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# HUMAN RESOURCES AND MANAGEMENT IN PROJECTS

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## ABSTRACT

When valuing an investment project, all the factors that affect its viability should be analysed. As such, not only financial aspects are important, but also non-financial aspects. In effect, in project appraisal we should analyse the human resources and the role of the project manager and his personal characteristics and attributes. We support the idea that human resources and project manager areas have to be analysed when determining a project's viability.

## INTRODUCTION

In project appraisal it is common for financial evaluation techniques to be the sole decision criterion. However, Mohamed and McCowan (2001) indicate that traditional project appraisal techniques have limitations related to the fact that their parameters cannot be determined with certainty and the fact that these techniques do not capture the importance of qualitative factors.
In fact, the investment decision-making process is complex and goes beyond the financial aspects. Many of the goals in a project tend to be qualitative and long term, as opposed to quantitative, easy to measure, short-term outcomes. Financial evaluation is only part of the decision-making process and additional information is necessary. Moutinho and Mouta (2013) present a brief reflection over which are the main aspects to take into account in project appraisal: financial and non-financial aspects, capital structure, agency problems, governance, real options, stakeholders and other situations. Moutinho and Lopes (2011b) note the importance that non-financial aspects have in investment projects. Skitmore et al. (1989) present a list of factors that influence the success of construction projects, naming forty-four other factors, apart from the financial aspects. Lopes and Flavell (1998), Love et al. (2002) and PMI (2013) provide evidence of the importance of studying, among others, aspects related to human resources and management. Moutinho and Lopes (2011b) show the importance that companies attribute to human resource (53,1%) and project management (69,8%) areas, which are also pointed out as critical to the success of the projects.
The human resource function is one of the most crucial elements in the success of an organization and has gained much importance within the organizations, claiming more and more its strategic role (Belout, 1998). In this way, the development of a human resource plan should be closely linked with the strategic planning of the project (Fabi and Pettersen, 1992). For Lopes and Flavell (1998), a good organization without the right people, as well as the right people in bad organizations, are not efficient. On the other hand, to Johns (1995) it is the actions and behaviours of people and managers that form the basis for the project's execution.
This paper intends to show the importance and contributions that human resources and management bring to the projects. As such, it includes a literature review of the importance of the matters for projects, presenting some works that have approached these issues.
In the next chapter are the main aspects related to human resources, namely: personnel and their characteristics; teamwork; cultural issues; and personnel motivation. Next the main risk factors related to human resources are identified, followed by how to minimize them. In chapter four, the role of the project manager is identified, and then the main characteristics and attributes of the project manager. In chapter six is an analysis of the importance and role of the project leader and the company's management in investment projects. Finally, there is a presentation of some of the studies that provide evidence of the importance of human resources and management in investment projects.

## HUMAN RESOURCES

As for personnel, Baccarini (1999), Johns (1995) and Wateridge (1995) show the need for the clear understanding, communication and agreement of the project's goals and demands in order for them to have a positive impact on the project's outcome, whereas Lopes and Flavell (1998) refer the fact that the personnel allocated to the project must possess adequate individual knowledge and skills. On the other hand, Fabi and

Pettersen (1992) show that the personnel assigned to the project should be in adequate number and have the necessary abilities.

Zita-Viktorsson et al. (2003) list as the most important individual work practices the commitment to the work, the autonomy to plan their own work, feedback, psychological stress reactions and quantitative and qualitative work. Given that the nature of projects can vary greatly, workers with more creativity, problem-solving skills and work capacity (with concepts and ideas) are the most adequate. Kuprenas (2003), while studying the matrix structure as a project organizational structure, suggests that workers should possess strong communication skills, the ability to work as part of a team and adaptability to the possibility of change. Taylor et al. (1995) add that the personnel should feel comfortable working in environments with a certain degree of ambiguity.

Gray (2001) and Lopes and Flavell (1998) present experience, technical skills and positive personal relationships, especially within a teamwork context, as relevant factors. On the other hand, Belout (1998) considers that it is important to analyse the legal labour restrictions and treat employees fairly, respecting work contracts. He adds that it is essential to consider the power of unions and negotiate agreements and working conditions with them.

To Maurer (2001), young employees should be assigned to the development of projects, specifically when new knowledge is necessary. On the other hand, Lopes and Flavell (1998) indicate that the senior elements of the project should have a high coordination skill and past experience in similar situations, in order to make grounded decisions and immediately acknowledge and assess risks. They also mention that it is important to build a replacement plan for these elements in case of necessity, so as not to compromise the positive evolution of the project.

Belout (1998), Johns (1995), Loo (2003) and Wateridge (1995) outline the importance of teamwork in projects. A project team included members from various functional areas in the company, with complementary skills, aiming to share ideas and work toward common goals. Work teams should be highly interactive, with trust between its members. Since members have different knowledge, the probability of solving a problem within the team as a whole increases (Johns, 1995; Bishop, 1999; Fleming and Koppleman, 1997). In teamwork, it is important to ensure communication and interpersonal relationships between team members, management and clients. On the other hand, it is necessary to attribute power as a way to motivate the teams to fulfil their goals (Johns, 1995). Teamwork allows the reduction of the life cycle and the costs of the project, the increase cooperation, the minimization of functional differences of interest and an adequate choice of the leader according to the stage of the project. Beyond these aspects, Loo (2003) also presents as characteristics and factors to analyse in teams: participative security; vision; task orientation; innovation support; social desirability.

When planning the work of a team, Johns (1995) defends the use of five management tools: the goals must be clear, measurable and agreed upon and the risks must also be understood; the work should be controlled (for example, through labour division), and the scheduling, costs and the existence of flaws verified; concerning the project's organization, each task should be assigned to a team member; it is necessary to create good communication within the team and to simplify the schedule and its disclosure; concerning the performance of the project in terms of the budget, the team members should determine and indicate their resource demands throughout the project.

To Lopes and Flavell (1998), it is the managers' job to foster teamwork and a good work environment, to create a positive work atmosphere, essential to the implementation of a successful project. Apart from team spirit, reflecting the feeling of belonging, it is necessary to verify whether there is an exchange of ideas, a propensity to conflict, team cooperation and an open and mutual aid climate (Zita-Viktorsson et al., 2003).

Motivation is the driving force behind work behaviours and determines their form, direction, intensity and duration. Motivation in work fosters a good work environment between employees, which reduces absenteeism, creates stability and positively influences productivity.

As for cultural aspects, they may be evaluated in terms of voluntarism, perceived threat, control and care of people. When a project is developed by a team, Gray (2001) emphasizes that there tends to be an especially positive atmosphere in projects, as well as a low level of threat and a high care with people, when compared with the company, which reflects positively in the results of the project.

As for the threats to employees related with the implications on their career, financial consequences, reputational effects and concerns with their own image, Gray (2001) notes these factors have a negative relationship with the project's results, that is, the larger these threats, the lower the success of the project tends to be since these threats are perceived as unfair. He also highlights the important and positive role in the project's results of voluntarism, measured by free expression, questioning, participation in defining the goals, innovation and intrinsic job satisfaction. For Lee-Kelley et al. (2003), in a project, social interactions between members should be analysed in what respects cohesion, shared values and beliefs, as well as goal sharing.

## HUMAN RESOURCE RISK FACTORS

One of the concerns with human resources has to do with the possibility of repetition of tasks motivated by omissions, mistakes or misinterpretation of the work

(Jonhs, 1995). This is one of the main factors that contributes to the weak productivity and cost increase, with evident reflexes in performance.
Belout (1998) presents factors related to personnel that may adversely affect the project: unqualified personnel; inadequate training; inexperienced management; and lack of motivation. Lopes and Flavell (1998) point as one of the difficulties to overcome the impossibility to make the necessary technological level compatible with the skills of the existing personnel.
Fabi and Pettersen (1992) present as problems in project management: the need for technical and management qualifications; the inconsistency between authority and responsibility of the project manager; the attribution of human resources to the project and the jurisdiction conflicts resulting from it; the integration of employees in new project teams; double authority (due to matrix structures) the members of the teams may be subjected to; and insecurity about careers.
Johns (1995) presents as risk factors: the difficulty to incorporate the demands of all the functional perspectives and work together; the lack of skill of some members to work in a cooperative team environment; the lack of management skills when leaders are technical (especially in initial stages); using a structure other that the matrix structure, which originates inefficiencies in the use of resources; the need for project managers to perform tasks they do not enjoy; the inexistence of a function to return to after the project ends, with negative impacts in the morale of the team members.
On the other hand, projects may cause stress in participants due to the deadline pressures, with impact on the motivation of employees and their perception of the work conditions. The appearance of incidents may be perceived as causing stress and may lead to feelings of inadequacy, lowered self-confidence and self-esteem and cause adverse effects in the employees' health (Gallstedt, 2003).

## MINIMIZATION OF HUMAN RESOURCE RISKS

As a way to overcome the risks associated with Human Resources, Love et al. (2003) propose the monitoring of tasks attributed to employees, staff training, incentive to self-learning in individuals, collaboration with external companies, internal and external benchmarking, continuous professional development, project review and internal seminars.
Fabi e Pettersen (1992) emphasize the importance of building a project management plan directed to human resources, based on the policies of: job analysis, selection, reception, salary, performance evaluation, training and career planning.
Job analysis is the process of obtaining information about a job and can take two forms. One, the job description, identifies the type of work to perform, the methods, work conditions, obligations and responsibilities and also mentions the occasional variations in the job and relationships with other employees. The other, profile demands, contains the human attributes necessary, previous experience, training, level of responsibility and intellectual and physical demands.
The selection policy aims to choose the team members that best fit the characteristics and goals of the projects and that allow improvement in performance and lower risks. Therefore, competent employees should be recruited for the team that have good problem solving skills (Jiang et al., 1996).
The reception policy is related to the integration of new employees in the project. Through the signature of the contract and other documents, the company's statutes, visit to job locations, encounters with new colleagues, job description and presentation sessions, diverse information is transmitted (about the project, the work and goals to achieve) to new members, allowing them to become acquainted with the new reality.
The salary policy intends to reward employees, financially or otherwise, considering the legislation and the company's capacity for payment. Merit based reward should be adopted so as to encourage the employees to maximize their performance. Kuehn et al. (1996) shows that the reward system should be based on group reward, rather than individual reward, as a way to reduce possible conflicts.
Through performance evaluation, it is intended to judge the activities of the employees. Globerson (1983) presents five attributes to measure an employee's performance: work discipline; professional knowledge for the last period of the project; human relations; production and performance quality; dedication to work and responsibility.
The training policy refers to the learning activities planned to provide the employees the acquisitions of knowledge, skills and attitudes. Training should allow the development of technical, human, and business knowledge skills so as to contribute to improved performance, cost reduction and increased employee satisfaction and motivation. Rusinko (1997) provides evidence that it is through intensive training that the difficulties of teamwork are most easily overcome.
Career planning shows how promotions will be handled based on past performances, so as to satisfy the needs of employees in improving their professional career.
Loo (2003) emphasizes that a team's positive behaviours should be reinforced in order to ensure its continuity, while the existence of problems requires an intervention at the right moment to improve teamwork over the remaining life of the project. For Fusco (1997) the evaluation of the teams should emphasize collective work aspects, rather than individual aspects.
Zita-Viktorsson et al. (2003) and Johns (1995) stress that the information within the team and the development of joint activities – such as the formulation of goals, decision-making and the development of ideas – are important in improving the quality of work, in

favourably developing work practices and in increasing the union of the group around the project, reflecting in the improvement of its goals and results.
Employee motivation can be induced through the self-realization or satisfaction that the type of work causes, through the recognition of the work performed, the degree of autonomy and responsibility, the personal development, the progression in the career (Turner et al., 1998), the dissemination of information, the variety of tasks, the prestige, the work with new technologies, the creation of opportunities of moving to other areas (Lopes e Flavell, 1998), the possibility of participation and personal relationships, namely when teamwork is important (Osterloh and Frey, 2000). The lack of employee motivation may be associated with salaries, benefits or symbols of statute, interpersonal relationships (Osterloh and Frey, 2000), inexistence of good work conditions (Lopes and Flavell, 1998), the authority, communication and external environment (Turner et al., 1998).
Bewley (1999), in business environment, outlines the need to uphold a good morale among employees. This way, it is possible to obtain cooperation toward the goals outlined, enthusiasm for the job, happiness, tolerance for unpleasant things, moral behaviour and mutual trust. In this climate, employees perform extra jobs without instruction, make suggestions for improvements and help each other.
Baker e Scherer (1997) list the concern with workplace security as a crucial factor. In this way, accidents and absenteeism are reduced, employee compensation costs are lowered and the exposure to litigation is reduced, which conduces to lower costs, fewer repetition of tasks and respect for deadlines.

## ROLE OF THE PROJECT MANAGER

Shenhar et al. (1997) show that the project manager cannot just analyse the project as the only factor to consider in his decision. Managers must understand the business environment and view their project as just a part of the company's effort to gain competitive advantages and profit, analysing the benefits and the creation of future opportunities and skills within the company.
To Turner and Muller (2003) the fundamental role of a project's manager is in the formulation of goals and strategies for the project and in the relationship between these goals and strategies and those of the company promoting the project. Those authors also highlight the importance of delegating work and interpreting plans and work reports. Wateridge (1998) emphasizes the identification and good relationship with all the stakeholders in the project as an important part of the project manager's role.
The project manager is responsible for organizing, recruiting personnel, planning and controlling the project. Meredith and Mantel (2000) point out as required characteristics of the project manager: the acquisition of adequate resources; the ability to motivate the staff; the ability to deal with obstacles; an adequate consideration for cost, time and performance goals; the construction and maintenance of a solid information and communication network; and negotiation skills. The project manager should know why the project exists and be able to clearly identify of what determines the success of the project.
Pozner (1987) stresses that good project managers "understand the critical problems they face and are prepared to deal with them". As problems in project management the author presents the following: inadequate resources; unrealistic deadlines; unclear goals; changes in goals and resources; conflicts between departments or functions.
Munns and Bjeirmi (1996) present as functions of managers: commitment to complete the project; adequate definition of the project; correct planning of the project's activities; ability to ensure a correct and adequate flow of information; ability to promote changes in activity to accommodate the project's dynamic; ability to make the personal goals of employees compatible with their performance and reward.
Turner and Muller (2005) show that the project manager has an important role in the creation of an effective work environment for the project team. The project manager should create all the appropriate conditions for teamwork, so that the employees reach the intended performance, giving support, training, resources, time, money and personal help and removing any obstacle. In the same line of thinking, Bentley (1992) highlights that the intervention of the manager should not compromise the individual justice, initiative and imagination. Those authors also refer the importance of solving problems, anticipating them and looking toward the future, defining and evaluating priorities and making decisions.

## CHARACTERISTICS AND ATTRIBUTES OF THE PROJECT MANAGER

One of the main factors that leads to the success of the project lies in the adequate choice of a manager, that is, the choice of the right person to lead it, considering they should possess certain specific characteristics to perform that job (Bentley, 1992). To Lee-Kelley et al. (2003) the perception of success depends on the style of leadership of the project manager, as well as on his personal attributes and experiences, namely the knowledge and interpersonal skills of the manager, his management and leadership skills and his experience as a manager.
According to Pozner (1987), good project management requires a set of attributes and skills from the project manager as a way to overcome, appropriately deal with and manage the problems that may arise. This author identifies as important personal characteristics of the project manager the aggressiveness, trust, decision and

entrepreneurship, versatility, multidisciplinarity and quick thinking. He also stresses that a manager should have adequate communication skills (namely the ability to listen), organizational skills, leadership (the manager should be energetic, visionary and positive) and technological skills. Note that it is not enough that the project manager possesses such skills and attributes, they should be also perceived by others (Meredith and Mantel, 2000).

Pettersen (1991) sums up the requirements of the project manager into management knowledge (planning, organization, ability to follow through with work, decision making, team supervision, human aspects), personal characteristics (analytical skills, creativity, vivacity, flexibility, adaptation skills, stability, energy, persistence), global vision of the project and a multidisciplinary orientation that encompasses various knowledge areas.

Thoms and Pinto (1999) explain that different time skills (aptitudes and capabilities related to time management necessary to the fulfilment of specific tasks) are necessary for different tasks and activities accomplished by the project leaders. Therefore, it is vital that the time orientation (orientation toward the past, present or future a leader brings to an organization) of a project manager in a given situation meets the requirements of that situation. There should be harmony between the time skills of the project leader and the nature of the tasks that leader must perform. This explains why it may be necessary for several project managers to be in charge of a given project throughout its life.

Kuprenas et al. (2000) indicate, as relevant attributes in a project manager, the technical and management knowledge, the experience and technical expertise, strong leadership and communication and human relationship skills, while Sotiriou and Wittmer (2001) point to technical knowledge, relational aspects with employees, persuasion and negotiation skills, trust, ability to influence the team's behaviour through appropriate exercise of authority, performance reward and professional integrity.

Hauschildt et al. (2000) highlight as important project manager characteristics, among others, aggressiveness, ambition, balance, spontaneity and experience, and as attributes the experience, decision-making skills, cooperation skills, ability to deal with conflicts and to integrate the visions of several different people.

The characteristics and knowledge of project managers should be flexible and adaptable throughout the project, according to the stage it is at (Turner et al., 2000), and dependent on the type, dimension and duration of the project (Lee-Kelley et al., 2003). Pettersen (1991) mentions that the necessary qualifications for project managers vary according to the nature, complexity and dimension of the project, what stage in its life cycle it is at, and according to its organizational structure and hierarchical position occupied by the project manager.

## PROJECT MANAGER VERSUS COMPANY MANAGEMENT

When the company's management (principal) hires someone to manage the project (agent), delegating power and decision authority, there may arise agency issues (Eisenhardt, 1989; Shleifer and Vishny, 1997; Thakor, 1993). On the one hand, the principal needs specific knowledge, appropriate skills, but on the other hand, the contract between both cannot predict all future situations (Jensen and Meckling, 1976). In this way, the factors that maximize the utility function of both parties are not necessarily the same, giving rise to conflicts and causing costs or value losses.

According to Turner and Muller (2003), the company's management (management) basically faces two problems in its relationship with the project manager (manager): on the one hand, there is an asymmetry of information given that the project manager has private information; on the other hand, since the manager has his own goals, he may have opportunistic behaviours, which lead to conflicts of interest. Note that the decisions of the principal and agent differ because of their different risk perspectives, since the agent is more risk averse than the principal. Tan (2000) shows there are differences in the agency problems, depending on the dimension of the company. In small companies, the principal is able to closely monitor the project and remain well informed about its evolution. The principal is in a position to make the decisions which are in his best interest. In large companies, where the principal is too far from the project, the decision must be delegated to the agent. In this case, the principal loses well-being when the agent does not share the same goals as the principal, or when the principal is unable to monitor the actions of the agent (Harrison and Harrell, 1993).

To minimize the agency problems, management needs to attribute incentives to align the goals of the manager and the management and adopt control mechanisms to halt opportunism. Regarding incentives, Eisenhardt (1989) points to drafting contracts based on results as a way to co-align the performance of the agent with the goals of the principal. As an alternative, Farrell (2003) presents also behaviour-based contracts, which are important when there is consistency between the principal's and the agent's goals and when the principal has the skills to adequately monitor the agent. Incentive contracts may also take the form of sharing ownership and stock options (Jensen and Meckling, 1976; Fama, 1980). As for control mechanisms, there should be improved dissemination of information, with the implementation of a complete information system, a greater number of actions and results of the manager should be subjected to monitoring (Turner and Muller, 2003) and there should be penalties for low performances, such as dismissal and/or decreased reputation, which has a

negative impact on future career opportunities for the manager (Jensen, 1986).
Since the manager wishes to keep his job, and knowing that at the end of a given project he risks unemployment, he may not give it his best effort and try to prolong the project over an unnecessarily long period of time (Turner and Muller, 2003). One solution would be to guarantee a (contingent) long-term contract for the a priori, to align his interests with those of the principal (Shleifer and Vishny, 1997).

## THE IMPORTANCE OF HUMAN RESOURCES AND MANAGEMENT ANALYSIS IN PROJECT APPRAISAL

Moutinho and Lopes (2011, b) observe that 69,8% of the companies attribute a high importance to the project manager aspects and 53,1% consider human resource analysis important in the project appraisal context. It should also be noted that companies from the commercial industry and with long-duration projects attribute a greater importance to the human resource analysis. On the other hand, CEOs with a lower level of education attribute a greater importance to the project manager analysis, whereas the younger the CEO and the project manager, the greater importance is attributed to human resources. In this study, the area of project managers is also presented as one of those which most contribute to more successful projects. Note, also, that this work shows that the human resource analysis is one of the most evaluated in project appraisal, since 69,8% of companies analyses these issues. On the other hand, nearly 55,2% of firms consider project manager aspects. Despite these results, the study concludes these areas lose importance when attempting to verify their influence in the economic value of the project and their importance in the decision to implement the project.
Moutinho and Lopes (2011, b) identify the main critical success factors in investment projects, concluding that the non-financial aspects are very important, with human resource aspects mentioned as one of the five most important critical areas. This work shows that not only is higher success levels in projects related with higher frequency in the evaluation of human resources and project manager aspects, but also in higher project success companies consider the project manager area more important in project's valuation than companies with lower project success. It is also apparent that human resources aspects are present in successful projects and that perceived success is higher when the project manager's reward is entirely variable or goal-based.
Moutinho and Lopes (2011,a) present the results of a detailed analysis of each of the areas of evaluation. Concerning the human resource analysis, they find that the companies attribute great importance to technical knowledge (83,3%), problem-solving skills (81,8%), ability to work as a team (80,3%), ability to work for common goals (75,8%), trust between team members (75,8%) and incentives to team spirit (72,7%).
As the main human risk factors are pointed the lack of coordination between team members (73,1%) and the absence of motivation (70,1%). As a way to minimize these risks, companies choose the need to formulate clear objectives for the project (70,1%), the correct identification of the type, methods and conditions of the work to be performed (61,2%), the capacity of workers to develop technical skills (59,7%), the analysis of the employee's education/qualification (56,7%) and the analysis of the employee's experience (50,7%).
As for the project manager analysis, Moutinho and Lopes (2011,a) conclude that the role of a project manager is mainly related with understanding the business's environment (83%) and delegating and attributing responsibilities (81,1%). Companies consider that the main characteristics a project manager should possess are management skills (92,5%), decision-making skills (90,6%) and leadership skills (90,6%).
According to Moutinho and Mouta (2011), when the project manager is experienced in managing projects then the human resource analysis is more likely to be performed, whereas project manager analysis is more commonly found when the project manager is a part of the company's management.

## CONCLUSION

The evaluation of investment projects should take into consideration all relevant aspects, whether quantitative or qualitative in nature. Even though it is easier to analyse the financial aspects of a project, the analysis of the human resources and manager assigned to the project cannot be neglected. Lopes and Flavell (1998), Datta and Mukherjee (2001), Love et al. (2002) and Moutinho and Lopes (2011a; 2011b) show the importance that non-financial aspects have in project appraisal.
This work outlines the importance of the human resource and project manager analysis for investment projects. Even though they are areas of subjective analysis, companies tend to analyse them as a way to maximize the financial resources used.
The project manager and human resources have a key role for projects' success. Given that the decision-makers and implementers are employees, ignoring these areas of analysis may cause an unsuccessful project. It is good to remember that it is the actions and behaviours of people and managers that form the basis for the execution of the project (Johns, 1995).
Finally, there is a reference to the importance of the relationship between the company that promotes the investment and the project, highlighting the agency problems that may arise from the different interests project managers and the company may have.

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