

KEYWORDS ■ innovation ■ new product development ■ project management ■ project success

CRITICAL SUCCESS FACTORS FOR INNOVATION PROJECTS

✉ **Alberto Silva Aristeguieta, Ph.D**
Full-time Professor in Keiser University - Fort Lauderdale, Florida, United States
asilva@keiseruniversity.edu

ABSTRACT

A survey was conducted in a large food and beverage corporation, actively involved in innovation projects, to determine if critical success factors for innovation projects are different to those for other types of projects. As a result of the study, it was found that innovation projects have critical success factors that are similar to those in other types of projects: definition and understanding of project mission and goals, top management support, project planning, project user acceptance, contingency management, and project management. Factors related to the product, the company or the market are less important than factors related to the project, although relative product quality is also very important.

INTRODUCTION

Projects could be classified according to different criteria: purpose, size, complexity, industry, international scope, etc. And although all projects represent the creation of something new, there are some projects that are considered innovation projects. Innovation projects, as affirmed by Theilen (2002), are characterized for the uncertainty in the product to be obtained as well as the uncertainty in the process that is going to be developed to obtain that product. Projects that are not innovation projects usually have a better defined product as well as a better defined process to follow. Taking into account this significant difference we may ask: Are the critical success factors for innovation projects different to those

for other types of projects? This is the research question addressed in this paper.

To answer the research question we first should agree in what we mean by project success. Pinto (2013) has stated that a successful project comes in on- schedule, comes in on- budget, achieves all the goals originally set for it, and is accepted and used by the clients for whom the project is intended. Innovation projects are usually more flexible regarding compliance with their deadline and budget, recognizing the uncertainty to satisfy those requirements, and they may end up satisfying goals different to the originally established, as well as having clients different from those for whom the project was originally

intended. Take, for instance, the example of Viagra: Pfizer scientists were looking for new approaches to the treatment of several cardiovascular diseases, and what they found was a drug for treating erectile dysfunction. But we may consider those deviations as exceptional. In most innovation projects we could use the same success criteria used to measure success for all kinds of projects.

Having established that success of innovation projects could be evaluated by the same criteria that are used to evaluate success of other types of projects, let us review what the literature says about project critical success factors.

1. Literature Review

Some projects are successful and others fail to meet their objectives. Since the early days of project management there has been interest in knowing what makes the difference. Very soon it was realized that many factors were involved, so a search for the most critical success factors began to take place.

Cleland and Kocaoglu (1981) admitted that different types of conflict invariably arise during a project, and therefore the ability to manage conflict is one of the key project success factors. Since the project manager is supposed to manage conflict, his selection is crucial to project success. Three decades later, Verzuh (2012) also emphasizes the importance of the project manager's selection and the use of risk management techniques to prevent project failure.

But selection of a competent project manager and risk management, although very important, are not the only variables to consider. Kerzner (2013) stated that project success depends not only on the actions of the project manager and team but also on the behavior of the top management of the parent organization and the customer's organization. Shtub et al. (1994), trying to consolidate the results of different studies performed before that time to identify success factors in projects of different nature, found that some of the important factors are: definition and understanding of the project mission and goals, support of top management, project planning and control, consultation with the client or project user, human relations, communications, technical competencies of the project team's members, use of adequate technology, and management of contingencies. Hyvari (2006) examined the project success factors in organizations actively involved in projects, and found that the most important factors were: commitment of project team members, client, communication, top management support, clear goals and objectives, and technical background of project team members.

Specific studies for critical success factors in innovation projects are less frequent, and they are usually restricted to projects oriented to develop new products. Ernst (2002) reviewed the empirical studies performed in the previous 30 years on the success of product development projects, and found that the most critical success factors are: project planning quality; definition of the project concept, the target market, and the additional benefits expected from the new product; project selection before they enter the development phase; alignment of the project with the market requirements; creation of a project organization devoted to the development of the new product; interfunctionality of the project team; project leader; autonomy of the project team; support from top management; company strategy for developing new products.

Van der Panne et al. (2003) reviewed 43 recent articles on the factors behind success or failure of innovation projects, and classified those factors in four general groups:

- ✎ Factors related to the company: culture, innovation experience, R&D team characteristics, innovation strategy, investment in R&D, organizational structure
- ✎ Factors related to the project: compatibility with company's capacities, innovation management style, support from top management
- ✎ Factors related to the product: relative price, relative quality, innovation degree, technological advance
- ✎ Factors related to the market: concentration of the target market, opportunity for market introduction, competition, project marketing

Van der Panne et al. (2003) found similarity and consistency among the different studies reviewed regarding the importance of: company innovation culture, company experience in innovation projects, multidisciplinary character of the R&D team, compatibility of the project with key company's competencies, product quality and price in relation to established products, and opportunity of introduction to the market. They also found that it was difficult to achieve a definitive conclusion regarding the importance of: organizational structure, investment in R&D, support from top management, required degree of innovation, required degree of technological advancement, competition, and project marketing.

Pu et al. (2004) studied the success factors in innovation projects in China and western developed countries and found that firms in China put more emphasis on marketing skills and put less emphasis in project strategy and process, management methodology and organization, project idea and creative team, in comparison with those in western developed countries.

Iamratanakul et al. (2007) explored the literature on factors affecting new product development projects and found that the success factors are: product quality, product cost, development time, development cost, and development capability.

In summary, many factors could be critical for the success of innovation projects. Some of them are similar to success factors for all kinds of projects, like project manager leadership, project team technical background, top management support, clear definition of objectives and goals, and project planning and control, but others are specific to product and market characteristics, as well as to company's innovation culture and experience. However, the existing studies are not very conclusive about the relative importance of those factors.

2. Methodology

From the literature review it is clear that there is still the need to clarify if the success factors for innovation projects are different to those in other types of projects or if they have different relative importance. In order to answer this research question a survey was conducted in a large food and beverage corporation. This corporation was very active in innovation and at the time of the survey more than 150 innovation projects were in progress within the company.

A questionnaire was sent to all directors and leaders with responsibility in innovation projects in the company, with the purpose of examining the relationship between success in those projects and the variables or possible success factors. The correlation was determined in the survey in a direct way. Project directors and leaders were asked about the relationship they believed exist between innovation projects success and the variables or possible success factors in those projects. Another way of conducting the survey could have been to define the degree of success of each project and find out the degree in which every variable contributed to that success. This strategy was discarded because it required more effort from the survey respondents and it was not easy for the precise cause and effect relationships using that method. For example, if in a successful project there was a high degree of support from top management, it was going to be difficult to determine if the project was successful because of the top management support or if that support existed because top managers perceived that this project was going to be successful.

The surveyed respondents were asked about the degree of importance of different project success factors. The degree of importance was measured in a qualitative scale of “None”, “Low”, “Medium” or “High”, and these are the twenty factors that were considered:

- Definition and understanding of project mission and goals
- Top management support
- Project planning

- Consultation with the project user
- Technical competencies of the project team members
- Use of adequate technology
- Project control
- Project communications
- Contingency management
- Company innovation culture
- Company experience in innovation projects
- Project management
- Project degree of innovation
- Technological advancement required
- Target market concentration
- Opportunity of introduction to the market
- Competitive pressure
- Project marketing
- Product quality in relation to quality of products established in the market
- Product price in relation to price of products established in the market

3. Results

The questionnaire was send to the 47 directors and managers of the company with responsibility in innovation projects management, and 14 responses were received. This response was considered acceptable because:

- The sample corresponded to 30 % of the population (samples of 10 to 20 % of the population are generally acceptable)
- The sampling error was 11 % (very close to 10 %, the maximum error usually admitted)
- The sample was representative (all units and management levels of the company were proportionally represented in the sample)

To be as strict as possible, critical success factors were defined as factors with 100 % responses of “High” or “Medium” importance. These were the seven factors that met the criteria:

- Definition and understanding of project mission and goals
- Top management support
- Project planning
- Project user acceptance
- Contingency management
- Project management
- Product quality in relation to quality of products established in the market

4. Discussion

It is important to underline that among the seven factors considered as more important to project success six are factors related to the project. Only the “product quality in relation to quality of products established in the market” was given the same degree of importance as those other six factors. The importance of relative product quality is also highlighted by Iamratanakul et al. (2008).

This study allowed determining that innovation projects in the company have more probability of success if they have a clear definition and understanding of the project mission and goals, if there is an effective consultation with the project user, and if they receive enough support from top management. Some other empirical works give support to those results. The finding that innovation projects have more probability of success if there is a clear definition and understanding of project mission and goals and there is enough support from top management is consistent with the results of investigations performed by Shtub et al. (1994) and Ernst (2002). There is also coincidence with Shtub et al. (1994) regarding the importance of consultation with the project user. The importance of the project manager and risk or contingency management revealed by this study is also consistent with the works of Cleland and Kocaoglu (1981) and Verzuh (2012).

There are differences with Shtub et al. (1994), Ernst (2002), Van der Panne et al. (2003), and Hyvari (2006) regarding the importance of technical competencies of the project team members. This factor received in the survey 85 % of responses of “High” or “Medium” importance, which means that is also regarded as important in the surveyed company, although not as important as those authors found in their studies.

5. Conclusions

It could be concluded from this study that:

- Innovation projects have critical success factors that are similar to those in other types of projects: definition and understanding of project mission and goals, top management support, project planning, project user acceptance, contingency management, and project management
- Factors related to the product, the company or the market are less important than factors related to the project, although relative product quality is also very important
- Further research could be developed to clearly define the importance of technical competencies of the project team in the success of innovation projects





Alberto Silva is a full time professor in Keiser University. He is a PhD. in Business Administration from the University of Almeria (Spain), a Master of Engineering from the University of Florida (USA), and a Master in Operations Research and a Civil Engineer from the Central University of Venezuela. Dr. Silva has ample experience as project manager, including several major projects for the oil and gas industry. He has also taught courses at graduate level in Project Management and is the author of a book on the subject, published in Spanish.

Cleland, D. I., and Kocaoglu, D. F. (1981). Engineering Management. McGraw- Hill Book Company

Ernst, H. (2002). Success factors of new product development: a review of the empirical literature. International Journal of Management Reviews, 4 (1): 1- 40

Hyvari, I. (2006). Success of projects in different organizational conditions. Project Management Journal, September 2006, pp. 31- 41

Iamratanakul, S., Patanakul, P., and Milosevic, D. (2008). Innovation and factors affecting the success of NPD projects: Literature explorations and descriptions. International Journal of Management Science and Engineering Management, Vol. 3 (2008) No. 3, pp. 176- 189

Kerzner, H. (2013). Project Management: A Systems Approach to Planning, Scheduling, and Controlling. Eleventh Edition. John Wiley & Sons, Inc.

Pinto, J. (2013). Project Management. 2nd Edition. Prentice Hall

Pu, X., Li, J., and Zhu, H. (2004). A cross-national study of success factors in innovation project: China and western developed countries. Research Center for Technological Innovation & School of Economics and Management. Tsinghua University. Beijing, China

Shtub, A., Bard, J. F., and Globerson, S. (1994). Project Management: Engineering, Technology and Implementation. Prentice Hall

Theilen, B. (2002). Innovación y estructura organizativa de la empresa. Harvard Deusto Business Review, 108: 68-76

Van der Panne, G., van Beers, C., and Kleinknecht, A. (2003). Success and failure of innovation: A literature review. International Journal of Innovation Management, 7 (3): 309-338

Verzuh, E. (2012). The Fast Forward MBA in Project Management. Fourth Edition. John Wiley & Sons, Inc.