

Perception of the Delivered Project Quality According the Maintenance

and Production Departments

Cristiano Gonçalves de Souza, Fernando Oliveira de Araújo (Universidade Federal Fluminense, Brazil)

Abstract: The present study aims to analyze and to collate the perceptions of the maintenance and production agents in what it refers to the quality in projects, identifying attributes that can assist the delivery quality of new projects. First, a systematic revision of literature concerning the attributes of quality in projects was carried through; after that, interviews and questionnaires applied to the professionals of maintenance and production had been carried through to get to the results. By means of research, it was possible to note that the "functionality" and the "agreed delivery" attributes had been the convergent factors, concerning the quality of the projects delivered, among the object areas of this study.

Key words: perception; quality; maintenance; production **JEL code:** M19

1. Introduction

The implementation of a project, as usual, is lead by a project manager and this manager is responsible for the new venture that will be developed in the company. The main indicators that the project managers use to measure the performance of the work developed are based on the term, cost and quality triad. It is important to emphasize that the quality in new ventures is a decisive factor, therefore, some methodologies are constantly perfected to support the excellence and the quality in the projects, either through the learning acquired in other projects, or by the orientation given by customers or even through benchmarking (Kerzner, 2017).

Mazur et al. (2014) observed that the ability of the project managers in developing a high quality in the ventures carried out (in the case studied, Australian military defense projects), had a direct connection with the relationship between the interested parties. Thus, when there was cooperation between the project manager and the interested parties, a corresponding increase in the assertiveness rate in what was initially considered was observed.

For Lam et al. (2004) there is a connection between customer value perceptions and customer satisfaction. However, the perception of satisfaction and quality in projects becomes very difficult to survey, once it depends on the judgment of each sector, or even on the individual that is evaluating the venture.

In this context, this research investigated the project quality perceptions through the perspective of Production and project agents. This work displays the following issue: What are the perceptions of maintenance

Cristiano Gonçalves de Souza, Master's Degree Candidate in Management Systems, Universidade Federal Fluminense; research area: business administration. E-mail: cristianogs85@gmail.com.

and production areas in relation to the quality of the project delivered?

2. Literature Review

According to Andersen (2016), Toor et al. (2010) and Mishra (2017), in new ventures, it is often difficult to measure the quality that is being delivered in the work performed. The practice frequently adopted, as shown by the studies by Yang et al. (2011), Davis (2014), Alias et al. (2014) and Haverila et al. (2016) is the use of critical success factors to measure the success of the project.

However, this becomes difficult to measure because, according to Jiang et al. (2009), Bértholo (2013) and Hartono et al. (2014), the quality of the project is also related to the quality perception of the interested parties. The involved characters present quality perceptions in projects that are not necessarily lined up or converging. Therefore, success, in terms of quality in projects, must be carefully analyzed during each venture (Fernandes et al., 2014; Andersen, 2016; Gomes et al., 2016; Davis, 2017).

According to Yang et al. (2011), a new venture must demand efforts to structure competent and reliable teams. In addition, project managers must ensure that the teams work together to reach the common goal and for a good development of the proposed work.

According to Toor et al. (2010) there are different forms of quality perceptions of a project. On one hand, there is a more macro vision, where it mainly takes into consideration operation, functions and profits in the medium and long terms in a venture. On the other hand, there is a micro vision, considering the quality under the prism of short term, by means of pointers, such as profitability. For the companies, profit is extremely important, so that they can attract more and more investors, but when the need for new project arises, it is not interesting to focus only on short-term indicators (although this is a very important point to be analyzed, this should not be considered in isolation).

According to Davis (2014), the perception of venture quality is seldom evaluated by the interested parties, keeping the traditional vision that the success of the project is how the venture is perceived by the project manager. Thus, it is necessary, for the yearnings of the final user of the venture, to comply with quality.

According to Toor et al. (2010), success can no longer be solely restricted to the classic iron triangle: time, cost and quality. The assessment of project performance should follow issues that also take into account the interested parties, such as satisfaction, management and rapid resolution of disputes and conflicts. The projects are not just another task to assist a company in its survival; these ventures are understood as organizational mechanisms to increase competitiveness, the acquisition of market share and the creation of value for consumers.

The manager with constant communication characteristic during a project can benefit from the good development of a project. A study carried out in 2014 by Davis; found that projects in which the manager character had an aspect of constant communication with stakeholders throughout the development of the venture were successful. On the other hand, projects in which such character had less involvement and poor communication had unsuccessful results.

Alias et al. (2014), describe that a successful project manager must have a great deal of versatility, being (depending on the situation of the venture) rigid and other times malleable, prudent and communicative. Communication is one of the most important tools for keeping a project on the right track and correcting drifts as soon as possible between the interested parties. In order for the project to evolve successfully, it is essential to determine what will be considered as critical success, this must occur at the beginning of the new project and, if

necessary, adapt as the challenges arise.

Todorovic et al. (2015) states that, to be able to manage something, it is necessary to have a method to measure the variables in question, in case of new ventures; a connection must be established between the critical factors of success and the checking of the success of the Project.

Success depends on the control of what is initially proposed; for such control the project manager uses the Key Performance Indicators (KPI). This instrument's basic function is to monitor the venture being implemented and to help in making important decisions so that the project does not deviate from the objectives initially proposed with the interested parties.

According to Todorovic et al. (2015) one of the biggest challenges of the project managers is the issues guided in which the measures can guarantee the success of the venture for the interested parties. Depending on the project phase, the chosen KPIs must have different weights to meet the demands of internal customers. It is recommended to independently analyze each indicator and the level initially proposed, once this can negatively influence the project.

Stakeholders will often have conflicting goals and visions with each other, and this can end up making it difficult to build an alliance that is appealing to all interested parties. However, the different views, when well managed, can help increase the quality of the venture (which can translate into future projects for the company), which usually lead to positive implications, such as increased revenue and profit (Haverila et al., 2016).

According to Jiang et al. (2009), due to the different perceptions of stakeholders, it is crucial that the project manager provides continuous communication and mechanisms to improve and strengthen the relationship between the project and the representative of each category (interested party) aiming at a better agreement for both parties.

Mishra (2017) points out that a possible way for the venture to bring good results is guided by the management of projects where the necessities and the desires of the customers are previously seen. However, when negotiating what will be delivered, the project manager must be careful not to create an excessive or even utopian expectation of what is being built; for the success of the project it is crucial that the real performance and expectations of the interested parties are taken into account. When going beyond what the customer waits, the project manager satisfies the customer, however this can become more onerous and the project costs may exceed the initially stipulated. Therefore, this can become a problem; on the other hand, if the project manager is not able to meet expectations, it can lead to a loss of trust or even a loss of potential customers. As can be observed, in both cases the manager will have problems with the project, so the best way out described by the author is to establish realistic expectations, to create goals and follow-up, to involve the stakeholders in the project, to create periodic status reports, keeping the team up to date and communicating the milestones achieved.

An important point in the project management challenge is the creation of methods to help meet the different perspectives of stakeholders. The study found that the socialization between teams is a good option for the employees to start turning perspectives more homogeneous (Andersen, 2016).

3. Methodology

The research was developed by means of a methodological structure composed from a theoretical and an empirical strand, these strands are complementary and end up relating to answer the research question as proposed by Araujo (2011).

The theoretical strand is supported by means of literature reviews to present a theoretical foundation on the

essential topics covered. The comments on the quality in projects base the research methodology proposal that was applied to guide the advance of the empirical strand.

This way, a systematic survey of literature results from the consultation to journals available in the databases Web of Science, Scopus (Elsevier) and Scielo was carried through.

The empirical strand, based on the developed methodology, mentions the identification, collection and analysis of the data of a company in the pneumatic segment to be surveyed in this study. In this source, the confrontation of information surveyed, the interviews, the application and analysis of questionnaire is made.

A script for interview with the staff of Projects and Production was developed to guide the interviews (with semi structured application). It should be clarified that the questions were prepared by reconciling the research objectives with the literature that supports the discussion, previously analyzed in the theoretical review.

In order to carry out the interview, the staff from the above mentioned sectors were individually approached and taken to a separate room for the questionnaire (thus minimizing external influences during the interview). It is also worth noting that the interview took place in a private company in the pneumatic sector, located in the State of Rio de Janeiro.

4. Results

Both in theoretical and empirical research, the need for stakeholder participation in the implementation of new ventures was found. From this, verification was carried out, with the maintenance and production agents, seeking the main attributes and actions that could stimulate the participation of the interested parties in new projects. Figure 1 systematizes the main points that encourage the participation of stakeholders in new projects.



Figure 1 Actions to Encourage Participation in Projects

In literature, it was also verified that the participation of the internal partners in new projects is important for the project quality, therefore, an analysis of the reasons by which the participation is perceived as an improvement in the quality of new projects was also carried through. This analysis was intended to elucidate the attributes that contribute to the perception of improvement in projects with the participation of the stakeholders. Figure 2 reveals the main findings of the research.



Figure 2 Perception of Project Improvement With the Participation of Stakeholders

Figure 3 shows the perceptions of the sectors studied in this research, regarding the main factors responsible for increasing the quality of new projects. The study reveals that the converging points were the "training of those involved" and the "anticipation/correction of deviations".

Theoretical research indicated that leadership has an influence on the quality of the projects delivered, so this issue was considered in the empirical research and the result found can be seen in Figure 4. It is possible to infer that over 80% of respondents considered that the company's leadership can influence the quality of projects. An analysis was also carried out in relation to the converging factors that leadership can influence in new projects in the maintenance and production sector. It was possible to verify that the converging factors in the aforementioned sectors were "Prioritization of resources" and "Focus", "Engagement" and "Targets".



Figure 3 Main Factors Responsible for Increasing Quality in New Projects



Figure 4 Influence of Company Leadership and Its Factors

In Figure 5, it is possible to observe that there was a convergence in relation to the perception of the main resources for the execution of a quality project. The resources mentioned in both groups studied were "Technology", "Greater time for Project execution", "Finance", "Good planning" and "Project team expertise".

For the maintenance sector, the attribute that stood out was the "Project team expertise", this may have occurred due to this area considering the accumulation of experience of project collaborators as a fundamental point for the success of new projects. For the production sector, the attributes "good planning" and "finance" were the ones that stood out for the execution of a quality project.



Figure 5 Main Resources Needed To Execute a Quality Project

Figure 6 elucidates the findings of the present research, the convergent factors of the areas studied for a new venture.

In the present study, it was observed that in both sectors the attribute "Functionality" was the most prominent, followed by "Delivery of the Agreed" of the project. These attributes can be assigned to the direct action of these sectors on the equipment after its installation.



Figure 6 Perception of Quality in a New Delivered Project

4. Conclusion

The highlights that could be observed from this study are the converging points of the maintenance and production areas. In the actions to stimulate the participation in projects where it was possible to identify the attributes "Detailed project information" and "Financial recognition", this can be explained by the need of deepened clarifications on the technical benefits, associated to the implemented project and a greater responsibility with the introduction of new projects.

Regarding the participation of the staff, who will use new projects that are being implemented, it was observed that the performance of these people in the new ventures is interpreted positively, in addition, it was verified, in both areas, the perception of a better performance, a leveling of the project knowledge and also a greater commitment of the team with their participation.

In relation to the main factors responsible for the increase of the quality in new projects, the study demonstrates that the observed areas had converged in the attributes "training of the involved" and the "anticipation/correction of deviations".

The study also demonstrates that the areas studied have the perception that the company's leadership influences the quality of the projects, with the prioritization of resources, focus, engagement and goals, as their points of influence on the project.

The main necessary resources for the execution of a quality project, according to the areas studied, are guided by the expertise of the project team, good planning, enough financial resource for the venture, greater time for the implementation of the project and technology that meets the presented necessity.

The study showed that the perception of quality in a delivered project, according to the production and maintenance area, converged in relation to the project's functionality and the delivery of the agreed.

Therefore, the research was able to answer the initially proposed issue, once the perceptions of the maintenance and production areas were presented and analyzed regarding the quality of the delivered project.

The present study is limited to only one large pneumatic company as a reference for researching the perceptions in the area of maintenance and production. Therefore, all employees who participated in the survey have an effective employment relationship with this organization.

It is suggested that similar studies are carried through in other companies of the pneumatic sector and also in other organizations of different performance areas, with the intention of identifying potentials divergences between organizations or even between sectors.

Acknowledgments

This article was produced with the authorization of the interviewees for the purposes of scientific production.

References

- Alias Z. et al. (2014). "Determining critical success factors of project management practice: A conceptual framework", *Procedia Social and Behavioral Sciences*, Vol. 153, pp. 61-69.
- Andersen E. S. (2016). "Do project managers have different perspectives on project management?", *International Journal of Project Management*, Vol. 34, No. 1, pp. 58-65.
- Araujo F. O. (2011). "Proposta metodológica para análise de Sistemas Setoriais de Inovação: Aplicação na indústria Brasileira de construção naval", *Tese (Doutorado em Engenharia de Produção)*. Rio de Janeiro: PUC-Rio.

Bértholo J. (2013). "The shadow in project management", Procedia - Social and Behavioral Sciences, Vol. 74, pp. 358-368.

- Davis K. (2014). "Different stakeholder groups and their perceptions of project success", International Journal of Project Management, Vol. 32, No. 2, pp. 189-201.
- Davis K. (2017). "An empirical investigation into different stakeholder groups perception of project success", *International Journal of Project Management*, Vol. 35, No. 4, pp. 604-617.

Fernandes G. et al. (2014). "Perceptions of different stakeholders on improving and embedding project management practice in organizations", *Procedia Technology*, Vol. 16, pp. 957-966.

- Gomes J. and Romão M. (2016). "Improving project success: A case study using benefits and project management", Procedia Computer Science, Vol. 100, pp. 489-497.
- Hartono B. et al. (2014). "Project risk: Theoretical concepts and stakeholders' perspectives", International Journal of Project Management, Vol. 32, No. 3, pp. 400-411.
- Haverila M. J. and Fehr K. (2016). "The impact of product superiority on customer satisfaction in project management", *International Journal of Project Management*, Vol. 34, No. 4, pp. 570-583.

- Jiang J. J. et al. (2009). "The relation of requirements uncertainty and stakeholder perception gaps to project management performance", *Journal of Systems and Software*, Vol. 82, No. 5, pp. 801-808.
- Kerzner H. (2017). Gestão de projetos as melhores práticas (3° edição), Editora: Bookman.
- Lam S. Y. et al. (2004). "Customer value, satisfaction, loyalty, and switching costs: An illustration from a business-to-business service context", *Journal of the Academy of Marketing Science*, Vol. 32, No. 3, pp. 293-311.
- Mazur A. et al. (2014). "Rating defence major project success: The role of personal attributes and stakeholder relationships", *International Journal of Project Management*, Vol. 32, No. 6, pp. 944-957.
- Mishra K. D. (2017) "Challenges and transforming technique in customer satisfaction-A case study of project expectation management in its industries", *International Journal of Mechanical and Production Engineering Research and Development*, Vol. 7, No. 5, pp. 411-422.
- Toor S. R. and Ogunlana S. O. (2010). "Beyond the 'iron triangle': Stakeholder perception of key performance indicators (KPIs) for large-scale public sector development projects", *International Journal of Project Management*, Vol. 28, No. 3, pp. 228-236.
- Yang J. et al. (2011). "Stakeholder management in construction: An empirical study to address research gaps in previous studies", International Journal of Project Management, Vol. 29, No. 7, pp. 900-910.