(-1,715)	(0,609)	(-0,965)
Relative size	0.172	60.102	2.422	8.371	-0.663	-0.185	-1.197	1.144	0.222	1.921 *
	(0,223)	(0,955)	(0,688)	(1,587)	(-0,961)	(-0,282)	(-1,613)	(1,401)	(0,293)	(1,667)
McFadden R-squar	0.151	0.682	0.263	0.160	0.365	0.141	0.192	0.044	0.029	0.073
LR statistic (6 df)	10.134	17.395	17.674	13.193	39.219	14.683	20.136	4.6002	2.792	7.962
Probability(LR stat)	0.072	0.0079	0.007	0.040	0.000	0.023	0.003	0.596	0.834	0.241

Table 4: Financial and non financial analysis by management characteristics

This table shows the results of multivariate analysis, by logit model, between the likelihood of analyzing each of the dimensions of the project evaluation and the characteristics of company management. In addition to the coefficient of the variable is presented in brackets, the standard deviation associated to it. ***, ** And * show the existence of statistical significance at 1%, 5% and 10% respectively. (N = 87)

	Finance	Strategic	Technical	Commercial	Political	Social	Environmental	Organizational	Human Rersources	Project Manager
C	3.880 **	7.359 **	2.485	1.552	-1.441	-1.326	-0.131	2.659 *	2.942 *	0.907
	(2.085)	(2.180)	(1.204)	(0.888)	(-0.968)	(-0.967)	(-0.093)	(1.758)	(1.884)	(0.667)
Degree	0.185	0.921	0.744	-0.278	0.608	-0.333	1.119 **	0.171	-0.575	-0.802
	(0.249)	(0.661)	(1.012)	(-0.369)	(1.066)	(-0.610)	(2.007)	(0.288)	(-0.909)	(-1.426)
Age	-0.043	-0.114 *	0.027	-0.009	0.031	0.029	-0.003	-0.044	-0.024	0.006
	(-1.320)	(-1.954)	(0.732)	(-0.314)	(1.130)	(1.175)	(-0.126)	(-1.594)	(-0.89)	(0.231)
Tenure	0.007	0.144	-0.065	0.071	-0.064 *	-0.011	-0.008	-0.048	-0.042	-0.014
	(0.175)	(1.301)	(-1.481)	(1.394)	(-1.767)	(-0.332)	(-0.252)	(-1.389)	(-1.223)	(-0.438)
Capital	-0.076	0.259	-2.186 **	-0.144	-0.152	-0.364	0.406	1.232 **	0.298	-0.419
	(-0.118)	(0.211)	(-1.996)	(-0.248)	(-0.320)	(-0.787)	(0.825)	(2.367)	(0.586)	(-0.905)
McFadden R-square	0.025	0.199	0.212	0.039	0.075	0.019	0.049	0.095	0.032	0.023
LR statistic (4 df)	1.884	6.476	13.989	3.418	9.030	2.265	5.564	10.830	3.386	2.755
Probability(LR stat)	0.757	0.166	0.007	0.490	0.060	0.687	0.234	0.028	0.495	0.599

Table 5: Financial and non financial analysis by project manager characteristics

This table shows the results of multivariate analysis, by logit model, between the likelihood of analyzing each of the dimensions of the project evaluation and the characteristics of the project manager. In addition to the coefficient of the variable is presented in brackets, the standard deviation associated to it. ***, ** And * show the existence of statistical significance at 1%, 5% and 10% respectively. (N = 83)

	Finance	Strategic	technical	Commercial	Political	Social	Environmental	Organizational	Human Resource	Project Manager
C	0.543	4.418	0.968	-2.402	-2.877 *	-1.017	-2.934 *	3.189 *	2.141	-2.114
	(0.252)	(1.052)	(0.456)	(-1.313)	(-1.779)	(-0.653)	(-1.733)	(1.907)	(1.190)	(-1.294)
Degree	1.340	0.653	-0.658	1.201	0.563	-0.597	1.764 **	0.047	0.668	0.723
	(1.482)	(0.393)	(-0.654)	(1.572)	(0.811)	(-0.868)	(2.428)	(0.066)	(0.864)	(1.014)
Age	-0.009	-0.039	0.057	0.061	0.062 **	0.024	0.048	-0.054 *	-0.024	0.064 *
	(-0.226)	(-0.451)	(1.327)	(1.643)	(1.969)	(0.766)	(1.455)	(-1.677)	(-0.702)	(1.955)
Position in the Compa	1.441 *	-0.984	-1.454 **	0.109	-0.498	-0.304	0.729	0.025	-0.298	-1.249 **
	-1.713	(-0.756)	(-2.009)	(0.185)	(-1.044)	(-0.630)	(1.346)	(0.049)	(-0.519)	(-2.486)
Experience	-0.938	41.851	-1.483 *	-0.323	-0.279	-0.349	-0.564	-0.578	-1.457 **	-0.129
	(-1.164)	(0.000)	(-1.839)	(-0.521)	(-0.529)	(-0.659)	(-1.002)	(-1.052)	(-2.206)	(-0.240)
Fixed reward	1.319 *	-0.322	1.007	0.408	-0.331	0.711	0.146	0.150	0.802	-0.621
	-1.825	(-0.210)	(1.341)	(0.692)	(-0.680)	(1.424)	(0.281)	(0.293)	(1.392)	(-1.177)
McFadden R-squared	0.136	0.225	0.181	0.061	0.049	0.039	0.077	0.072	0.157	0.104
LR statistic (5 df)	9.787	5.805	13.047	5.262	5.630	4.404	8.233	7.803	15.403	11.733
Probability(LR stat)	0.081	0.326	0.023	0.385	0.344	0.493	0.1438	0.167	0.009	0.039

Table 6: Financial and non financial analysis influence the perception of success

This table presents the results of multivariate analysis, by OLS model, between the perceived success of the project and the financial and non financial analyses. Panel A analyzes the influence of doing each analysis (Source Panel A: Moutinho and Lopes, 2010). Panel B analyzes the influence of the importance attributed to each areas of analysis in project evaluation. Panel C shows the results of the influence of consideration of a factor index, which is constructed for each area (constructed by assigning one point for each item / factor considered in the evaluation). This Panel analyze the influence of this index. In addition to the coefficient of the variable is presented, among paraentesis, the standard deviation associated to it. ***, ** And * show the existence of statistical significance at 1%, 5% and 10% respectively.

	Panel A	*Panel B*	*Panel C*
C	5.366 ***	3,261 ***	5,458 ***
	(0,396)	(0,714)	(0,324)
Financial Analysis	0.127	0,634 ***	0,050 *
	(0,319)	(0,135)	(0,025)
Strategic Analysis	0.756 **	0,052	0,057 **
	(0,316)	(0,145)	(0,027)
Technical Analysis	-0.298	0,135	0,018
	(0,32)	(0,121)	(0,027)
Commercial Analysis	-0,004	0,213 *	-0,022
	(0,241)	(0,115)	(0,017)
Political Analysis	0.453 *	-0,149	-0,005
	(0,257)	(0,109)	(0,018)
Social Analysis	-1.047 ***	-0,223*	-0,009
	(0,309)	(0,12)	(0,013)
Environmental Analysis	0,394	0,079	0,007
	(0,246)	(0,102)	(0,015)
Organizational Analysis	-1,035 ***	-0,058	-0,041 ***
	(0,197)	(0,172)	(0,01)
Human Resources Analysis	0.818 ***	-0,007	0,011
	(0,245)	(0,161)	(0,011)
Project Manager Analysis	-0,021	-0,037	-0,008
	(0,196)	(0,134)	(0,01)
R-squared	25,82%	28,77%	20,88%
Adjusted R-squared	17,10%	20,39%	11,57%
F-statistic	2,959	3,433	2,243
Prob(F-statistic)	0,003	0,0008	0,022

Table 7: Critical success factor, by area of analysis

This table presents the results of the regressions, not reported, among the project's success and the factors relating to each analysis, by OLS. In this table are only indicated statistically significant variables to 10%.

Painel A	***Painel B***	***Painel C***	***Painel D***
In project evaluation, the success of the project tends to be greater as more importance is assigned to:	*In project evaluation, the project success tends to be greater when are adopted the following procedures:*	*In project evaluation, the success of the project tends to be smaller as more importance is assigned to:*	*In project evaluation, the project success tends to be smaller when are adopted the following procedures:*
		Financial Aspects	
Accounting Rate of Return		Index Rate	
Critical Point Analysis			
		Strategic Aspects	
Contribution to the company´s strategic goals			
		Technical Aspects	
	Verifying impact of technical changes		Not overlapping stages
	Sharing risk with partners		Technical and technological outsourcing
		Commercial Aspects	
	Definition of a promotion policy consistent with the goals	Placement policy	
		Political Aspects	
		Micro and macroeconomic policy	
		Social Aspects	
Adopting a policy for social issues		Analysing the social consequences in similar projects	
Need for the cretion of employment and/or housing		Effects on the wealth of the population	
		Environmental Aspects	
			Elaborating studies of environmental impact
Penalties for environmental damages	Using technology compatible with environmental care	State's environmental control	Continuously analysing environmental effetcs
			Using the knowledge of the local community
		Organizational Aspects	
Cooperation beetween functional areas	There are a need to create partnerships	Permanently changing organizational structure	Adopting a project structure, independent structure from the company
Many hierarchic levels (vertical structure)	Adopting a matrix structure	Communication oriented to outside of the project	Elaborating training about the information system
Centralized decision-making	Project as part of the functional structure		Coordination of information flows
Activities coordinated informally	Constitution of work teams from various areas		Sharing information between membres of project
Centralised communications system	Analysis of partners' operational capacity		Analysis of partners' past performance
Flexible information system			Analysis of partners' financial capacity
Communication oriented only towards members of the project			
		Human Resources Aspects	
Permanent interaction between members of teams	Selecting team workers	Ability to work autonomously	Performance evaluation considering the importance to the last stage
	Reward based on tenure	Future perspectives of working for company	Performance evaluation considering dedication/responsability
		Project Manager Aspects	
Ambition		Technical skills	Motivation of enployees and promotion of team spirit
Creativity	Analysis of problems and identification of viable solutions	Leadership skills	Definition and evaluation of priorities
		Ability to motivate	

Table 8: Factors influencing the success of projects

This table shows the results of multivariate analysis, by OLS, between the perception of success of the project and analysis of each of the characteristics of the company, the design, management and the manager. Panel A presents the characteristics of the company. Panel B shows the characteristics of the project. Panel C shows the characteristics of administration. Panel D shows the characteristics of the project manager. In addition to the coefficient of the variable is presented in brackets, the standard deviation associated to it. ***, ** And * show the existence of statistical significance at 1%, 5% and 10% respectively.

Panel A		*Panel B*		*Panel C*		*Panel D*	
C	3.475 *	C	2.912 **	C	5.872 ***	C	5.129 ***
	(1.690)		(2.203)		(8.166)		(6.208)
Ln (sales)	0.048	Substituição	0.330	Licenciatura	0.421	Licenciatura	0.894 **
	(0.422)		(0.884)		(1.462)		(2.461)
Ln (Debt)	0.075	Modernização	0.378	Idade	-0.011	Idade	0.004
	(0.797)		(1.079)		(-0.816)		(0.279)
Public	-0.213	Expansão	0.307	Tempo no Cargo	0.035 **	Cargo na Empresa	0.257
	(-0.448)		(0.821)		(2.076)		(1.012)
Payout	0.497 *	Duração	-0.014	Capital	-0.172	Experiência	-0.018
	(1.964)		(-1.662)		(-0.705)		(-0.065)
Emp. Privada Nacional	0.227	Dimensão	0.202 **			Compensação Fixa	-0.539 **
	(0.873)		(2.191)				(-2.061)
Comércio por Grosso e	0.054	Dimensão Relativa	-0.451				
	(0.149)		(-1.406)				
Indústria Transformad	-0.200						
	(-0.592)						
Transporte/Energia	-0.350						
	(-0.815)						
R-squared	0.103		0.085171		0.057902		0.113386
Adjusted R-squared	0.0107		0.008936		0.011946		0.055814
F-statistic	1.115		1.117211		1.259946		1.969455
Prob(F-statistic)	0.362		0.360991		0.292470		0.092613

Table 9: Importance of financial and non-financial analysis, by company industry

Table 10: Importance of financial and non financial analysis, by type of project

This table shows the data of the sample to manufacturing industries (Panel A), commerce (Panel B) and transport and energy (Panel C). Panel A.1, B.1 and C.1 show the number of times that each area of analysis was carried out. Panel A.2, B.2 and C.2 show the importance (on a scale of 1 to 5) of each area of analysis in the evaluation of projects, and the percentage of companes considering each area of analysis important and very important to project appraisal . Panel A.3 and B.3 present the results, by OLS model, of the influence of doing each analysis in the perception of project success. Panel C3 is not displayed because the data does not permit their calculation. Panel A.4, B.4 and C.4 presents the results, by OLS model, of the influence of the importance attributed to each area of analysis in the perception of project success. Panel A.5, B.5 and C.5 presents the results, by OLS model, of the influence of index factors consideration (to each area assessed, the index is constructed by assigning one point each item / factor considered in the assessment) in the perception of success of the project. In addition to the coefficient of the variable is presented, among paraentesis, the standard deviation associated to it. ***, ** and * show the existence of statistical significance at 1%, 5% and 10% respectively.

	Panel A: Manufacturing (N=37)							**Panel B: Commercial** (N=24)							**Panel C: Transport / Energy** (N=16)					
Analysis	*Panel A.1*		*Panel A.2*		*Panel A.3*	*Panel A.4*	*Panel A.5*	*Panel B.1*		*Panel B.2*		*Panel B.3*	*Panel B.4*	*Panel A.3*	*Panel C.1*		*Panel C.2*		*Panel C.4*	*Panel C.5*
C					4,541 ***	3,591 **	4,669 ***					6,578 ***	3,358	7,496 ***					8,675 *	2,285
					(1,525)	(2,699)	(0,66)					(1,108)	(1,934)	(1,647)					(3,511)	(1,370)
Strategic	35	94,59%	3,59	97,30%	1,309	0,174	0,099 *	23	95,83%	3,50	87,50%	-0,772	-0,273	-0,105	16	100,00%	3,50	93,75%	-0,244	-0,034
					(0,185)	(0,338)	(0,052)					(1,267)	(0,227)	(0,136)					(0,328)	(0,124)
Technical	35	94,59%	3,38	86,49%	-0,257	0,124	0,073	11	45,83%	2,92	75,00%	-0,378	-0,112	0,127	16	100,00%	3,31	93,75%	-0,696	0,383 **
					(1,073)	(0,291)	(0,058)					(0,576)	(0,167)	(0,090)					(0,832)	(0,100)
Commerce	25	67,57%	2,62	64,86%	-0,254	0,055	-0,002	19	79,17%	3,38	87,50%	-0,243	0,19	-0,059	15	93,75%	3,00	81,25%	0,075	-0,041
					(0,599)	(0,387)	(0,021)					(0,534)	(0,399)	(0,041)					(0,141)	(0,041)
Political	16	43,24%	1,30	10,81%	0,272	-0,414 *	0,019	3	12,50%	1,50	25,00%	0,486	-0,083	-0,174	14	87,50%	2,00	50,00%	-0,158	0,044
					(,599)	(0,204)	(0,081)					(0,799)	(0,173)	(0,101)					(0,372)	(0,075)
Finance	34	91,89%	2,89	70,27%	1,024	0,492 **	-0,005	18	75,00%	3,13	83,33%	-0,749	0,624 **	0,11	14	87,50%	2,81	75,00%	1,861 ***	0,329 ***
					(0,962)	(0,227)	-0,045					(0,0551)	(0,241)	-0,067					(0,409)	-0,074
Social	13	35,14%	1,43	21,62%	-1,213 *	0,200	-0,029	7	29,17%	2,04	45,83%	-0,991	-0,419	0,001	13	81,25%	2,38	50,00%	-1,088	-0,096
					(0,662)	(0,217)	(0,042)					(1,029)	(0,315)	(0,069)					(0,847)	(0,060)
Environmental	27	72,97%	2,35	54,05%	0,751	-0,207	0,009	11	45,83%	1,92	50,00%	1,414 **	0,285	0,064	10	62,50%	2,69	68,75%	-0,471	-0,017
					(0,542)	(0,184)	(0,026)					(0,647)	(0,282)	(0,082)					(0,325)	(0,020)
Organizational	24	64,86%	2,49	62,16%	-0,675	0,051	-0,057 **	13	54,17%	2,75	70,83%	-0,029	0,069	0,010	11	68,75%	2,31	43,75%	-1,998 **	-0,003
					(0,445)	(0,319)	(0,024)					(0,657)	(0,354)	(0,042)					(0,617)	(0,0489)
Human Resource	27	72,97%	2,32	59,46%	-0,484	-0,333	-0,002	17	70,83%	2,71	66,67%	1,837 **	0,284	-0,034	11	68,75%	2,06	37,50%	2,099 *	-0,108 **
					(0,533)	(0,355)	(0,028)					(0,666)	(0,278)	(0,050)					(0,822)	(0,0399)
Project Manager	17	45,95%	2,73	62,16%	0,179	0,393	-0,001	12	50,00%	2,79	70,83%	-0,592	0,348	-0,039	11	68,75%	2,63	68,75%	-0,399	0,013
					(0,559)	(0,271)	(0,012)					(0,444)	(0,284)	(0,026)					(0,261)	(0,026)
R-squared					29,99%	45,96%	40,81%					67,2%	59,43%	49,50%					95,39%	89,51%
Adjusted R-squared					3,07%	25,17%	18,05%					41,97%	28,23%	10,60%					86,17%	68,53%
F-statistic					1,114	2,21	1,79					2,664	1,904	1,27					10,353	4,266
Prob(F-statistic)					0,388	0,05	0,112					0,05	0,137	0,33					0,00935	0,061

This table shows the data of the sample for expansion projects (Panel A), modernization projects (Panel B) and replacement projects (Panel C). Panel A.1, B.1 and C.1 show the number of times that each area of analysis was carried out. Panel A.2, B.2 and C.2 show the importance (on a scale of 1 to 5) of each area of analysis in the evaluation of projects, and the percentage of companies considering each area of analysis important and very important to project appraisal. Panel B.3 and C.3 presents the results, by OLS model, of the influence of doing each analysis in the perception of project project. Panel A3 is not presented because the data do not permit their calculation. Panel A.4, B.4 and C.4 presents the results, by OLS model, of the influence of the importance attributed to each area of analysis in the perception of project success. Panel A.5, B.5 and C.5 presents the results, by OLS model, of the influence of index factors consideration (to each area assessed, the index is constructed by assigning one point each item / factor considered in the assessment) in the perception of success of the project. In addition to the coefficient of the variable is presented, among paraentesis, the standard deviation associated to it. ***, ** and * show the existence of statistical significance at 1%, 5% and 10% respectively.

	Panel A: Expansion Projects (N=47)						**Panel B: Modernization Projects** (N=38)							**Panel C: Replacement Projects** (N=16)					
Analysis	*Panel A.1*		*Panel A.2*		*Panel A.4*	*Panel A.5*	*Panel B.1*		*Panel B.2*		*Panel B.3*	*Panel B.4*	*Panel A.3*	*Panel C.1*		*Panel C.2*		*Panel C.3*	*Panel C.4*	*Panel C.5*
C					4,270 ***	6,026 ***					4,729 ***	4,895 ***	5,022 ***					7,489 **	1,414	5,448 ***
					(0,948)	(0,781)					(0,940)	(1,743)	(0,525)					(2,452)	(6,983)	(1,106)
Strategic	47	100,00%	3,70	97,87%	-0,132	0,011	35	92,11%	3,16	86,84%	0,441	-0,056	0,058	14	87,50%	3,13	87,50%	-1,127	-0,574	0,003
					(0,259)	(0,082)					(0,631)	(0,216)	(0,046)					(2,814)	(0,768)	(0,142)
Technical	36	76,60%	3,06	80,85%	-0,036	0,031	33	86,84%	3,39	92,11%	0,112	0,0246	0,031	14	87,50%	3,75	100,00%	0,414	1,220	0,063
					(0,161)	(0,027)					(0,610)	(0,325)	(0,046)					(3,789)	(1,270)	(0,078)
Commerce	40	85,11%	3,13	85,11%	0,071	-0,060 **	29	76,32%	2,84	71,05%	0,616	0,066	0,023	11	68,75%	2,44	56,25%	0,468	0,169	0,065
					(0,167)	(0,024)					(0,546)	(0,154)	(0,024)					(1,092)	(0,229)	(0,041)
Political	18	38,30%	1,34	23,40%	0,008	0,034	17	44,74%	1,45	15,79%	-0,034	-0,286	-0,026	8	50,00%	1,38	12,50%	1,319	0,146	0,001
					(0,107)	(0,043)					(0,453)	(0,222)	(0,019)					(1,709)	(0,446)	(0,241)
Finance	40	85,11%	2,89	76,60%	0,949 ***	0,105 **	29	76,32%	3,00	71,05%	0,362	0,232 *	0.009	13	81,25%	3,19	81,25%	-1,361	0,435	-0,009
					(0,221)	(0,044)					(0,537)	(0,135)	(0,046)					(1,522)	(0,698)	(0,230)
Social	21	44,68%	1,96	42,55%	-0,207	-0,027	12	31,58%	1,50	21,05%	0,167	0,228	0,001	4	25,00%	1,56	18,75%	-0,952	-0,281	-0,063
					(0,174)	(0,023)					(0,307)	(0,226)	(0,012)					(1,109)	(0,675)	(0,172)
Environmental	30	63,83%	2,43	61,70%	-0,138	-0,021	21	55,26%	2,03	47,37%	-0,153	0,028	0,018	10	62,50%	2,31	50,00%	-0,202	0,236	0,063
					(0,216)	(0,022)					(0,313)	(0,162)	(0,016)					(1,368)	(0,305)	(0,045)
Organizational	28	59,57%	2,49	59,57%	-0,214	-0,062 ***	24	63,16%	2,47	57,89%	-0,352	-0,378	-0,011	9	56,25%	2,63	68,75%	-0,648	1,007	-0,030
					(0,258)	(0,013)					(0,455)	(0,309)	(0,015)					(1,404)	(0,651)	(0,040)
Human Resource	32	68,09%	2,30	48,94%	0,149	0,043 ***	26	68,42%	2,26	52,63%	0,286	0,056	-0,013	12	75,00%	2,56	68,75%	0,372	-1,351	-0,033
					(0,235)	(0,015)					(0,379)	(0,297)	(0,019)					(3,283)	(0,763)	(0,053)
Project Manager	26	55,32%	2,74	76,60%	0,067	-0,009	24	63,16%	2,61	65,79%	0,050	0,127	-0,005	7	43,75%	2,81	62,50%	-0,574	0,204	-0,016
					(0,174)	(0,012)					(0,472)	(0,236)	(0,017)					(1,246)	(0,733)	(0,055)
R-squared					36,2%	49,80%					29,38%	43,2%	23,21%					68,21%	68,35%	66,91%
Adjusted R-squared					18,5%	35,85%					3,2%	22,23%	5,21%					4,65%	5,05%	0,75%
F-statistic					2,045	3,571					1,123	2,057	0,8165					1,073	1,079	1,0113
Prob(F-statistic)					0,056	0,0022					0,381	0,066	0,615					0,499	0,496	0,529

Table 11: Importance of financial analysis and non-financial, by project size

This table shows the data of the sample for large-scale projects (Panel A) and small-scale projects (Panel B). Panel A.1 and B.1 show the number of times that each area of analysis was carried out. Panel A.2 and B.2 show the importance (on a scale of 1 to 5) of each area of analysis in the evaluation of projects, and the percentage of companies considering each area of analysis important and very important to project appraisal. Panel B.3 shows the results, by OLS model, of the influence of doing each analysis in the perception of project success. Panel A3 is not presented because the data do not permit their calculation. Panel A.4 and B.4 present the results, by OLS model, of the influence of the importance attributed to each area of analysis in the perception of project success. Panel A.5 and B.5 shows the results, by OLS model, of the influence of index factors consideration (to each area assessed, the index is constructed by assigning one point for each item / factor considered in the assessment) in the perception of success of the project. In addition to the coefficient of the variable is presented, among paraentesis, the standard deviation associated to it. ***, ** and * show the existence of statistical significance at 1%, 5% and 10% respectively.

	Panel A: Large-scales Projects (N=29)						
	Panel A.1		*Panel A.2*		*Panel A.3*	*Panel A.4*	*Panel A.5*
C						4,168 **	2,979 ***
						(1,847)	(0,947)
Strategic Analysis	29	100,00%	3,52	93,10%		-0,165	0,117
						(0,384)	(0,078)
Technical Analysis	29	100,00%	3,59	93,10%		0,412	0,187 **
						(0,406)	(0,071)
Commercial Analysis	24	82,76%	2,83	79,31%		-0,163	-0,049 **
						(0,333)	(0,020)
Political Analysis	20	68,97%	1,93	34,48%		-0,153	-0,011
						(0,190)	(0,026)
Finance Analysis	25	86,21%	3,03	82,76%		0,699 *	0,069
						(0,382)	(0,055)
Social Analysis	16	55,17%	2,03	24,14%		0,387	-0,031
						(0,347)	(0,032)
Environmental Analysis	25	86,21%	2,90	72,41%		-0,690	-0,003
						(0,450)	(0,030)
Organizational Analysis	17	58,62%	2,48	62,07%		-0,089	-0,096 ***
						(0,707)	(0,019)
Human Resources Analysis	22	75,86%	2,45	58,62%		-0,54	0.038 *
						(0,799)	(0,021)
Project Manager Analysis	16	55,17%	2,93	79,31%		0,364	0,032 *
						(0,556)	(0,016)
R-squared						42,90%	76,83%
Adjusted R-squared						11,18%	63,96%
F-statistic						1,352	5,9705
Prob(F-statistic)						0,276	0,00054

	Panel B: Smal-scale Projects (N=55)						
Analysis	*Panel B.1*		*Panel B.2*		*Panel B.3*	*Panel B.4*	*Panel B.5*
C					5,892 ***	3,272 **	6,179 ***
					(0,627)	(1,436)	(0,548)
Strategic	51	92,73%	3,45	90,91%	0,801 *	0,108	0,022
					(0,463)	(0,295)	(0,051)
Technical	43	78,18%	3,13	81,82%	-0,046	0,257	-0,011
					(0,440)	(0,209)	(0,046)
Commercial	42	76,36%	2,87	70,91%	0,223	0,199	-0,054
					(0,541)	(0,241)	(0,038)
Political	15	27,27%	1,09	10,91%	1,388 ***	-0,240	0,104
					(0,458)	(0,199)	(0,138)
Finance	45	81,82%	2,80	65,45%	-0,411	0,608 ***	0,089
					(0,666)	(0,214)	(0,061)
Social	16	29,09%	1,49	29,09%	-2,144 ***	-0,528 **	-0,227 **
					(0,514)	(0,220)	(0,107)
Environmental	29	52,73%	1,82	40,00%	0,400	0,247	0,056
					(0,332)	(0,188)	(0,039)
Organizational	33	60,00%	2,33	50,91%	-0,922 **	0,086	-0,046 **
					(0,377)	(0,432)	(0,019)
Human Resources	36	65,45%	2,11	45,45%	0,195	-0,046	0,006
					(0,381)	(0,418)	(0,023)
Project Manager	29	52,73%	2,55	60,00%	-0,465	-0,203	-0,009
					(0,307)	(0,285)	(0,013)
R-squared					61,68%	46,54%	41,27%
Adjusted R-squared					46,35%	25,16%	17,78%
F-statistic					4,024	2,177	1,757
Prob(F-statistic)					0,0022	0,055	0,122

TABLE 12: Importance of financial and non-financial analysis, by project duration

This table shows the data of the sample for short-term projects (Panel A) and long-term projects (Panel B). Panel A.1 and B.1 show the number of times that each area of analysis was carried out. Panel A.2 and B.2 show the importance (on a scale of 1 to 5) of each area of analysis in the evaluation of projects, and the percentage of companies considering each area of analysis important and very important to project appraisal. Panel A.3 shows the results, by OLS model, of the influence of doing each analysis in the perception of project success. Panel B.3 is not displayed because the data does not permit their calculation. Panel A.4 and B.4 present the results, by OLS model, of the influence of the importance attributed to each area of analysis in the perception of project success. Panel A.5 and B.5 shows the results, by OLS model, of the influence of index factors consideration (to each area assessed, the index is constructed by assigning one point for each item / factor considered in the assessment) in the perception of success of the project. In addition to the coefficient of the variable is presented, among paraentesis, the standard deviation associated to it. ***, ** and * show the existence of statistical significance at 1%, 5% and 10% respectively.

	Panel A: Short-term Projects (N=53)						
	Panel A.1		*Panel A.2*		*Panel A.3*	*Panel A.4*	*Panel A.5*
C					5,662 ***	3,258 ***	6,349 ***
					(0,477)	(1,147)	(0,367)
Strategic Analysis	51	94,44%	3,43	90,74%	0,230	0,265	-0,001
					(0,453)	(0,223)	(0,029)
Technical Analysis	40	74,07%	3,24	85,19%	-0,094	0,087	0,030
					(0,346)	(00,127)	(0,032)
Commercial Analysis	43	79,63%	2,96	77,78%	-0,367	0,160	-0,044 **
					(0,364)	(0,159)	(0,021)
Political Analysis	14	25,93%	1,09	14,81%	0,817 *	-0,043	0,034
					(0,418)	(0,175)	(0,034)
Finance Analysis	44	81,48%	2,98	70,37%	0,729	0,497 ***	0,044
					(0,597)	(0,173)	(0,027)
Social Analysis	18	33,33%	1,56	31,48%	-1,348 ***	-0,555 **	-0,024
					(0,467)	(0,207)	(0,019)
Environmental Analysis	31	57,41%	2,00	44,44%	0,643 **	0,325 **	0,039 *
					(0,316)	(0,151)	(0,020)
Organizational Analysis	29	53,70%	2,24	48,15%	-0,627 **	0,014	-0,037 ***
					(0,282)	(0,190)	(0,010)
Human Resources Analysis	35	64,81%	2,11	40,74%	0,236	0,182	0,012
					(0,317)	(0,164)	(0,014)
Project Manager Analysis	32	59,26%	2,61	68,52%	0,083	-0,171	-0,022*
					(0,300)	(0,151)	(0,013)
R-squared					40,04%	0,43,86%	40,97%
Adjusted R-squared					25,77%	30,50%	26,91%
F-statistic					2,805	3,282	2,9153
Prob(F-statistic)					0,0093	0,0032	0,0073

	Panel B: Long-term Projects(N=35)						
Analysis	*Panel B.1*		*Panel B.2*		*Panel B.3*	*Panel B.4*	*Panel B.5*
C						4,466 **	3,926 ***
						(1,643)	(0,615)
Strategic	35	100,00%	3,49	91,43%		0,085	0,208 ***
						(0,208)	(0,050)
Technical	33	94,29%	3,46	91,43%		-0,285	-0,015
						(0,437)	(0,064)
Commercial	26	74,29%	2,83	71,43%		0,133	-0,002
						(0,232)	(0,021)
Political	23	65,71%	1,94	22,86%		-0,086	0,028
						(0,176)	(0,024)
Finance	32	91,43%	2,91	77,14%		0,467 **	-0,020
						(0,215)	(0,064)
Social	15	42,86%	2,00	25,71%		0,149	-0,003
						(0,302)	(0,027)
Environmental	24	68,57%	2,60	65,71%		-0,067	-0,035
						(0,285)	(0,0266)
Organizational	25	71,43%	2,66	65,71%		0,083	-0,005 *
						(0,519)	(0,030)
Human Resources	26	74,29%	2,60	71,43%		-0,413	0,005
						(0,395)	(0,017)
Project Manager	16	45,71%	2,89	71,43%		0,352	0,024
						(0,245)	(0,017)
R-squared						29,00%	52,80%
Adjusted R-squared						5,75%	33,13%
F-statistic						0,980	2,685
Prob(F-statistic)						0,485	0,023