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Project Success Evaluation of Xperts Council

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maio 2020

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Trabalho Final de Mestrado na modalidade de Dissertação
apresentado à Universidade Católica Portuguesa
para obtenção do grau de mestre em Business Economics

por

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sob orientação de
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Católica Porto Business School, Universidade Católica Portuguesa
maio 2020

Acknowledgments

I would like to start with a special thanks to Professor Leonardo Costa for his counselling, support, and supervision. His care and incentive were keen to its accomplishment. I would like also to leave a message to the University and to all the teachers that with their effort made this possible.

To my parents, brothers and grandparents, I thank you for the unconditional love, support, motivation, and for the wise words though out this patch that started way back in the year 2000, which was not easy and that I finish with the presentation of this dissertation.

I would like to thank my friends, for their positive words and all the amazing experience that contributed not only to this dissertation but also for this astonishing patch that began in September of 2015. Thank you all for everything.

Finally, I would like to thank the Xperts Council. Thanks to everyone on the team for what you taught me, thanks for the opportunity and experience.

"Success is not final; failure is not fatal: it is the courage to continue that counts.", Winston Churchill

Resumo

A avaliação de projetos é uma prática comum efetuada pela maioria das empresas. A presente dissertação utiliza o sistema de avaliação multinível proposto por Bannerman (2008) e um modelo de regressão probit para identificar os fatores internos e ambientais que mais influenciam os diferentes níveis de sucesso obtidos pela Xperts Council nos projetos que realiza.

Os resultados mostram que o sucesso na gestão dos projetos é apenas influenciado pela localização da empresa cliente, sendo mais provável quando a esta última se situa em Paris ou em Londres. O sucesso do produto é influenciado apenas pela dimensão da empresa cliente, sendo que é menos provável quando a empresa cliente é grande. O sucesso no negócio é influenciado pelo estado civil do colaborador, pela sua idade e pela dimensão da empresa cliente. É mais provável quando o colaborador é casado e menos provável quando o colaborador é mais velho e a empresa cliente é maior. Por fim, o sucesso estratégico é influenciado pela idade do colaborador, pelo facto do mesmo pertencer à gestão de topo e ser casado e pela empresa cliente se localizar em Paris ou em Londres. Todos estes fatores aumentam a probabilidade do sucesso estratégico.

Palavras-chaves: Project success; Project management success; Product success; Business success; Strategic success; Success factors.

Abstract

Project evaluation is a common practice performed by most companies. This dissertation uses the multilevel evaluation framework proposed by Bannerman (2008) and a probit regression model, to identify the internal and environmental factors that most influence the different levels of success obtained by Xperts Council in the projects it carries out.

Results show that project management success is only influenced by the location of the client company, being more likely when the client company is in Paris or London. Product success is only influenced by the size of the client company, being less likely when the client company is large. Business success is influenced by the marital status and age of the employee, and by the size of the client company. It is more likely when the employee is married and less likely when the employee's age is higher, and the size of the client company is larger. Finally, strategic success is influenced by the employee's age, by the fact of he or she belonging to the top management and being married, and by the client company location being in Paris or London. All these factors increase the likelihood of strategic success.

Keywords: Project success; Project management success; Product success; Business success; Strategic success; Success factors.

Index

Table Index

Chapter 1
Introduction

Xperts Council is a company that connects experts with investment funds or consultancy companies, trough paid phone consultations. For each project, an Xperts Council consultant is challenged to find the best persons to help his client (investment funds or consultancy firms) in a phone survey. This dissertation aims to identify the factors that contribute the most to the success of Xperts Council projects.

We are addressing a very recent company operating in a very recent industry, in which this type of questions and analyses are still often neglected. The dissertation intends to bridge this gap.

To assess the project success of Xperts Council, we use the project evaluation framework proposed by Bannerman (2008). The framework presents 5 levels of performance analysis or project success: process success (level 1), project management success (level 2), product success (level 3), business success (level 4), and strategic success (level 5). Concerning process success (level 1), all projects have a specific script of " best practices" that help the team to achieve the goals. To determine project success at this level is necessary to consider if the processes used were appropriate if they are aligned with the objectives of the project and if they were integrated in the outcome of the project. In addition, it is necessary to understand if these processes were efficient.

Project management success (level 2) is defined as the application of a collection of tools and techniques for solving a task within time, cost, and quality constraints. Each task requires a unique combination of these tools and techniques adequately structured to the task environment and life cycle (from conception to completion). Success at this level is determined by compliance with

criteria such as budget, quality of the work, amount of work, dates set to meet certain goals, scope or specifications planned early in the project in what refers to intended project activities and/or completion of phases.

Product success (level 3) considers the final product that is delivered to the customer, which will vary from project to project (it may be a product or a service). It considers measures relative to the final product itself. For instance, if the outcome of the project meets specified requirements, if its quality is as expected and if the customer is satisfied (measures such as product and/or service acceptance, efficiency, and frequency of use).

Business success (level 4) measures the net benefits of the project to the organization that carries out it. It measures whether the objectives that led to the investment and the project objectives were met and if the expected benefits were met. Typically, we are talking about financial measures. It can also be an assessment of the organization's contribution to the project's outcome.

To calculate net benefits, it is imperative to consider the impacts that previously unplanned actions (for example, exceeding budget, hiring new employees, etc.) had on the organization. At this level, we want to evaluate if the project has a positive net benefit to the organization. Most of the projects aim to solve a specific problem of the organization that carries out the project (bringing it positive net benefits). If the project does not provide an acceptable solution to the problem, internal stakeholders[1] will likely see the project as a failure.

Strategic success (level 5) is the last level considerer. De Wit (1988) argues that not all project benefits directly affect the organization. At this level project benefits are determined by external stakeholders (investors, competitors, analysts or even regulators). Success at this level comes from improving the company's market share, business growth, or strategic gains.

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[1] employees, owners, managers, and other agents that are directly involved in the operations and strategy of the organization and influenced by it.

Three of the levels of analysis are already commonly accepted in the literature (levels 2, 3 and 4). Level 1 (process success) and level 5 (strategic success) expand the traditional view to fields such as the help of the project to the learning and development of similar projects (level 1) and to the future benefits of the project (level 5).

To assess the factors that explain the several levels of success of Xperts Council projects, we use a probit model. In each probit regression, the dependent variable is a level of success and the independent variables are the characteristics of the human resources allocated to the several Xperts Council projects, and environmental factors such as the types of projects, and other variables identified in the literature as associated to project success or unsuccess. Therefore, in the Probit regressions each line of observations corresponds to a project of Xperts Council. The company has documented the net benefits and other distinctive features of the projects it has developed since 2016, constituting the main source of the data used in this dissertation.

The dissertation unfolds as follows. After this introductory chapter, in chapter 2 a literature review is conducted on project assessment and factors affecting project success. It is followed by chapter 3, which presents and justifies the empirical model (probit regressions), and the estimation results and discussion. Finally, chapter 4 summarizes the main findings of the dissertation and provides suggestions for future research.

Chapter 2
Literature Review

A project is usually described as a discrete and multidimensional activity that serves as vehicle of change (Bannerman, 2008). There is a relative consensus in the literature on what a project is. However, when formalizing project management as a discipline, there has been much discussion on the concept of project success, but no consensus has emerged.

Given the above, in this dissertation we use the framework proposed by Bannerman (2008) to address the concept of project success. It is comprised by five levels of performance criteria that allow the evaluation of a project from multiple stakeholder perspectives at different times after the project closure.

In this chapter, we present and discuss Bannerman's multilevel project success framework (Bannerman, 2008), the theories of project success of other authors (relating them with the framework of Bannerman), and the factors pointed in the literature as influencing project success in its different levels.

2.1 Project Success according to Bannerman

Bannerman's multilevel project success framework considers five levels of success: process success, project management success, product success, business success, and strategic success. Project management success, product success, and business success (levels 2, 3, and 4) are commonly discussed criteria in the literature. Process success and strategic success (levels 1 and 5) are two criteria that extend the traditional view to the processes that lead to the project deliverable and to the possible future benefits of the project.

Process success

This success criterion (Bannerman's level 1) is not recognized in the traditional project management literature. According to Bannerman (2008), it refers to the need to consider technical and managerial processes associated with project management that are important at different times during the project life cycle.

Typically, most post-project reviews include consideration of whether the right processes were chosen and effectively applied when needed, and whether they were appropriately aligned and integrated to facilitate achieving the objectives of the project. Therefore, process success corresponds to the company generic and project-specific best practices that are critical to successfully complete a project. To determine success at this level it is necessary to "consider the appropriateness of the processes [best practices] used, their alignment with the project's purpose, and their integration and effectiveness in contributing to the project outcomes. As with the other levels, the analysis at this level provides feedback to the project team and organization for learning and improvement for subsequent projects." (Bannerman, 2008, page 5). It is "the discipline-specific technical and managerial processes, methods, tools, and techniques employed to achieve the project objectives" (Bannerman, 2008., page 5). So, process success is the specific script of " best practices " that help the team to achieve the goals. To determine project success at this level is necessary to consider if the processes used were appropriate if these were aligned with the objectives of the project and if they were integrated in the outcome of the project. In addition, it is necessary to understand if these processes were efficient.

To conclude, Bannerman's level 1 of analysis assesses whether the technical and management processes or best practices of the company were aligned with the project objectives and effectively implemented. Without such a criterion it is difficult, for example, for a stakeholder outside of the project to know if a project was delayed because of poor schedule management or some other embedded

process within the project. This success criterion would facilitate a finer examination of performance that could directly support incremental learning and improvement of contributing processes. As at other levels, analysing the success of the process or the project's best practices provides feedback to the team and the company to learn and improve the best practices in the following projects.

Project management success

Project management success (Bannerman's level 2) is one of the classic criteria to measure the success of a project. It can be described as the art and science of turn a vision into reality (Bannerman, 2008). It is defined as the application of a collection of tools and techniques for solving a task within time, cost, and quality constraints. Each task requires a unique combination of these tools and techniques adequately structured to the task environment and life cycle (from conception to completion). Success at this level is determined by compliance with criteria such as budget, quality of the work, amount of work, dates set to meet certain goals, scope or specifications planned early in the project in what refers to intended project activities and/or completion of phases. According to the author, the classical view states that a project is a unit dedicated to the achievement of a goal, generally the successful completion of a product on time, within budget, and in conformance with predetermined specifications. This triple constraint is often called the Iron triangle of project management.

At this level, the assessment of the project performance is made post hoc, after the project closure, based on whether the project was completed on time, within budget and to specification. Quality (specification) is assessed against pre-established industry or subjective criteria. Within a very narrow range of tolerance, whenever the triple constraint is not violated the project is considered a success regarding project management.

Essential to the definition of the Iron triangle is the reciprocal dependency between the three elements. For instance, an increase quality will increase the amount of time necessary, which will lead to an increase in cost. A strict time schedule could lead to a decrease in quality and a rise in cost. More than compliance with three constraints, what is essential for the use of the Iron triangle in project management is that it helps demonstrating the effect that the numerous parts of a project have on each other (Bannerman, 2008).

In the Iron triangle, quality scope is more difficult to define than time or cost. It refers "to the extent to which the main deliverable was completed against specification or whether all intended activities and phases of the project were completed." (Bannerman, 2008, page 3). Quality scope, at the project management level, is something different from the project scope, that is, the scope of the specifications of the main product to be delivered and/or the scope of the final product (e.g., to specify, create, test and implement a new system).

The Iron triangle (project diamond or four-legged stool since it considers four variables) is one of the most widely used methods to measure project success. This is because it offers a simple and a direct measure of project performance. However, it has important limitations, as it focuses on the means to complete the project rather than the ends of the investment in the project, from the organization point of view. Depending on how the scope is defined and measured, it doesn't always consider if the project's main objectives/delivery was fulfilled, the purpose for which the project was intended, and whether the objectives of the project's investors were achieved. As Bannerman (2008) put it, "it is not unusual, especially in IS projects, for a project that is late, over budget and/or under-delivered against specifications to be declared a success, because it still delivered a benefit to the client/users and/or to the investing business." (Bannerman,2008, page 3).

Product success

Product success (Bannerman's level 3) considers the final product delivered to the customer. Depending on the project, it can be a product or a service. It considers measures relative to the final product itself. For instance, if the final outcome of the project meets the specified requirements, if its quality is as expected and/or if the customer is satisfied. These are measures such as product and/or service acceptance, efficiency, and frequency of use.

At this level, it is evaluated if the specifications and requirements of the project were met, if the client/user accepted the final outcome of the project and if it meets his expectations. If she or he is using the product/service produced by the project and is satisfied with it. It is also essential to evaluate if the product/ service that is produced by the project is bringing benefits to the client/user.

In his 2008 paper, Bannerman states that completing the main project deliverable, in other words, the fulfilment of the main scope (specification) of the project may not be a valid or sufficient measure of project success if the final product/service is not accepted and used by the intended end-clients and/or it doesn´t provide sufficient benefit to them. Clients/users have interests and expectations on a project than are different from the ones contained in the Iron triangle and/or Triple constraint model. "They center on fitness for use and other benefits associated with improvements in the nature and conditions of their work. A project can succeed in delivering an information system on time, within budget and to specification" but fail to gain user acceptance or use of the system. It is well-recognized that this can occur, for example, when a system specification lacks adequate user input to its definition and/or when user requirements change due to evolving business circumstances." (Bannerman, 2008, page 3).

Business success

Business success (Bannerman's level 4) measures the net benefits of the project to the organization. It measures whether the objectives that led to the investment and the project objectives were met and if the expected benefits were met. Typically, we are talking about financial measures (which are usually stated in the business plan), but they may also take in consideration the effectiveness and contribution of corporate governance to the project. It is also an assessment of the organization's contribution to the project's outcome. To calculate net benefits, it is imperative considering the impacts that previously unplanned actions (for example, exceeding budget, hiring new employees, etc.) had on the organization. At this level, we want to evaluate if the project has positive net benefits to the organization that carries out it (considering both positive and unintended benefits and negative impacts that arise from the investment). Most of the projects aim to solve a specific problem of the organization that carries out them. If the project has a positive net benefit it most likely has solved the problem. If not, internal stakeholders will likely see the project as a failure. The objective at this level is to access if the business objectives that motivated the investment were met.

Taking information systems (IS) projects as an example, companies do not order a new computer system just for the system to be installed on time, within budget, that matches the specification required, and the satisfaction of users. The main aim of the investment is to solve a particular business problem. If the project does not deliver an acceptable solution to the problem that motivated the investment, then internal stakeholders are more likely to view the project as a failure.

Bannerman (2008) refers that "the business success criterion also permits the perverse possibility encountered in practice of a project failing on project management and/or project deliverable criteria but still achieving business

objectives in some acceptable way and, therefore, being considered a success. This reinforces the counterintuitive view that project management success and even project deliverable success are neither necessary nor sufficient for project success." (Bannerman, 2008, page 4)

Strategic success

Strategic success (Bannerman's level 5) is the last level to consider. It is not recognized in the traditional project management literature.

Strategic success is the business expansion or other strategic advantages gained from the project investment, either planned or emergent, which enable business development, external stakeholder/competitor recognition and will generate a competitive response. Success at this level leads to the improvement of the company's market share, business growth and development, competitive advantage, and other strategic gains as it makes the company to compromise with more strategic and important projects than before. "This criterion represents the highest level of benefit achieved by a project, despite the possibility of failures against lower level criteria, as recognized by external stakeholders, such as investors, industry peers, competitors, or the general public, dependent upon the nature of the project" (Bannerman, 2008, page 4).

The Sydney Opera House (engineering and construction project) was completed with 10 years of delay, a cost 15 times over the initial budget, and with significant functional restrictions. According to Bannerman, "its small opera stage and buried orchestra pit are well-known" (Bannerman, 2008, page 4). Even though, the building has been serving Sydney's performing arts patrons successfully for 35 years, it has been a boon to its proprietors (due to very high attendance), and the appeal of its innovative architecture has owned it a recognition in 2007 as a UNESCO World Heritage Site. Very few projects achieve this very high level of strategic success. This criterion enables the creation of a

broader community of stakeholders than those directly investing in the organization, and a wider range of benefits than might have been intended.

The above are the 5 levels of project success proposed by Bannerman (2008). They constitute a multilevel project success framework that enables success to be determined and periodically re-determined as benefits accumulate from the project over time. The proposed framework enables stakeholders to progressively map success to perceptions of higher derived value from the project as benefits increase. Based on Bannerman's framework, project success is defined by the highest level of benefit achieved by the project at any point in time. This makes it possible for a project to fail in an initial stage of assessment but still succeed at a later stage.

In the next section, we address the project success theories of other authors, relating them with Bannerman's multilevel project success framework.

2.2 Project success according to other authors

De Wit (1987) argues that a "project is considered an overall success if the project meets the technical performance specification and/or mission to be performed, and if there is a high level of satisfaction concerning the project outcome among key people in the parent organization, key people in the project team and key users or clientele of the project effort" (De Wit,1987, page 2). He also adds that a "project can be a success despite poor project management performance and vice versa. The conclusion one may draw from the above is that for measuring success, a distinction should be made between the success of the project and the success of the project management activity. The two are often mixed up. Good project management can contribute towards project success but is unlikely to be able to prevent project failure" (De Wit,1987, page 2).

De Wit (1987) points five success criteria as most frequently used to measure project success:

a) budget performance (Bannerman's process success);

b) schedule performance (Bannerman's process success);

c) client satisfaction (Bannerman's product success);

d) client benefits (Bannerman's product success);

e) Stakeholders satisfaction (Bannerman's product success);

f) project manager/team satisfaction (with no correspondence with Bannerman's Multilevel Project Success Framework).

Like it is stated above, De Wit (1988) argues for distinguishing between project success and project management success. As opposed to Bannerman (2008), for the author project success is not the overall success. Instead, it is a measure of the degree to which the project objectives are met, and benefits increase to the investing organization.

Besides the above, De Wit (1988) argues that not all project benefits directly affect the organization. Project benefits are also determined by external stakeholders[2], rather than company insiders. "The most appropriate criteria for success are the project objectives. The degree to which these objectives have been met determine the success of the project. This all seems simple. However, problems arise when one tries to list the objectives of a project and one then discovers that there are quite a few more objectives involved in a project than just simply cost, time and quality. This is particularly true when one considers all stakeholders in a project. The objectives also tend to change for each major phase in the project life cycle." (De Wit,1987, page 2). The author says that when measuring project success, the team must consider the objectives of all stakeholders throughout the project and project managers should be aware of all

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[2] Investors, competitors, analysts or even regulators

the stakeholders and their objectives. The team will find it difficult to please all of them because their objectives are often conflicted.

Summing up, De Wit considers in his theory 4 of the 5 levels of success considered by Bannerman: process success, product success, business success and strategic success.

Pinto & Slevin (1988), argue that "there are definite benefits involved in waiting until after the project has been transferred to the clients for whom it is intended before assessing project success. By waiting until the project is up and functional, we are better able to understand the impact of the external organizational factors, such as value and organizational effectiveness (impact)." (Pinto & Slevin, 1988, page 70). They support that project success has two components: success of the project itself, measured by time, cost, and performance subcomponents (The Iron triangle), and client success, measured by use, satisfaction, and effectiveness of the project in the benefit of their end-users (Pinto & Slevin, 1988).

For Pinto & Slevin's (1988), success is composed of external and internal factors. The internal factors relate to the company itself and refer to the variables that the project manager and his team have a daily control during the entire life cycle of the project, for instance, variables like the ones stated in the Iron triangle model. On the other hand, the external factors are the set of variables related to the usage of the project, client satisfaction, performance of the project and/or its perceived impact and effectiveness. Therefore, the authors consider two components of success: one component related to the project itself (budget, schedule, and quality) and another component related to client perception. The latter considers three variables: use (the project use by the client/end-user), satisfaction (if the client/end-user is satisfied with the process by which the project is being or was completed), and effectiveness (which measures the benefits that the project brought to the client/ end-user. Did the project increased

efficiency or employees' effectiveness? Did the project improve the decision-making process of the company or the performance of the client? If the answer to the previous two questions is yes, then the project has had a positive impact on the company).

Bannerman's process success and product success are the levels of success mentioned by Pinto & Slevin (1988).

Ballantine (1996) proposes a new model that attempts to improve the understanding of the concept of IS project success by stating that a IS project must be evaluated in separated into three fundamental dimensions: the technical development level, the deployment to the user, and the delivery of business benefits.

The delivery of business benefits can begin if there is a degree of integration of the used system with the organisation's decision-making structure. It is imperative the support of a senior manager who is the project leader, as well as a sensitive change in management and re-organisation where necessary. "The level of resources available and the way output from the system is used will also affect the success of the system. The alignment of individual and business objectives is a key issue at this stage in measuring success. At the delivery level, the issues and forces are not particularly IS-oriented; they are forces which are at work in any change process which aims to enhance business performance" (Ballantine, 1996, page 12).

Ballantine (1996) also argues that a project that has success in achieving its business objectives might not result in increased business performance in the market, due to factors entirely exogenous to the business, what he calls environmental factors. "These influencing factors include competitor movements as well as political, social and economic factors. This final level is included in the model since it has implications for measurement of success; for example, should market share not actually increase as a result of using the IS, it

may not be appropriate to label the IS a failure at any but the top level" (Ballantine, 1996, page 12).

In his work, Ballantine (1996) explores Bannerman's concept of business success and what can influence it.

Shenhar et al. (2001) argue that most projects are designed with a business perspective in mind, and often with a goal which is focused on better results and organizational performance like for example more profits, additional growth, and improved market position. However, when the project manager and his team are in the day-to-day project execution, they are typically not focusing on those business aspects. Their attention, rather, is operational (finish the project on time, within budget, and to specifications). Although, this mindset may help finishing the job efficiently by not wasting time and money, it may lead to disappointing business results. So the authors propose that to access the success of a project we should take into account four dimensions: i) Meeting time, budget, and requirements goals; ii) Accessing the benefit to the customer; iii) Accessing the benefit to the performing organization; and iv) what can be considered a more strategic dimension.

The first dimension is related with the Iron triangle and Bannerman's project management success level. Most project managers were convinced that this was their major task—that their performance was assessed by how good they met their project's immediate goals, and above all, obeying to the timelines and budgets. The following discussion shows, while time and budget are important, the emphasis on meeting these goals differ according to the project type.

Projects involving low technology, are more likely to meet schedule and budget constraints than projects involving higher-level technologies due to technical difficulties and are much more likely to be tolerated than in lower technology projects.

The authors think that this is a short-term dimension expressing the effectiveness with which the project has been managed. It merely tells us how the project met its resources constraint. This is the immediate criteria with which a project can be assessed, even during execution. Even though success in this dimension may indicate a well-managed project, it may not suggest that this project will be considered a success in the long term and benefit the organization later. Nevertheless, with increased competition and shorter product life cycles, time to market, (time from initial concept to market introduction), this dimension becomes a critical competitive factor. Thus, success at this dimension will frequently help the business, and so enhancing project effectiveness and leading to early product introduction may be adding to product competitiveness.

The second dimension is related with the benefits customers gained from different types of projects which tends to increase with technological uncertainty. It is related with Bannerman's product success level.

The second dimension addresses the importance of customer requirements and on meeting their needs. "Meeting performance measures, functional requirements, and technical specifications are all part of this second dimension, and not, as previously assumed, part of meeting the project 's efficiency dimension. Meeting performance has clearly a great impact on the customers who will, above all, assess how the product is serving their needs. Within this framework, meeting performance objectives is one of the central elements. From the developer's point of view, this dimension also includes the level of customer satisfaction, the extent to which the customer is using the product, and whether the customer is willing to come back for future generations of the product or for another project. Obviously, the impact on the customer is one of the most important dimensions in assessing project success." (Shenhar *et al.*, 2001, page 709).

The third dimension relates to the fact that usually the benefits of projects to the organization are focused on profits, market share, and other financial statement related results. It corresponds to Bannerman's business success and strategic success levels.

However, the benefits may vary according to the project type. The benefits that an organization can derive from a low-tech project (projects that "rely on existing and well-established technologies, such as construction, road building and "build to print" projects, where a contractor rebuilds an existing product" (Shenhar *et al.*, 2001, page 704)) are reasonable profit, with relatively low margins. In a Medium-tech project (projects that "rest mainly on existing, base technologies but incorporate some new technology or feature. Examples include industrial projects of incremental innovation, as well as improvements and modifications of existing products" (Shenhar *et al.*, 2001, page 704)), the environment is still relatively simple in terms of new technology. A company that undertakes a Medium-tech project is looking for short run benefits (profits and possibly product diversification). High-tech projects ("are defined as projects in which most of the technologies employed are new, but existent, having been developed prior to project initiation, such as developments of new computer families, or many defence developments" (Shenhar *et al.*, 2001, page 704)) are riskier, and they have a high probability of over-runs, causing losses in the short run. When undertaking a High-tech project, a company should look for the prospect of additional profits in the longer run, of an increase in his market share, but also for the potential gain of means for additional product lines or technological capabilities.

Finally, the Super-High-Tech projects ("are based primarily on new, not yet existent technologies, which must be developed during project execution. This type of project is relatively rare and is usually carried out by only a few (and probably large) organizations or government agencies" (Shenhar *et al.*, 2001, page

704)) are the riskiest of them all. A few organizations would be willing to embark on them (and have the resources to do it): "stakes are high, but so are opportunities. A successful project in this category would create leapfrog advantages for the performing organization, and although profits may sometimes come late, they would be high.

The third dimension proposed by Shenhar *et al.* (2001) addresses the immediate and direct impact the project have on the company. Did it provide excepted sales, income, and profits? Did it help increase business results and market share? This dimension should include measures that would access if the new process performed time, cycle time, yield, and quality, etc, this is measures that assess the project's direct impact on the performance of the firm and the range of benefits than might have been intended.

They argue that projects must be distinguished in two types - operationally managed projects, and strategically managed projects. Operationally managed projects are focused on meeting the constrains stated in the Iron triangle, while strategically managed projects aim to achieve business results and gain market share (aiming at improving business results in the long run). The author's main assumption is that today's rapid changing world and global competition require companies to be quicker, more responsive, and more competitive than ever. So, projects must always be considered as powerful strategic weapons, not only to create economic value and competitive advantage, but also to create long-term strategic advantages. Project managers must become the new strategic leaders, that must take on total responsibility and control for project business results.

Like it is mentioned above the authors propose that to access the success of a project we should consider all four dimensions. The fourth dimension can be considered more related with the strategic success proposed by Bannerman. In this dimension, Shenhar *et al.* (2001) propose that the managers examine what were the organizations gains from their project endeavours, on two types of

benefits. The first type is concerning the immediate business results, such as profitability and market share (business success), while the second is regarding the longer term benefits for the company, only to be realized in the long-run, sometimes long after the project has been completed. This led to the necessity of isolating a fourth dimension when considering project success—a dimension that relates to the future.

Since this dimension is related to the future, the question arises: how does the current project help prepare the organization for the future? The answer to this question is related with the type of project, and with the increase of technological uncertainty.

Summing up, in their theory Shenhar *et al.* (2001) consider 4 of the 5 levels considered by Bannerman: project management success, product success, business success and strategic success.

According to Ireland (2002), the project-management process is the main foundation of projects. He describes project-management process as a system of operations that guides a project during its full lifecycle. The project-management process and its successful implementation on a project/organization will often determine if the organization is competitive relative to its competitors. The process needs to be tailored to fit the company's products, services, project sizes, and environmental context. The most successful organizations typically have their processes fully implemented and are constantly trying to improve them.

Ireland (2002) argues that the process adopted in each project will vary according to the project life cycle. Usually, the life cycle is divided into 4 phases that often are sequential but may overlap when the deadline of the project is very tight. Each phase of the life cycle of the project has a definite output that represents completion of that phase. The 4 phases are described below:

a) Project-definition phase. This phase is characterized as the time period where an idea, need, or desire is turned into a statement of project description. It

is common that this stage to define project goals, the general approach to the project, the product or service that will result from the project and an established organization for the project.

b)   Project-planning phase. This is the period when the project charter (and project documents) is converted into detailed guidance for the execution, control, and closeout of the project. The final outcome of this is project plan that forms the baseline for actions to achieve the project's objectives;

c)   Project-execution and control phase. Period where the project plan will be implemented, and actions are taken to achieve the project's objectives. The outcome of this phase is the delivery of the product or service to the client and his/her acceptance or not;

d)   Project-closeout phase. In this last phase, actions are taken to close contracts, reassign team members to new/old positions, transfer tools and materials used in the project, and file any required reports. The final outcome of this phase is a detailed document to the project authorities, accounting for all actions that have been completed and all resources used during the life cycle of the project;

Ireland's work gives us a more detailed approach to the processes that lead to a successful project. It is mainly related with Bannerman's process success and project management success.

Kerzner (2003) defines project success as the completion of the project specifications (the traditional Iron triangle), as well as "with minimum or mutually agreed scope changes and acceptance by the client/user" (Bannerman, 2008, page 3), what Bannerman calls product success. The author also adds two additional components: completion of the project without disturbing the main workflow of the organization and without changing the corporate culture. The objective of these two additional components is not to argue that projects shouldn't be vehicles of change to the organization, but it is to acknowledge that

project execution must be within an existing operational organizational context with established values and norms of behaviour. This statement is aligned with the view that projects are a discrete change activity within an organization. For Kerzner (2003), the definition of project success includes the following completion:

a) Within the allocated time period;

b) Within the budgeted cost;

c) At the proper performance or specification level;

d) With acceptance by the customer/user;

e) With minimum or mutually agreed upon scope changes;

f) Without disturbing the main workflow of the organization;

g) Without changing the corporate culture.

The last three elements need a further explanation. The first one tells us that "Very few projects are completed within the original scope of the project. Scope changes are inevitable and have the potential to destroy not only the morale on a project, but the entire project. Scope changes must be held to a minimum and those that are required must be approved by both the project manager and the customer/user" (Kerzner, 2003, page 7).

The second element points out that, project managers must be willing to make concessions such that the company's main workflow is not altered. The project manager must be willing to manage the project within the guidelines, policies, procedures, rules, and directives of the parent organization/ top management.

The last element argues that, all corporations have a unique corporate culture, and even though each project must inherently different, the project manager shouldn't expect his team to deviate from the cultural corporate norms.

It is also important to note that, just because a project is a success (in his final deliverable) it does not mean that the company as a whole was successful in

management of that particular project. Good project management is defined as "a continuous stream of successfully managed projects" (Kerzner, 2003, page 8).

Kerzner definition of project success includes both Bannerman's product success and business success levels, but he adds new elements related to the workforce and companies' culture.

Baratta (2006), referring to the Iron triangle, says that "the classical Triple Constraint, as a tool for measuring project success, is inadequate as it does not allow us to measure how well we have succeeded with respect to the business opportunity. It measures the wrong things and diverts our attention away from the real opportunities." (Baratta, 2006, page 1).

Barrata (2006) also argues that cost is a function of scope and time or that cost, time and scope are related. So, if one of the variables changes the other two must also change in a defined and predictable way. For the author, this is another key problem of the Iron triangle model. In fact, it only has two variables, one of which is expressed in two different ways. For instance, let us consider the scope of a project. The more content there is to deliver the more effort/time is required. More time required means a higher amount of money. Let us now consider the cost/ budget of the project. The cost of the project usually refers to expenditures such as hardware or long costs such as wages. Baratta thinks that "The thing about people costs is that it is arrived at by multiplying a cost by duration (time) of the project. So actually, cost contains time, proving the adage that "time is money". And herein lies the problem. Since time is money, then time is really part of cost rather than a separate factor. And so that reduces our triple constraint to only two factors leaving us with the following model which contains only two factors" (Baratta, 2006, page 2). However, whereas cost (budget) is a fixed factor expressed in a monetary value, time (schedule) is a relative measure. A dollar invested on one project is the same as a dollar invested on another project (in

absolute terms). But a month delay on one project may have a completely different impact from the same month delay on another.

Finally, another key problem of the model is that budget and schedule are not good ways to measure the business value of the project. Empirical evidence shows that many projects which are delivered on time and on budget do not delivered the aimed business value. Furthermore, there are projects that were completed over budget and later have delivered significant business value.

Barrata (2006) provides a very hard critic to the Iron triangle theory, which is addressed in Bannerman's project management success level. He also points for the need to consider other levels of success, namely Bannerman's business success level.

Morris & Sember (2008) argue that, when implementing the Iron triangle into practice, it is necessary to ask the project team to rank the three constraints. This fundamental idea must not be neglected. When changes occur, it is imperative that the project manager assess the impact of the change and creates a range of options. This is related with Bannerman's project management success level.

Garrett (2008) argues that the job of a project manager is to ensure that the Iron triangle is implemented in order to meet the expectations of the stakeholders. He also argues that the fundamental problem of the Iron triangle is that it is not used effectively. The main reason is that the experience has shown that not every project manager has understood the value of the concept. Furthermore, "Garrett (2008) quoting Shenhar at a PMI meeting, suggests that the three traditional time, cost, quality factors are strictly efficiency based, whereas the focus should be shifted to more business-oriented results and customer satisfaction" (Ebbesen & Hope, 2013, page 3). So, we can conclude that Garrett addresses Bannerman's project management success level, and points for the need to consider Bannerman's business success and product success levels.

For Ebbesen and Hope (2013) "it is the project manager's role to show the impact on the three constraints and thereafter create the necessary balance between them. Besides, the Iron triangle is an excellent tool for a project manager to discover the priorities and motivation for the various stakeholders and how well the project is understood. This gives the foundation for good dialogues but also view on whether stakeholders are aligned or not" (Ebbesen and Hope, 2013, page 3). It is important that the team prioritises the constraints, so the project manager knows where to put the focus. However, environment is constantly changing, demanding concepts like the Iron triangle to be re-shaped or adjusted. Moreover, Organizations are discovering that they can comply with the three constraints and still fail overall. More than compliance with three constraints, what is essential for the use of the Iron triangle in project management is that it helps demonstrating the effect that the numerous parts of a project have on each other. Again, this is related with Bannerman's project management success level.

Radujković & Sjekavica (2017) think that project management and project success differ because "project can be successful despite unsuccessful project management because it has achieved higher and long-term goals. In the moment when management of project stops, short-term orientation can be unsuccessful, but long-term outcome can be successful, because wider set of goals are satisfied, instead of narrow subset which project management consists of" (Radujković & Sjekavica, 2017, page 608). They look at those project management elements which contribute the most, both to project management success and to overall project success. These factors will be explored in section 2.3.

We can conclude that Radujković & Sjekavica (2017) further extent the vision of Bannerman regarding project management success and point to other levels considered by Bannerman of overall project success.

Frefer *et al.* (2018) argue for the distinction between the success of a project and the success of the project management. According to the authors, project

management aims to achieve short-term objectives, and project success aims to achieve long-term objectives.

Frefer *et al.* (2018) consider that a project is successful or a failure, depending not exclusively on whether it meets or fails the criteria of the Iron triangle (Bannerman's project management success). They think that project success must examine the alignment of the project with its strategic organizational objectives (Bannerman's strategic success). To achieve both project management success and project success it is important to find the project success criteria and critical success factors at the initial stage of the project lifecycle.

A project can be completed on time within budget but considered as a failure if it does not meet the organization strategic objectives. "Failure could be avoided by paying careful attention to the project management success criteria and critical success factors which if its absent cause failure. Project success is often assessed only at the end of the project lifecycle, as project management outcomes are available and convenient to measure. The right project will succeed almost without the success of project management, but successful project management could enhance its success" (Frefer *et al.*, 2018, page 4).

Besides that, the authors argue that sustainability is becoming a critical topic. The traditional criteria clearly put the emphasis on economic aspects and the social and environmental pillars are given less attention because companies survival in the long-term depends on their ability to be profitable. The harmony between economic, social, and environmental aspects are vital in project management as well. "Sustainability in project management is about integrating economic, environmental and social aspects in the content and management of projects." (Frefer *et al.*, 2018, page 4). They also point out that transforming strategic sustainability objectives into specific measures for projects is a complicated process. Additionally, conditions for sustainable development are hard to achieve and even more difficult to demonstrate.

Frefer *et al.* (2018) definition of project success includes both Bannerman's project management success and strategic success, but it also points for the importance of sustainable development in the process of achieving success.

2.3 Factors influencing project success

According to Lamproua & Vagionab (2018, page 1), "project success criteria are dependent variables that measure the successful outcome of a project, while project success factors are the independent elements of a project that can increase the likelihood of success. In other words, success criteria are used to measure success whilst success factors facilitate the achievement of success."

Pinto & Slevin (1988) point ten critical success factors, all of which, to some degree, are within the control of the project team and from those ten, three can directly influence levels of success. Project schedule/plans (detailed specification of the individual actions required from each one to achieve project implementation) influence directly the project management success, Client consultation (communication, consultation, and active listening to all impacted groups) and Client acceptance (the act of "selling" the final project to end- client) influence directly the product success. Besides that, they point out 4 factors that are beyond the control of the project team, but which nevertheless are felt to have an impact on project success. From these four, one directly influences the strategic success of the project, the level of political activity within the organization, and perception of the project as furthering an organization member's self-interests.

Cooke-Davies (2002) adds that besides the factors mentioned above it is important to: keep project (or project stage duration) below 3 years (1 year is better) and maintain the integrity of the performance measurement baseline because these factors will influence process success by allowing a

standardization of each process at each stage of the project. Changes to scope should only be allowed through a mature scope change control process which will increase the chances of having project management success.

Lim & Mohamed (1999) claim that each industry will have its own distinctive set of success factors. Researchers have tried to find a way to determine the right combination of factors that secure project performance, but each project has its unique landscape such as technology novelty, complexity, and human resources devoted to the project. So, the aim of this section is to identify in the literature the most common and critical factors influencing project success.

The two most mentioned project success factors are project mission/goals and objectives and senior management support. Project mission is the most important parameters in a project. It allows and it is included in the determination of its scope, directions, goals, and objectives. The proper definition of the project and its goals and objectives is of major importance for the team that is working on the project but also among all stakeholders and is a prerequisite for project success.

The support and/or commitment from top/senior management provides a special meaning to a project (and to the team working on it) and can expressively increase the possibility of its success from the early development stages.

Furthermore, the factors of project communication/feedback (a robust line of reporting is established between the project board and the project manager and between the latter and his Team), project planning/monitoring/control (a clear plan is formulated and an efficient planning and control system is put in place), and project manager/leader competence and experience (the project manager proves to be a charismatic leader) are also very frequently mentioned in the literature. The first two factors are associated with basic procedures of a project and can play an important role in its evolution path. It should be emphasised that the appropriate and accurate project monitoring and control gives the opportunity to the project manager and to each stakeholder to get informed

about the evolution of project execution so as to be ready to intervene in case of potential failings or omissions. Also, the internal and external communication of a project progress is a top priority and intention by all project stakeholders during all the project lifecycle. On the opposite side, the project manager/leader competence and experience refer to the so-called human factor of project and of project management. The human intervention tends to be a very decisive factor for the achievement of project success. Please notice that the project manager is proved to have a bigger impact on project success than other traditional success factors.

Implementing an effective project portfolio management can not only align projects with company´s goals, but also increase project management maturity, and benefits earned from projects. Availability of knowledge, effective and coherent resource allocation, and collaboration between projects are the main advantages of effective project portfolio management for an efficient project management. Factors like technological environment, project funding/economics, political environment, social environment, and economic environment comprise the concept of the external environment that surrounds every project (the PESTEL analysis). The external environment reflects the overall conditions in which every project should adapt and continuously develop. Therefore, such elements can significantly influence the performance of a project at all stages of its lifespan.

It is also important to reference the project team (team competence and personnel), to which the successful or not conclusion of a project is mainly attributed. The elements of the team should have the proper managerial and technical skills to carry out the project as it was planned and designed.

Project risk management (the project manager tries, at the begging of the project, to identify all the risks that would need to be managed to ensure project success. All risks that arise are managed successfully), project organization

structure (potential clashes of cultures between agencies involved in the project identified as a risk and managed accordingly), and project characteristics ("Novelty of knowledge base and design solutions mostly creates ambiguity and makes technological decisions hard, even more in some cases where there can be changes in project scope because of the ambiguity caused by technology novelty. As novelty enhances, rigid structures harm project performance, and flexibility becomes a requirement. Projects with high novelty start with a few inputs but necessitate more knowledge resources and flexibility" (Güngör & Gözlü, 2016, page 225)) refer to core internal procedures and the general structure of a project. It should also be highlighted that project risk management tends to be one of the most progressive issues concerning the construction field and modern project management.

In general, project definition, top/senior management support, project team and communication constitute the most mentioned and significant internal factors influencing the success of a project. Moreover, according to the literature the external environment is also a crucial factor influencing project success. The latter should be carefully studied before and during project development.

The factors mentioned above influence the overall project success. The factors that influence particular levels of success are explored next.

Güngör & Gözlü (2016) argue that examining projects separately is not the most efficient approach for organizations. The key goal of companies is to align their projects with strategic goals. Aligning strategic goals and projects has a bigger context than project selection process: it needs structured project and portfolio management. Implementing an effective project portfolio management approach can not only align projects with organizational goals, but also enhance project management maturity, and benefits gained from projects. "Availability of knowledge, effective and coherent resource allocation, and cooperation between projects are the main advantages of effective project portfolio

management for effective project management. Furthermore, with an effective project portfolio management approach, organizations avoid investing in projects, which do not support organizational strategies; they save their time and money, and concentrate on valuable projects" (Güngör & Gözlü, 2016, page 225). The authors divide success influencing factors into two groups of factors: strategic support and operational support. Strategic support is a combination of all the factors that are valid for all projects and required for alignment of projects with organizational goals. On the other hand, operational support involves project specific factors and the existence of necessary inputs. Strategic support enables availability of operational support.

Strategic support includes:

a) Efficient communication with project customers (which influences product success);

b) Customer approval (which influences product success);

c) Upper management support;

d) Alignment project targets with clear business goals (which influences business success);

e) Effective planning and execution of plans (which influences project management success);

f) Availability of required facilities (which influences product success);

g) Availability of past experience and knowledge (which influences process success).

Operational support includes:

a) Risk management for projects with strategic importance (which influences strategic success);

b) Existence of emergency plans for projects with strategic importance (which influences strategic success);

c) Efficient project portfolio management (which influences strategic success);

d) Multi-disciplinary teams;

e) Effective team building;

f) Availability of required hardware and software (which influences product success);

g) Availability of required technological resources (which influences product success);

h) Availability of project management tools and techniques (which influences product and project management success);

i) Predefined key project indicators (which influences business success);

j) Availability of communication channels.

Radujković & Sjekavica (2017) look at those project management elements which contribute the most, both to project management success and to overall project success. Those factors or enablers can be attached to three categories:

a) Elements of project management competence (C1);

b) Elements of organization (C2);

c) Elements of project management methodologies, methods, tools, and techniques (C3).

In the first category, the elements of project management competence consist of technical, behavioural, and contextual competencies of project managers and project team members, as well as their management.

In the second category, elements of organization cover the organizational structure, culture, atmosphere, and competence (corporate governance, corporate management, organizational alignment, organizational resources, people's competences).

The third category consists of six parts: project management methodologies, project management software, project management tools, decision-making techniques, risk assessment tools, and information communication technology support tools.

"Theoretically, if you have a competent project manager, competent team, coordinated manager and team, adequate organizational structure, culture, atmosphere and competence, as well as high usage of project management methodologies, methods, tools and techniques, your project should have highly successful project management, and enable project success. It is important to note here, that the importance of these factors may vary depending on project type (public or private) and project orientation (interim projects or projects for the market) and number of projects being managed in organization" (Radujković & Sjekavica, 2017, page 609).

Chapter 3
Empirical Model

3.1 Data

The data is from Xperts Council and it consists of 100 different projects and/or lines of observations in the period that goes from September to November 2019.

An Xperts Council project is a request made by the client where he makes an order for experts (sectorial specific workers with several years of experience in the sector and willing to share their knowledge with the client). The client can request experts for short periods of time (usually to a one hour phone consultation) or for longer periods of time (usually to be a part of the project where the client company is working and sometimes after that to stay permanently in the client company has a worker). The former is called a senior advisory project where the experts must be free to be employed by the client company and with a vast experience in the sector that the client company is studying. The latter is either a Due Diligence project where the experts can be currently (or not) working in the sector or a Strategic project where the experts have to be former workers of the sector that the client is studying. On the types of projects, see below section 3.3. Independent variables.

After the project is completed, the client pays Xperts Council for its services and then Xperts Council pays the experts for their time according to an hourly rate chosen by each expert. The client company pays at the end and only if the chosen experts are of value to it. Besides Xperts Council, the client company can contact several other companies (Xperts Council competitors) simultaneously. Xperts Council rarely has the exclusivity of a project.

3.2 Dependent variables

As dependent variables, four out of five Bannerman's multilevel project success framework criteria are considered: project management success (Bannerman's level 2), product success (Bannerman's level 3), business success (Bannerman's level 4), and strategic success (Bannerman's level 5). Process success (Bannerman's level 1) is not covered because, although there is an initial training (best practices), each consultant develops a unique process to achieve success at this level, which has not been registered by the company.

Project management success is defined by the four elements of the Iron Triangle (schedule, budget, scope, and quality). Four different dummy variables are used to distinguish, respectively, if the project was completed on time, on budget, with quality and according to the scope proposed by the client. If the project is on time the variable will assume the value 1, if otherwise the variable will assume the value 0. The same applies to the dummy variable that measures the budget element, if the project is completed within budget the variable will assume the value 1, if otherwise the variable will assume the value 0. Scope is what refers to the intended project activities and/or completion of phases. To define this variable, it will be used the number of interviews intended by the client, at the beginning of the project, which, ultimately, it is his final project objective or intended activity. To avoid the overweight of certain elements in the final success variable, this variable (and quality) will be transformed into dummy variables. For that we will consider the average of the number of interviews intended by the client, at the beginning of the project. If the number of interviews intended by the client of a project is higher or equal to 3.53 (the mean) it is considered that the project has success at this level and the dummy variable will assume the number 1 (large scope), if otherwise (the value is small than 3.53) the dummy variable will assume the number 0 (small scope).The last element that we consider is the quality of the project, which is assessed against pre-established

industry or subjective criteria. To define this variable, the ratio between the number of intended interviews and the number of experts presented is used. The advantage of this variable is that we can compare a pre-established subjective project criterion (in this case the number of interviews intended by the client) with a variable that the consultant can control, the number of experts presented, assessing in this way the quality of the final outcome of the consultants work with what was asked to him by the client, ultimately the objective of the project. To term this continuous variable into a dummy variable we will consider the average of the ratio between the number of intended interviews and the number of experts presented. If the outcome of the ratio is higher or equal to 0.71 (the mean) it is considered that the project has success at this level and the dummy variable will assume the number 1, if otherwise (the value is small than 0.71) the dummy variable will assume the number 0. To determine the project management success variable, the simple average of the 4 elements that make up this success level is taken. If a project has a value that is higher or equal to 0.48 (the mean of the project management success level variable) it is considered that the project has success at this level and the dummy variable will assume the number 1, if otherwise (the value is smaller than 0.48) the dummy variable will assume the number 0.

Product success (Bannerman's level 3) considers the final product that is delivered to the customer. It considers measures relative to the final product itself. The final service that the company offers to its clients are interviews with experts of a particular sector, paying the company for each and every interview made. Prior to that, an Xperts Council consultant researches, selects, and presents to the client different profiles which in his/her opinion match the requirements pre-established by the client. Once presented with a list, the client may or may not chose one or more of the experts presented to speak to. The client is who takes the final decision. The consultant may present a list with several profiles and

none of them ending up being selected by the client. So, the number of experts presented by itself is not a measure of product success because the experts presented may not fit the requirements of the client. The acceptance rate is a better measure of success at this level. The higher the acceptance rate, the higher is quality of the experts presented and/or of the final "products" of the project. Thus, the ratio between the number of interviews done by the client and the number of experts presented by Xperts Council is taken. If the outcome of the ratio is higher or equal to 0.5 (the mean) it is considered that project has success at this level and the dummy variable will assume the number 1, if otherwise (the value is small than 0.5) the dummy variable will assume the number 0.

Business success (level 4) measures whether the objectives that led to the investment and the project objectives were met and if the expected benefits were met. For this variable we use financial measures. The most obvious one are the benefits of the project, but this variable doesn't take into account the costs of the project, in terms of duration (measured in days) and quality of the resources allocated to that particular project (namely the quality of labour). To construct this variable, we take the ratio between benefits per day of each project and the amount of homogenous labour (equivalent intern) allocated to it per day and convert this ratio into a dummy variable. I The ratio gives a measure of the benefits of the project per internship day. If the outcome of the ratio is higher or equal to 30 € (daily wage of an intern) it is considered that project has success at this level and the dummy variable assume the number 1, if otherwise (the value is smaller than 30) the dummy variable will assume the number 0.

Strategic Success (level 5) level project benefits are determined by external stakeholders (investors, competitors, analysts or even regulators). Success at this level comes from improving the company's market share, business growth, or strategic gains. At this level it was considered all the clients of the company, and all the projects that they ordered to Xperts Council in the period. The average

number of projects per client was computed (6.51). If a particular client has a number of orders/projects higher or equal to 6.51, it is considered as a strategic client and the dummy variable assumes a value of 1, otherwise (the value is smaller than 6.51) the dummy variable assumes the number 0.

3.3 Independent variables

The project success factors are the independent elements of a project that can increase the likelihood of success. In other words, success criteria are used to calculate success whilst success factors facilitate the achievement of success. According to the literature, there are two type of project success factors: factors that are internal to the organization and factors that are external. The latter are also called environmental factors. Based on the literature, a set of internal and external factors/variables where constructed to be used in the Probit regression model.

In what concerns to internal factors, the project manager age is the first variable considered. It influences the competences and experience of the person in charge. Older project manager are expected to be more experienced and to have more skills than younger project managers. Project manager age is expected to affect positively project success.

The support and/or commitment from top/senior management is one of the most important internal factors influencing success. To evaluate this factor, it is created a dummy variable that takes the value 1 if the project manager is a member of the top/senior management, and the value 0 otherwise. The project manager being a member of the top/senior management shows commitment of the latter to the specific project. Top/senior management is expected to affect positively project success.

Other internal factors are the marital status of the worker and the nationality. The first is not mentioned in the literature. A dummy variable is considered,

which takes the value 1, if the project manager is married, and of 0, otherwise, to explore the influence of this factor. With the second, we want to understand which type of worker (Portuguese or foreign) is better adapted to the organizational culture of Xperts Council. A dummy variable is considered, which takes the value 1, if the project manager is a foreigner, and of 0, otherwise.

Regarding external or environmental factors, the size of the client can be an important factor. Bigger clients can bring more projects and, potentially, more revenue for the company. A dummy variable that measures the dimension of the client company is considered. It takes the value 1 if the client company is a large company (or makes more than 50 million of euros in sales or has more than 250 workers) and it will take the value 0 otherwise. The larger the client company, the higher is the potential flow of projects (more potential strategic gains) and the more resources the company will have to allocate to the project of these clients.

Xperts Council has two types of clients: investments funds and consulting firms. To maximize resource allocation and portfolio management, it is important to determine which type of client brings more benefits to the company. A dummy variable is considered, which takes the value 1, if the client company is an investment fund, and 0, otherwise.

Most of the clients of Xperts Council are either from London or Paris. A dummy variable is considered, which takes the value 1, if the client company is located in London or Paris, and 0, otherwise.

The client company can also be located in a country that is from the top 10 biggest economies in the world (FMI). A dummy variable is considered, which takes the value 1, if the target expert of the client company is located in a country that is from the top 10 biggest economies in the world (FMI), and the value of 0, otherwise.

Due to the importance of the Asian continent in the global economy, another dummy variable is considered, which takes the value 1, if the target experts of the client company are from a country in Asia, and the value 0, otherwise.

In this industry there are several types of project but the most common two are Due Diligence and Strategic projects. However, projects can also be Senior advisor projects, Client development projects, etc. Two dummy variables are considered. The first takes the value 1, if the project is a Due Diligence, and 0, otherwise. The second takes the value 1, if the project is a Strategic project, and 0, otherwise.

Cooke-Davies (2002), tell us that it is important to keep project (or project stage duration) below 3 years (1 year is better). A continuous variable that measures the duration in days of each project is considered.
Except for the age of the project leader and the duration of the project, the independent variables considered are all dummy variables. Other variables where considered, but they did not show to be significant and/or help the explanatory power of the Probit regression model.

3.4 Data description

Table 1 provides a summary of the variables considered in the regression model. The statistics presented are computed across 100 observations.

Variables	Mean	Median	Standard error	Minimum	Maximum
Project success Variables					
Project management success	0.33	0	0.4725816	0	1
Product Sucess	0.21	0	0.4093602	0	1
Business success	0.38	0	0.4878317	0	1
Strategic success	0.62	1	0.4878317	0	1
Internal factors					
Age	29.08	26	10.17194	21	68
Top/senior management	0.13	0	0.3379977	0	1
Married	0.33	0	0.4725816	0	1
Foreign	0.63	1	0.4852366	0	1
External factors					
Large company	0.66	1	0.4760952	0	1
Client from Paris/London	0.54	1	0.5009083	0	1
Private Equity client	0.1	0	0.3015113	0	1

Due Diligence project	0.31	0	0.4648232	0	1
Strategic project	0.47	0	0.5016136	0	1
Top 10 largest economies in the world	0.77	1	0.4229526	0	1
Asia	0.05	0	0.2190429	0	1
Duration	8.89	7	6.747832	1	30

Table 1 - Summary Statistics for the Dependent and independent variables

The data shows us that the company had project management success on 33% of the projects, product success on 21%, business success on 38% and Strategic success on 62%.

The median project in the data only has success at level 4 (strategic success) and it fails at the rest of the levels (project management success, product success, and business success).

Moreover, the median project in the data has a 26-year-old foreign project leader, he/she is not married, and he/she is not from the senior management. The client is a large company, a consultancy firm, which is based in London or Paris. The project is not a Strategic nor a Due Diligence project and it takes 7 days to be completed. The client company is located in the Top 10 economies of the world, but not in Asia.

See the Appendix for more information regarding the data.

3.5 Probit model regressions

The purpose of the probit model regressions is to understand how the different levels of success are influenced by the different internal and external and/or environmental success factors. Each of the four probit regressions is of the type:

$$Pr(S^i = 1 | X^i) = \Phi\left(X^{i^T}\beta^i\right) + \varepsilon^i \qquad\qquad \text{i=2,3,4, and 5} \qquad\qquad (1)$$

Where S^i represents Bannerman's success level i and X^i the set of internal and environmental factors influencing S^i.

In a linear model, the β^i coefficients are the marginal effects. In the probit model, the β^i coefficients are not the marginal effects, since the probability of a given choice is non-linear in the regressors. So, the marginal effects must be calculated separately.

In interpreting the estimated marginal effects of a probit model, we can evaluate the expressions at the sample mean of the data or evaluate the marginal effects at every observation and use the sample average of the individual marginal effects. Results are similar. Current practice favours averaging the individual marginal effects. It is the practice we follow in this dissertation. The magnitude of each marginal effect allows us to understand which factors have the greatest impact on each success level of the company.

3.6 Results and discussion

The probit model was estimated using STATA. Table 1 yields the marginal effects of each of the four regressions and significance. All specifications estimations include a constant term and are based on 100 observations. In the Appendix, the reader can find the β^i coefficients and significance, and an assessment of the fit of each regression.

Factors	Project management success	Product success	Business success	Strategic success
Age	-0.0067009 (0.0073722)	0.007489 (0.006298)	-0.0295205* (0.0174757)	0.0830853** (0.0265911)
Top/senior management	----------------------	-0.3492092 (0.2173061)	-0.2662193 (0.3062366)	-0.7974145** (0.2973067)
Married	0.162613 (0.1571097)	----------------------	0.4273634*** (0.1982518)	-0.7707886 ** (0.282929)
Foreign	----------------------	----------------------	----------------------	0.2083994 (0.1480406)
Large company	0.0354483 (0.1191589)	-0.1926703** (0.0910359)	-0.1936931* (0.1177767)	0.1082503 (0.1516524)
Client from Paris/London	0.2503329*** (0.1033149)	0.1264885 (0.0899885)	0.1777748* (0.1081099)	0.4983957*** (0.1401873)
Private Equity client	----------------------	----------------------	----------------------	-0.1934336 (0.2195842)
Due Diligence project	0.1187595 (0.1192489)	0.1095309 (0.1261935)	0.2402818 (0.1663904)	0.2580578 (0.1836391)
Strategic project	----------------------	0.1432792 (0.1190914)	0.2113753 (0.2113753)	0.2444789 (0.1525361)

Top 10 largest economies in the world	0.0419065 (0.115349)	---------------------	---------------------	-0.1333843 (0.1364363)
Asia	0.0883981 (0.234679)	---------------------	---------------------	---------------------
Duration	0.0096117 (0.0075513)	-0.0073939 (0.0064672)	---------------------	-0.0081691 (0.0082425)

Table 2 - Marginal effects of the factors influencing project management success, product success, business success, and strategic success.
*** denotes p-value<=0.01**denotes p-value<=0.05*denotes p-value<=0.10.

From Table 2, we take the following results:

a) Business success is 2.95% less likely, and strategic success is 8.31% more likely by every additional year of age. Every time the company allocates an older worker to a project it is allocating a higher amount of equivalent intern labour (because an older worker has more knowledge, more experience, a higher position in the company, and receives a higher wage), reducing business success. On the other hand, more experience increases strategic success. A possible explanation is that the older the project leader the better he or she understands which clients are the most important to Xperts Council. Therefore, the company allocates older workers to projects that are from strategic clients;

b) Strategic success is 79.7% less likely when a top/senior manager is involved. Top/senior managers only are involved in 14 projects of the data. The company does not allocate a lot of projects to them. Top/senior managers are older than the rest of the team and participate in the decision of resource allocation, this is to whom does a project goes to. Although they understand better the importance of the clients, they do not have the necessary time to spend on these important projects, because they have other important responsibilities in hands;

c) Business success is 42.7% more likely and strategic success is 77.1% less likely when the project leader is married. Usually, married workers have more family responsibilities. A possible explanation is that married people, with more responsibilities extra work, need to be more efficient in their office hours (increasing business success). Their family responsibilities may also explain the company not allocating them to strategic projects. Nonetheless, the reader should be aware that only 5 workers out of 15 are married, that is, 1/3 of the labour force of Xperts Council;

d) Product success is 19.3% more likely and business success is 19.4% less likely when the client company is a large company. Product success is higher because Xperts Council mobilizes more resources to these projects, to perform according to the specifications of the client. Business success is likely because of a higher level of competition. Larger client companies have larger necessities. This fact makes them contact both Xperts Council and many of its competitors. Although these client companies have usually more budget to use, the higher the level of competition the higher the chances of splitting the budget among Xperts Council and its competitors. It should be noticed that a client company can contact all the players of the market and use them all simultaneously;

e) Project management success is 25.0% more likely, business success is 17.8% more likely, and strategic success is 49.8% more likely when the client company is based in Paris or London. The bulk of the client companies of Xperts Council are in these two cities and about 54 projects out of 100 are from these clients. They are core clients of the company. Understanding the importance of these clients, Xperts Council mobilizes more resources to these projects, making an extra effort to fulfil the

criteria, so that important clients can be more easily satisfied. The client companies being located in London or Paris also plays a big part in achieving business success. On average, projects from client companies with these locations have a higher revenue and/or are better paid. Another possible explanation , the fact that the clients are located in the same cities can mean that sometimes they have similar needs, which means that experts that can satisfied a client need are already in another similar project from another client from the same city. If the experts are already in the database of another project they can be easily presented in another project. This fact tell us that if experts are already in another project the effort of finding then is reduced in an extensive amount and so there is no need to allocate so many resources to the project, increasing the marginal benefit of project from a Parisian or Londoner clients. Last but not least, if the client company is based in London or Paris the probability of achieving strategic success increases, which can be explained by the concentration of Xperts Council client companies in these two cities;

f) Finally, the likelihood of the different levels of success is not affected by any of the other variables considered.

Look at the results and comparing them to what the literature says, we can conclude that the factors that most influence project success in Xperts Council are: i) project manager/leader competence and experience (a), b) and c)), ii) the characteristics of the project team (a), b) and c)); and iii) the client characteristics (d) and e)).

Chapter 4
Conclusion

This dissertation used the multilevel evaluation framework proposed by Bannerman (2008) and a probit regression model, to identify the internal and environmental factors that most influence the different levels of success obtained by Xperts Council in the projects it carries out.

Results show that:

a) Project management success is only influenced by the location of the client company, being more likely when the client company is in Paris or London;

b) Product success is only influenced by the size of the client company, being less likely when the client company is large;

c) Business success is positively influenced by the fact that the employee is married and negatively influenced by the employee's age and the size of the client company;

d) Finally, strategic success is positively influenced by the age of the employee and by the client company being from Paris or London, and negatively influenced the fact that she or he belonging to the top/senior management and being married.

The research has a few limitations:

a) Process success was not assessed because of lack of data. Each consultant develops a unique process to achieve success at this level. These processes have not been registered by the company;

b) The data refers only to Xperts Council, which makes impossible the task of assessing the influence of organizational culture on project success;

c) The research only incorporates a sample of 100 observations. Thus, the sample size is small.

As future research, it would be interesting to overcome the above limitations, extending the analysis to other companies.

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Appendix

Section 1

Variables	Mean	Median	Standard error	Minimum	Maximum
Panel A: Projects that do not have Product Success					
Age	29.62687	27	9.885459	21	65
Top/senior management	0.1492537	0	0.3590278	0	1
Married	0.3880597	0	0.4909861	0	1
Foreign	0.6119403	1	0.4909861	0	1
Large company	0.6567164	1	0.4783887	0	1
Client from Paris/London	0.4626866	0	0.5023689	0	1
Private Equity client	0.1044776	0	0.3081877	0	1
Due Diligence project	0.2537313	0	0.4384298	0	1
Strategic project	0.5223881	1	0.5032684	0	1
Top 10 largest economies in the world	0.7313433	1	0.4466064	0	1
Asia	0.0298507	0	0.1714598	0	1
Duration	8.313433	6	6.838414	1	30
Panel B: Projects that have Product Success					
Age	27.9697	25	10.80071	21	68

Top/senior management	0.0909091	0	0.2919371	0	1
Married	0.2121212	0	0.4151488	0	1
Foreign	0.6666667	1	0.4787136	0	1
Large company	0.6666667	1	0.4787136	0	1
Client from Paris/London	0.6969697	1	0.4666937	0	1
Private Equity client	0.0909091	0	0.2919371	0	1
Due Diligence project	0.4242424	0	0.5018904	0	1
Strategic project	0.3636364	0	0.4885042	0	1
Top 10 largest economies in the world	0.8484848	1	0.3641095	0	1
Asia	0.2919371	0	0.2919371	0	1
Duration	10.06061	8	6.504515	3	27

Table 1A- Summary Statistics by Project Management Success

The data seems to point out that the median project that doesn´t have Project Management success has a foreign project leader with 27 years-old, he/she is not married, and he/she is not from the senior management. The client is a big consulting firm that it's not based neither in London neither in Paris. The project is a Strategic project and it takes 6 days to be completed. The target is based in a big economy.

The data seems to point out that the median project that has Project Management success has a foreign project leader with 25 years-old, he/she is not

married, and he/she is not from the senior management. The client is a big consulting firm that it's based in London or in Paris. The project is neither a Strategic or a Due Diligence project and it takes 8 days to be completed. The target of the client is based in a big economy.

When comparing the data of the two baskets of project, we can conclude that both have a foreign project leader which is not married nor from the senior management. The client is a big consultancy firm and the target is in a big economy.

Variables	Mean	Median	Standard error	Minimum	Maximum
Panel A: Projects that do not have Product Success					
Age	29.16456	26	10.20486	21	68
Top/senior management	0.1518987	0	0.3612162	0	1
Married	0.3291139	0	0.472894	0	1
Foreign	0.6075949	1	0.4914062	0	1
Large company	0.7341772	1	0.4445932	0	1
Client from Paris/London	0.4810127	0	0.502832	0	1
Private Equity client	0.0759494	0	0.2666099	0	1
Due Diligence project	0.2658228	0	0.4445932	0	1
Strategic project	0.4810127	0	0.502832	0	1
Top 10 largest economies in the world	0.7594937	1	0.4301219	0	1
Asia	0.0632911	0	0.2450417	0	1
Duration	9.139241	8	6.703872	1	29
Panel B: Projects that have Product Success					
Age	28.7619	26	10.29031	21	65
Top/senior management	0.047619	0	0.2182179	0	1

Married	0.3333333	0	0.4830459	0	1
Foreign	0.7142857	1	0.46291	0	1
Large company	0.3809524	0	0.4976134	0	1
Client from Paris/London	0.7619048	1	0.4364358	0	1
Private Equity client	0.1904762	0	0.4023739	0	1
Due Diligence project	0.4761905	0	0.5117663	0	1
Strategic project	0.4285714	0	0.5070926	0	1
Top 10 largest economies in the world	0.8095238	1	0.4023739	0	1
Asia	0	0	0	0	0
Duration	7.952381	6	6.996258	2	30

Table 2A - Summary Statistics by Product Success

The data seems to point out that the median project that doesn´t have Product success has a foreign project leader with 26 years-old, he/she is not married, and he/she is not from the senior management. The client is a big consulting firm that it's not based neither in London neither in Paris. The project is neither a Strategic or a Due Diligence project and it takes 8 days to be completed. The target is based in a big economy.

The data seems to point out that the median project that has Product success has a foreign project leader with 26 years-old, he/she is not married, and he/she is not from the senior management. The client is a small or medium consulting firm that it's based in London or in Paris. The project is neither a Strategic or a Due Diligence project and it takes 6 days to be completed. The target is based in a big economy.

When comparing the data of the two baskets of project, we can conclude that both have a foreign 26-year-old project leader which is not married neither from

the senior management. The project is neither a Strategic or a Due Diligence project and the target is in a big economy.

Variables	Mean	Median	Standard error	Minimum	Maximum
Panel A: Projects that do not have Business Success					
Age	30.77419	27	11.88803	21	68
Top/senior management	0.1935484	0	0.3983042	0	1
Married	0.3387097	0	0.4771345	0	1
Foreign	0.5483871	1	0.5017157	0	1
Large company	0.7419355	1	0.4411417	0	1
Client from Paris/London	0.4516129	0	0.5017157	0	1
Private Equity client	0.0806452	0	0.2745122	0	1
Due Diligence project	0.2258065	0	0.4215255	0	1
Strategic project	0.4677419	0	0.5030315	0	1
Top 10 largest economies in the world	0.7580645	1	0.4317514	0	1
Asia	0.0483871	0	0.2163345	0	1
Duration	8.83871	7	6.777962	1	29
Panel B: Projects that have Business Success					
Age	26.31579	24	5.585238	21	47
Top/senior management	0.0263158	0	0.1622214	0	1
Married	0.3157895	0	0.4710691	0	1
Foreign	0.7631579	1	0.4308515	0	1
Large company	0.5263158	1	0.5060094	0	1
Client from Paris/London	0.6842105	1	0.4710691	0	1
Private Equity client	0.1315789	0	0.34257	0	1
Due Diligence project	0.4473684	0	0.5038966	0	1

Variables	Mean	Median	Standard error	Minimum	Maximum
Strategic project	0.4736842	0	0.5060094	0	1
Top 10 largest economies in the world	0.7894737	1	0.413155	0	1
Asia	0.0526316	0	0.2262943	0	1
Duration	8.973684	7.5	6.788252	2	30

Table 3A - Summary Statistics by Business Success

The data seems to suggest that the median project that doesn´t have Business success has a foreign project leader with 27 years-old, he/she is not married, and he/she is not from the senior management. The client is a small consulting firm that it's not based neither in London neither in Paris. The project is neither a Strategic or a Due Diligence project and it takes 7 days to be completed. The target is based in a big economy.

The data seems to suggest that the median project that has Business success has a foreign project leader with 24 years-old, he/she is not married, and he/she is not from the senior management. The client is a big consulting firm that it's based in London or in Paris. The project is neither a Strategic or a Due Diligence project and it takes 7.5 days to be completed. The target is based in a big economy.

When comparing the data of the two baskets of project, we can conclude that both have a foreign project leader which is not married neither from the senior management. The project is neither a Strategic or a Due Diligence project and the target is in a big economy.

Variables	Mean	Median	Standard error	Minimum	Maximum
Panel A: Projects that do not have Strategic Success					
Age	27.44737	24.5	6.566489	21	40
Top/senior management	0.1578947	0	0.369537	0	1
Married	0.3157895	0	0.4710691	0	1
Foreign	0.4736842	0	0.5060094	0	1
Large company	0.7105263	1	0.4596059	0	1

	Mean	Median	Std Dev	Min	Max
Client from Paris/London	0.2368421	0	0.4308515	0	1
Private Equity client	0.1052632	0	0.3110117	0	1
Due Diligence project	0.2105263	0	0.413155	0	1
Strategic project	0.5	0.5	0.5067117	0	1
Top 10 largest economies in the world	0.8157895	1	0.3928595	0	1
Asia	0.0526316	0	0.2262943	0	1
Duration	8.526316	7	6.71721	2	29
Panel B: Projects that have Strategic Success					
Age	30.08065	26	11.79372	21	68
Top/senior management	0.1129032	0	0.319058	0	1
Married	0.3387097	0	0.4771345	0	1
Foreign	0.7258065	1	0.4497487	0	1
Large company	0.6290323	1	0.4870073	0	1
Client from Paris/London	0.7258065	1	0.4497487	0	1
Private Equity client	0.0967742	0	0.2980636	0	1
Due Diligence project	0.3709677	0	0.4870073	0	1
Strategic project	0.4516129	0	0.5017157	0	1
Top 10 largest economies in the world	0.7419355	1	0.4411417	0	1
Asia	0.0483871	0	0.2163345	0	1
Duration	9.112903	7.5	6.811526	1	30

Table 4A - Summary Statistics by Strategic Success

The data seems to suggest that the median project that doesn´t have Business success has a foreign project leader with 24.5 years-old, he/she is not married, and he/she is not from the senior management. The client is a big consulting firm that it's not based neither in London neither in Paris. The project is a Strategic or

a Due Diligence project and it takes 7 days to be completed. The target is based in a big economy.

The data seems to suggest that the median project that has Business success has a foreign project leader with 26 years-old, he/she is not married, and he/she is not from the senior management. The client is a big consulting firm that it's based in London or in Paris. The project is neither a Strategic or a Due Diligence project and it takes 7.5 days to be completed. The target is based in a big economy.

When comparing the data of the two baskets of project, we can conclude that both have a foreign project leader which is not married neither from the senior management, the target is in a big economy and the project takes around 7 days to be competed. Besides that, the client is a big consulting firm.

Section 2

Variables	Coefficient	Standard error	Individual Significance Test
Age	0.0316712	0.0209102	1.51
Top/senior management	-1.172778	0.4948475	-2.37
Married	0.6819025*	0.3561593	1.91
Foreign	0.5842798*	0.3172626	1.84
Large company	0.7825336**	0.3468489	2.26
Client from Paris/London	0.585503	0.3650605	1.60
Private Equity Client	1.203526*	0.6353799	1.89
Due Diligence Project	0.0213763	0.0211544	1.01
Constant	-2.776234***	0.8150689	-3.41
Log L	-53.065201	--------------	-----------------
Pseudo R-squared	0.1632	--------------	-----------------

Table 5A - Estimates of Project Management Success by ML

Variables	Coefficient	Standard error	Individual Significance Test
Age	0.0299447	0.0248888 1	1.20
Top/senior management	-1.396307	0.8854641	-1.58
Married	-0.7703888**	0.36166	-2.13

Foreign	0.5057619	0.3671151	1.38
Large company	0.4379575	0.5117933	0.86
Client from Paris/London	0.5728992	0.4907811	1.17
Private Equity Client	-0.0295646	0.025846	-1.14
Constant	-1.562538*	0.8906704	-1.75
Log L	-43.059351	--------------	-----------------
Pseudo R-squared	0.1622	--------------	-----------------

Table 6A - Estimates of Product Success by ML

Variables	Coefficient	Standard error	Individual Significance Test
Age	-0.0829385*	0.050938	-1.63
Top/senior management	-0.7479494	0.8600377	-0.87
Married	1.200688	0.5758506	2.09
Foreign	-0.5441854*	0.3319461	-1.64
Large company	0.4994624*	0.3049394	1.64
Client from Paris/London	0.6750775	0.4703425	1.44
Private Equity Client	0.5938638	0.4413655	1.35
Constant	1.236266	1.363611	1.236266
Log L	-53.335286	--------------	-----------------
Pseudo R-squared	0.1968	--------------	-----------------

Table 7A - Estimates of Business Success by ML

Variables	Coefficient	Standard error	Individual Significance Test
Age	0.2596075**	0.1080648	2.40
Top/senior management	-2.491593**	0.9893572	-2.52
Married	-2.408398**	1.108809	-2.17
Foreign	0.6511627	0.5005772	1.30
Large company	0.3382377	0.4671942	0.72
Client from Paris/London	1.557282***	0.3825432	4.07
Private Equity Client	-0.6044007	0.6802762	-0.89
Due Diligence Project	0.8063249	0.5722842	1.41
Strategic Project	0.7638964	0.4732738	1.61
Top 10 biggest economies in the world	-0.4167712	0.4249917	-0.98
Asia	-0.0255252	0.0259653	-0.98
Constant	-7.241955*	2.857415	-2.53
Log L	-43.958111	--------------	-----------------
Pseudo R-squared	0.3380	--------------	-----------------

Table 8A - Estimates of Strategic Success by ML

Section 3

Accessing the fit

After estimating the model it's time to access the fit of it. So, with this chapter we are trying to understand how well the model fits the data that we have in hands. For that it's going to use tables of hits and misses which is what is commonly used to access the fit of a Binary outcome model.

Predicted				
		Failure at level 1	Success at level 1	Total
Observed	Failure at level 1	59	8	67
	Success at level 1	15	18	33
	Total	74	26	100

Table 9A - Hits and Misses according to the probit regression of Project Management Success

By looking at the table we can conclude that our model correctly predicts the outcome of 77 (59+18=77) projects. That is Success/ Failure in model was correctly predicted in 77% of the cases. Furthermore, the model predicted 8 success that in reality were failures. Besides that, the model predicted 15 failure that in reality were successes.

Predicted				
		Failure at level 2	Success at level 2	Total
Observed	Failure at level 2	77	2	79
	Success at level 2	15	6	21
	Total	15	8	100

Table 10A - Hits and Misses according to the probit regression of Product Success

By looking at the table we can conclude that our model correctly predicts the outcome of 83 (77+6=83) projects. Furthermore, the model predicted 2 success that in reality were failures. Besides that, the model predicted 15 failure that in reality were successes.

Predicted				
		Failure at level 3	**Success at level 3**	**Total**
Observed	**Failure at level 3**	50	12	62
	Success at level 3	17	21	38
	Total	67	33	100

Table 11A - Hits and Misses according to the probit regression of Business Success

The table shows us that our model correctly predicts the outcome of 83 (50+21=71) projects. The model predicted 12 success that in reality were failures. Besides that, the model predicted 17 failure that in reality were successes.

Predicted				
		Failure at level 4	**Success at level 4**	**Total**
Observed	**Failure at level 4**	24	14	38
	Success at level 4	13	49	62
	Total	37	63	100

Table 12A - Hits and Misses according to the probit regression of Strategic Success

By analysing the table, we can conclude that our model correctly predicts the outcome of 73 (49+24=73) projects. The model predicted 14 success that in reality were failures. Besides that, the model predicted 13 failure that in reality were successes.