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The influence that project management has on the performance of projects to implement procedural improvements: a multiple case study

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RESUMO

Objetivo - O gerenciamento de projetos está bem estabelecido na literatura como uma metodologia útil para o planejamento, organização e monitoramento de projetos a fim de garantir sua conclusão. Projetos de melhoria são iniciativas internas de uma organização que podem ter origem em diferentes fontes, especialmente a partir da busca de melhorias contínuas e podem obter melhores resultados por meio do gerenciamento de projetos que é o que esta pesquisa busca avaliar.
Quadro teórico - Neste contexto, a pesquisa procurará entender quais são os benefícios e influências do Gerenciamento de Projetos quando aplicado a estes tipos de projetos, utilizando como método de pesquisa um estudo de caso múltiplo em duas empresas, em unidades no Brasil e nos Estados Unidos, nas quais foram realizadas entrevistas com profissionais diretamente envolvidos em projetos de melhoria dentro da organização.
Design/método/abordagem - Os dados das entrevistas gravadas foram transcritos, organizados, agrupados, comparados e analisados e as discussões e resultados são apresentados no presente estudo.
Conclusões - As conclusões relevantes são que o Gerenciamento de Projetos, à princípio, fornece às empresas orientações sobre como planejar seus projetos de melhoria para melhor executá-los, mas nenhuma das empresas analisadas mostrou adoção homogênea.
Implicações teóricas, práticas e sociais - Algumas das limitações encontradas no presente estudo são que apenas duas empresas de ramos específicos foram analisadas.
Originalidade/valor - Este artigo procurará investigar qual é a influência da aplicação da metodologia de gerenciamento de projetos na realização de projetos de melhoria de procedimentos, desde sua definição, até seu planejamento, execução e observação dos resultados decorrentes da prática.
Palavras-chave - Gerenciamento de projetos. Desempenho. Resultados. Processos. Projetos de melhoria.

ABSTRACT

Purpose *- Project management is well established in the literature as a useful methodology for planning, organizing and monitoring projects to ensure their completion. Improvement projects are internal initiatives within an organization that can originate from different sources, especially from searching for continuous improvement and to obtain better results through project management, which this study aims to evaluate.*
Theoretical framework *- Within this context, the research will seek to understand the benefits and influences of Project Management when applied to these types of projects, using, as a research method, a multiple case study in two companies, in units in Brazil and the United States, where interviews were carried out with professionals directly involved with improvement projects within the organization.*
Design/methodology/approach *- The data from the recorded interviews were transcribed, organized, grouped, compared and analyzed and the discussions and results are shown in the present study.*
Findings *- Relevant findings show that, initially, Project Management provides companies with guidance on how to plan their improvement projects to improve their execution, but none of the companies analyzed showed homogeneous adoption.*
Research, Practical & Social implications *- The present study showed some limitations in that only two companies from specific industries were analyzed.*
Originality/value *- This article will seek to investigate the influence that project management methodology has on the performance of procedural improvement projects, from defining it, planning it, executing it and the observation of the results from using this methodology.*
Keywords *- Project management. Performance. Results. Processes. Improvement projects.*

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1. INTRODUCTION

Project failures cause financial loss to organizations. In addition, they can play a key role in planning and monitoring future projects to ensure the long-term success of any organization implementing and sustaining improvement project initiatives such as Kaizen, Lean, Six Sigma or LSS (ANTONY *et al*., 2019).

This article will seek to investigate whether there is and, if so, what is the influence of the application of the project management methodology on the performance of procedural improvement projects, from its definition, to its planning, execution and observation of the results arising from the practice with a qualitative approach.

Research on the impact of Project Management on the success of organizations is observed in the literature (PATAH; CARVALHO, 2016; IKA, 2009). In these studies, in several points it is demonstrated that the application of Project Management, according to PMBoK, positively influences the results of projects, in the situations that were analyzed by the authors. In addition to these studies, the main objective of this study is to demonstrate how the use of Project Management can contribute to the results of improvement projects based on cost, time, quality, among others.

The article will seek to contribute to the academic literature, since the value metric related to the Project Management methodology does not have enough answers and results (PATAH; CARVALHO, 2016; IKA, 2009; THOMAS; MULLALY, 2008; REPISO *et al*., 2007). Currently, project management is conceptually well developed and well introduced to the market as a good practice for organizations (PATAH; CARVALHO, 2009).

However, thinking about how to demonstrate the results from the use of this methodology in organizations, more specifically in their projects of procedural improvement, the research question that will guide this article will be: *How does Application Project Management influence the performance of improvement projects?*

Therefore, from the cases analyzed through a case study, the aim is to expose the results that can be achieved through the application of Project Management in procedural improvement projects developed by the analyzed companies. In order for the benefits to be observed with the adoption of the Project Management methodology in improvement projects, we analyzed academic papers with ideas of old and new authors, which were analyzed and crossed, as well as a multiple case study (YIN, 2010).

To better explore the proposed theme and verify the influence on the performance of these projects in the environment of companies and different projects (unit of analysis) within these organizations.

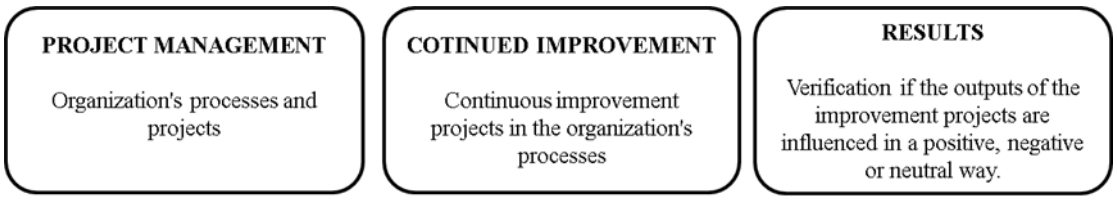
This article is divided into four chapters, which after the introductory part are initially presented as the factors of a good Project Management methodology, as provided in the PMBoK Guide (PMI, 2017) and the available academic literature. In the third chapter it will be presented the methodology of applied research, which explains how the field study will be analyzed. In the fourth chapter it exposes the case study conducted, we will also cover the comparison between ideal and problematic scenarios relevant to the theme, as well as the results achieved from the interviews and research in the field and their respective analysis. The fifth and final chapter shows the final conclusions, limitations of research and recommendations for future research.

2. THEORETICAL FOUNDATION

In this chapter, the literature review is presented based on the analyzed articles that were used to guide and support the researched theme.

Project management, continuous improvement projects and what is considered success and critical success factors for the application of the methodology were analyzed for structuring the research, and the formulation of the data collection instrument to answer the research question proposed by the authors. The three pillars analyzed are illustrated in Figure 1 below:

Figure 1 - Search-related topics



Source: Developed by the authors.

2.1 Improvement projects

Due to the competitiveness of today's times companies have been facing new challenges that result in the need for improvement, which has become indispensable to overcome challenges and achieve and maintain competitive advantage (ANTONY; GUPTA, 2019). The improvement projects within an organization are those that aim to improve something already existing and with potential for change to become faster, have a lower cost, bring better quality to its end goal, among others.

According to authors Aleu and Aken (2016) are examples of common types of projects of continuous improvement kaizen events, Six Sigma projects and Lean Six Sigma projects. During the implementation of quality improvement projects, dedicated team participants need to be specialists in quality and process improvement methodologies, thus focusing on reducing oscillations, standardizing processes and improving results (DAWSON, 2019). By strengthening the applicability of traditional project management in improvement projects within organizations, it is possible to affirm that process improvement initiatives (such as Lean, Six Sigma and Lean Six Sigma) usually have common characteristics that are carried out in projects (ANTONY *et al*., 2019).

2.2 Success criteria in project management

Management has an important role in monitoring projects throughout their life cycle, ensuring the sustainability of results (ANTONY *et al*., 2019). This being one of the secrets to success (EASTON, 2011). Project management provides organizations with the means to be efficient, effective, and competitive in a changing, complex and unpredictable environment (IKA, 2009). One of the most important roles of project management is the guarantee of their success (JHA; IYER, 2006).

However, apparently the definition in determining whether a project is a success or a failure from project management can be ambiguous (BELASSI; TUKEL, 1996), because there are literary statements describing that success from project management can be detected in different ways, for example, project managers can often describe cases of "successful" projects that have been poorly received by intended customers and used well below capacity.

There are still other examples of projects that, when first installed, were initially perceived as failures, but over time came to be important successes (PINTO; SLEVEN, 1988).

The distinction between the success of project management and that of its product and/or service is also an important issue in the successful literature of the project emphasized by several authors (CARVALHO; PATAH; BIDO, 2015).

Ika (2009), for example, cites that a differentiation between "project management success" and "project success" is needed. The success of the project has been considered the ability to fall within the constraints of time, cost and quality. While management is analyzed by other guidelines.

Patah and Carvalho (2016) explain in their research that in general agreement that success in projects is multidimensional and that different people measure the success of projects in different ways at different times. Being that, success in projects is usually defined as meeting the objectives of time, cost and quality, satisfying the stakeholders of the project (PATAH; OAK, 2016). Another very objective description of the literature is that success in any project is determined by how well the project contributes to achieving the strategic objectives of the organization (effectiveness) and not only how well the project was conducted (efficiency) (KENNY, 2003).

It is also necessary to consider that project managers can see the realization of a certain success in a project such as the control of certain risks (JIANG; KLEIN, 1999). For Silva and Gil (2013) the success of project management, in turn, can only be achieved from the moment a culture that promotes the behavior aimed at success is consolidated.

In any case, it is up to the project management to identify the groups involved, to know their needs and expectations and then to manage and influence these expectations in order to ensure the success of the project (SILVA; GIL, 2013).

Pinto and Sleven (1988), in turn, express that it makes sense that precise measures of project success be developed if we want to better analyze the performance of project management. In view of this, analyzing the success (performance) of the implementation of strategies and projects is a fundamental activity to be performed by management processes (DUQUE; PELISSARI, 2010).

One suggestion to analyze the performance of the project is through the implementation of control indicators, continuous monitoring points (PMI; 2017) is controlling

the work, integration of changes, scope, costs, quality, communication, risks, acquisitions and stakeholder engagement.

2.3 Critical success factors

The success of the project is traditionally associated with the fulfillment of the objectives of time, cost and quality (the iron triangle) (CARVALHO; PATAH; BIDO, 2015).

Almeida (2011) contextualizes that critical success factors are items that need to be present in order for success to be more likely to be achieved and metrics are effectively related to the process, being fundamental to measure whether success has been achieved or not.

Identifying correctly, critical factors in the business is one of the first steps to good planning. It is essential not only for the determination of the information necessary for the correct management, but also to prioritize the criteria for analyzing the results (TANAKA; MUNIZ; NETO, 2012). Metrics bring consistency and formality to project management. With metrics, important design decisions can be made based on information (PATAH; OAK, 2016).

In the research conducted by Morioka and Carvalho (2011) the authors propose, in order to facilitate the understanding of critical success factors presented in the literature, a classification in five dimensions of critical success factors: planning and control, nature of the project, human resources, stakeholders and environment external to the project.

According to Pereira and Varajão (2016), the project management success factors identified include: definition of a communication plan; definition of metrics to measure performance; implementation project planning; time management; quality management; cost management; integration management; scope management; human resources management; acquisition management; and, finally, risk management.

Table 1 - Main pillars and definitions of the research

Analysis Themes	Concepts	References
REASONS FOR IMPROVEMENT PROJECTS TO FAIL	Lack of commitment and support from senior management; Poor communication practices; Incompetent teams; Inadequate training and learning; Incorrect selection of process improvement methodology and its associated tools/techniques; Inadequate rewards and recognition system/culture; Opportunism; Size and composition of the team below ideal; Inconsistent monitoring and control (lack of specialized supervision); Resistance to change (partial cooperation of employees).	Antony et al. (2003)
CRITICAL SUCCESS FACTORS	Culture focused on continued improvement; Organizational structure; Transformational leadership; Technology Support; Expert persons involved; Training; Teamwork; Performance measurement; Benchmarking.	Gunasekera & Chong (2018)
SUCCESS	Within the assigned period; Within the budgeted cost; At the correct level of performance or specification; With acceptance by customer / user; with minimum or mutually agreed changes of scope; Without disturbing the organization's primary workflow; Without changing the corporate culture.	Kerzner (2003)

Source: Prepared by the authors.

Project Management is known as a methodology that assists in project management, providing a better organization. Within this context, it is possible to affirm that its applicability in improvement projects can be useful because it allows the engaged team to organize, better define the objectives, follow up with greater clarity and transparency and have the visibility of the results for the implementation of new improvements in the future. Table 2 below is the main articles analyzed and that compose the objectives, theoretical basis of this research:

Table 2 - Main pillars and definitions of the research

Article	Year	Goal	Future Work
A study into the reasons for process improvement project failures: results from a pilot survey	2019	The aim of this article is to present the results of a pilot research highlighting the most common reasons for failures in process improvement projects.	The authors suggest exploring further whether there are any perceived differences in project failure rates between manufacturing and service companies that have adopted process improvement methodologies such as Lean and Six Sigma.
A Practical Guide to Performance Improvement: Tools and Tips to Sustain and Control Project Improvements	2019	This article discusses some of the tools and tips for sustaining performance improvement and explores some of the reasons PI projects may fail (DAWSON, 2019).	The article makes use of quality tools for applying improvements and control of improvement projects but lacks to explore an improvement project to treat it as a project based on project management.
Systematic literature review of critical success factors for continuous improvement projects	2015	The aim of this article is to synthesize and analyze the published literature on critical success factors for continuous improvement projects (CIPs) (ALEU; AKEN, 2016).	Additional future empirical research should be carried out to investigate the relationship between Success factors and success of continued improvement projects.

Source: Prepared by the authors.

Following, mainly the suggestion of Antony *et al*. (2019) the research will seek to expand the data already analyzed on the motivation of possible failures in the projects, investigating whether project management can be useful, having influence on the results of improvement projects after their application.

3. METHODOLOGICAL PROCEDURES

In order to achieve the objective of the research, based on a multiple case study, a field research will be carried out, where information will be collected through the selection of samples from different projects of an organization. The information extracted will be analyzed, respectively, a comparison will be made of the stages of the different projects, from their beginning to their end, which will have their results analyzed and the discussions will be presented, as well as the conclusions of the study.

Following some of Yin's (2010) suggestions, which suggests that data collection be performed in different scenarios and samples, in order to enrich the research, we sought, *a priori*,to analyze the three main variables of a project that are: time, cost, quality, among

others. From this, these points of the execution processes of different projects were compared, which in turn were completed following the PMBOK Guide (PMI, 2017), or not and thus making visible the benefits that could be obtained with the application of the Project Management methodology through evidence/evidence.

The research followed the steps highlighted in Figure 3 below:

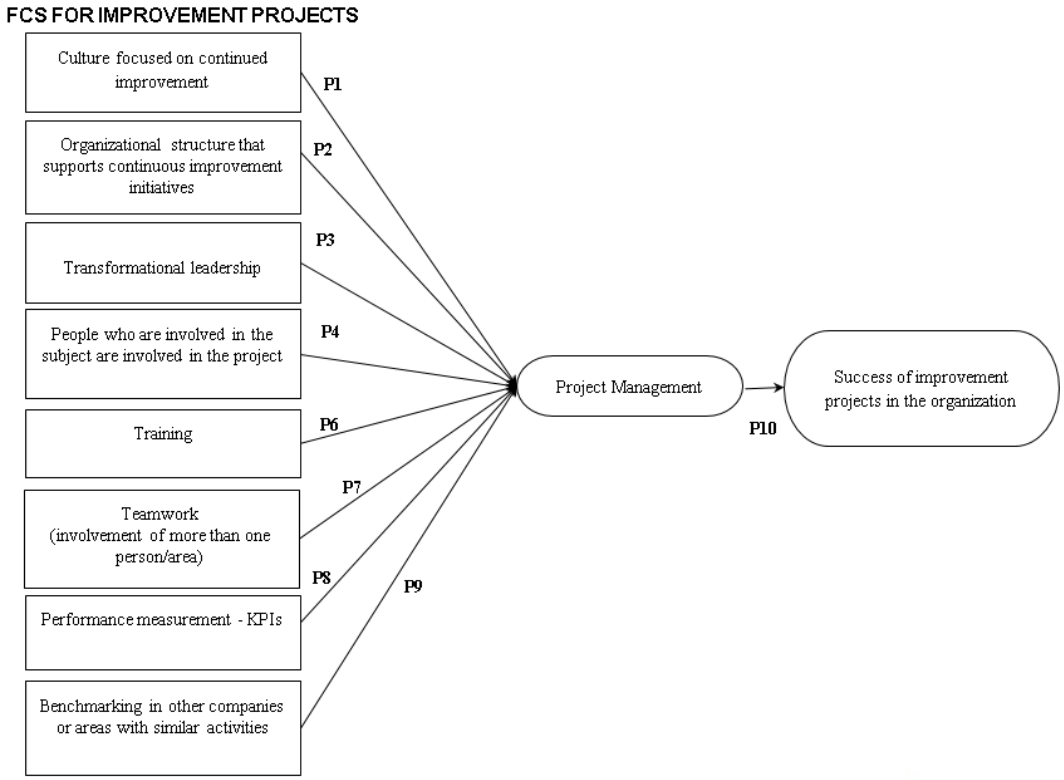
Figure 2 - Research steps

Source: Developed by the authors.

The research has a qualitative approach analyzing the data collected during the interviews, based on the opinion and perception of professionals directly linked to improvement projects in the organizations that were available to participate in the research.

To elaborate the questionnaire, initially, the information exposed by different authors in the literature review was analyzed. These statements were transformed into propositions to be tested from the application of the questionnaire in the field. Figure 3 illustrates the propositions and the suggested relationship between them:

Figure 3 - Model of research propositions



Source: Developed by the authors.

3.1 Case selection

For the selection of a specific company, the first criterion of choice applied was for the company to carry out improvement projects, making it possible to answer the research question of this article.

After that, companies were chosen in which the authors had easy access to conduct interviews with professionals working in the investigated area and who could respond and contribute with detailed answers about the analysis units (improvement projects).

3.1.1 Selection criteria for the case and for the respondents.

The cases were investigated in two companies of different follow-ups. The selected companies have the realization of improvement projects in their daily lives and are recognized by employees, and project management and quality promotion are part of their values.

Company A is a Brazilian company, manufacturer of products of high complexity. It has more than 18,000 employees around the world and has already been recognized for winning PNQ (National Quality Award) awards, in addition the company has a culture focused on Lean, with the area responsible for implementing the methodology/culture in the organization, thus becoming an environment conducive to research on the theme improvement projects. Employees of the organization allocated to the Units of Brazil and the USA were interviewed.

Company B is a Germany company, a world leader in its segment, with a turnover of billions of dollars a year. In addition, the company is recognized for having Lean Six Sigma specialists in its professional processes.

Were selected professionals who work directly with improvement projects in their day-to-day within the organization, with the objective to achieve responses on the behavior of improvement projects and the implementation of these project management. Table 3 below provides a summary of the profiles and characteristics of each company, as well as additional information on the format of the interviews conducted:

Table 3 - Identification and profile of interviewees

ID	Case	Profile	Characteristic	Interview
GC_{A1}	Company A	Computer Engineer	Has worked in the company's improvement area as a Consultant of Excellence for 4 years, has a high involvement with improvement projects in several areas, providing consultancy / mentoring. Is allocated in Brazil.	28 minutes / online / recorded and transcribed
GC_{A2}	Company A	Public Relations, Post-Graduation in Administration and Business Intelligence and courses related to Kaizens and quality	Business Development Analyst works on specific improvement projects for the area that works within the organization. Has 4 years in the current area and 7 years in the company. I s allocated in Brazil, but the team that works is spread in different countries.	35 minutes / online / recorded and transcribed
GC_{A3}	Company B	Biomedic	Quality Management Analyst, with 9 months in the company. Graduation and improvement courses (LSS Black Belt, Internal Auditor, ISO, Service Design, SCM, etc.). The employee is allocated in Brazil.	42 minutes / online / recorded and transcribed

ID	Case	Profile	Characteristic	Interview
GC_{A4}	Company B	Business Administration	Global Manager of production technology and supply innovation, with 2 years of company, has a high involvement in improvement projects within the organization, with extensive experience in the area. Is in the company's unit in the USA.	99 minutes / online / recorded and transcribed
GC_{A5}	Company B	Master of Science and bachelor's degree in Biological Sciences.	Global quality control manager for seeds for 1.5 years. Experience in leadership of people. Training on Quality management requirements and standards. It is in the company's unit in the USA.	44 minutes / online / recorded and transcribed
GC_{A6}	Company A	Bachelor, Master and PhD in Production Engineering	Business Excellence Supervisor for over 2 years. High involvement with improvement projects developed within the organization. He works at the company's unit in Brazil.	17 minutes / online / recorded and transcribed
GC_{A7}	Company A	Engineer	Lean consultant with over 10 years of experience in improvement projects. Is allocated in the company's unit in the USA.	29 minutes / online / recorded and transcribed
GC_{A8}	Company A	Engineer	Senior Lean Consultant, with more than 17 years of experience. It is allocated at the company's unit in Brazil.	38 minutes / online / recorded and transcribed
GC_{A9}	Company A	Engineer and bachelor's degree in business administration	Lean Expert, 12 years old and working in this area of the company. It is allocated in Brazil.	23 minutes / online / recorded and transcribed

Source: Developed by the authors.

3.2 Development of the interview questionnaire

For data collection a questionnaire was elaborated composed of semi-structured questions that was used as an instrument of collection. The questions were formulated based on the theoretical reference analyzed by the authors who initially were the basis for the creation of the research proposals and secondarily transformed into questions.

Comprised of 36 questions, the form contains questions formed to check from the existence of improvement projects, to application of critical success factors in projects, applied project management tools, strengths and weaknesses in the way improvement projects are managed within these organizations and at the end it was verified whether any influence of project management in the analyzed units is noticeable.

Some of the questions were adapted from the articles analyzed and others created to test proposals identified in the theoretical framework. The research instrument used, with the questions applied in the field, is shown in Table 4, below:

Table 4 - Research instrument

ID	Propositions	Questions	References
EPM01 EPM02 EPM03	The company has in its routine Improvement Projects	Does the company have projects to improve its routine? If so, please cite examples? What are the most common origins of improvement projects (Examples: *Kaizens*, *Six Sigma*, *Lean*, etc.)? Does the company adopt an incisive or incentive stance to explore potential opportunities for improvement? if so, in what way?	Antony *et al.* (2019); Gunasekera and Chong (2018) and Aleu and Aken (2015)
CVM01	Culture focused on continuous improvement	Does the company have a culture focused on continuous improvement?	Antony *et al.* (2019); Gunasekera and Chong (2018)
EOA01	Organizational structure that supports continuous improvement initiatives	Does the company have an organizational structure that supports continuous improvement initiatives?	Antony *et al.* (2019); Gunasekera and Chong (2018) and Marzagão and Carvalho (2016b)
ELT01 ELT02 ELT03 ELT04 ELT05 ELT06 ELT07 ELT08 ELT09 ELT10 ELT11 ELT12	Transformational leadership	Does the company have an innovative leadership (which proposes a creative solution to problems, adapts and encourages questioning of the premises)? How does it work? Does leadership have decision-making power, influence, and autonomy over improvement projects? Do leaders act as facilitators (managing conflicts, participating in decisions about what to do and how)? Does the leadership guide the team on what are the best paths to be followed during improvement projects? Is there a control / coordination of the activities and budget of these projects? Does the leadership have a clear view of the project information? Is a critical validation analysis carried out? Is it possible to see if the project was efficient compared to other results, in what way? Are the project objectives clear? Does leadership influence or comment on goals in any way? Does the company have a clear and positive vision	Antony *et al.* (2019); Gunasekera and Chong (2018); Marzagão and Carvalho (2016b) and Carless; Wearing and Mann (2000)

ID	Propositions	Questions	References
		about the future? How do you believe these influences improvement projects? Does it treat employees as individuals, support and encourage their development? Does leadership provide an environment of recognition for the team that worked on the improvement project? If so, how is this recognition done? Does leadership promote trust, involvement, and cooperation among team members? Is leadership clear about its values and practice what it preaches? Furthermore, does she inspire pride and respect in others and inspire me by being highly competent?	
ET01 ET02 ET03	Training	Do company employees receive training on improvement projects and quality tools? How many hours on average does each training have? What methodology is used to apply these trainings?	Antony *et al.* (2019) and Gunasekera and Chong (2018)
TE01	Teamwork (involving more than one person / area)	Are improvement projects involved in more than one person in the area? How do they participate in the project?	Antony *et al.* (2019) and Gunasekera and Chong (2018)
PSP01 PSP02 PSP03 PSP04	Perception of Project Success	Does the company have KPIs (Key Performance Indicator)? Are there KPIs related to improvement projects? Is it checked whether improvement projects produce benefits in the short, medium or long term? In what way? Is it checked whether the project's expectations have been met or exceeded? Is it verified whether the financial results or strategic impact were significant in the projects? if so, in what way?	Antony *et al.* (2019); Gunasekera and Chong (2018); Marzagão and Carvalho (2016a)
EB01	Benchmarking in other companies or areas with similar activities	Does the company benchmark other companies or areas to establish improvement projects?	Gunasekera and Chong (2018)
GP01 GP02 GP02 GP04 GP05 GP06 GP07 GP08	Project management	Do the improvement projects have an opening term, well-defined scope, planning, schedule, budget, monitoring and disclosure to those involved after its closure? If so, how is it done? In your opinion, are the projects sufficiently well planned? Because? Are projects normally led by a full-time *Six Sigma* leader? Does the sponsor / principal interested in the improvement project fully support the development of the project? if so, in what way? Do managers support and allocate resources to	Antony et al. (2019); Gunasekera and Chong (2018); Marzagão and Carvalho (2016a); Kerzner (2003)

ID	Propositions	Questions	References
GP09		conduct improvement projects? The project leader receives complete education and training Nephew design and *Lean Six Sigma*? What in your opinion could be improved in the management of improvement projects within the organization? Finally, what are the strengths of project management within the organization?	

Source: Developed by the authors.

3.3 Data collection and analysis

The main instrument of data collection will be the application of the form of semi-structured questions during the interviews.

The interviews carried out were divided into three parts, the first was the identification of the company, the second was the characterization of the interviewees, and the third and last was the application of the questionnaire in field interviews.

The results of the recorded interviews were transcribed and analyzed with the support of the NVIVO® 13 and Microsoft Excel® software. Nine professionals directly linked to the improvement projects carried out and at different hierarchical levels were interviewed. The answers of the interviews brought relevant results, as summarized in Table 5 below:

Table 5 - Summary of the results of the interviews

Feature		Summary of responses	
Propositions	**ID**	**Company 1**	**Company 2**
The company has in its routine Improvement Projects	EPM01 EPM02 EPM03	There are, originated from *Kaizens*, 5S, Strategic Projects (*bottom u*p or *top down*), Obeyas, PDCA, VSMs and quality clinics.	PDCA and *Lean Six Sigma* (Cost Reduction / Production Increase).
Culture focused on continuous improvement	CVM01	The company has a dedicated area for improvement projects, guidance, and training for all company employees. Some of the interviewees believe that this culture is partial because some employees are still resistant to improvement projects. However, in other matters, difficulties in cultural standardization about improvement projects due to local culture and geographical distance were reported.	The company has employees dedicated to improvement projects and who provide training for the entire company. These professionals have specialization, mainly, in *Six Sigma*.

Feature		Summary of responses	
Propositions	**ID**	**Company 1**	**Company 2**
Organizational structure that supports continuous improvement initiatives	EOA01	Improvement projects, in most cases, follow strategic guidelines. The company's CEO is a great supporter of the Lean methodology.	In most cases, yes, but the interviewees say that they perceive that there is no linearity between the leaders.
Transformational leadership	ELT01 ELT02 ELT03 ELT04 ELT05 ELT06 ELT07 ELT08 ELT09 ELT10 ELT11 ELT12	The responses were not unanimous. There is an incentive from the leadership to question processes, implement improvements, monitor improvement projects, listen to the voice of *stakeholders* , an environment of recognition through gifts, but it is reported that, in some cases, there is still a lack of greater acceptance of constructive criticism and closer involvement of some leaders in improvement projects.	Respondents perceive an incentive for improvement projects through the training they receive and a great openness to suggestions from team members, but they feel that in some cases the leaders are pushed and not pulled and there is an attitude of putting out fire instead of actions with advance and planning.
Training	ET01 ET02 ET03	Yes, there are trainings, mainly aimed at *Kaizens.* These trainings address the organization of improvement projects, but in the *Kaizen* format. The training has varied durations depending on the end. The company also adopts the 10-20-70 methodology. The face-to-face / online question is also variable depending on the need of the company or the improvement project.	The training is given by professionals, usually, who have *Six Sigma / belt* certificates. The training sessions have different durations and can take place in person or online, as it is more convenient for the team.
Teamwork (involving more than one person / area)	TE01	Respondents report that professionals from the area and even from other areas are involved so that people can contribute with suggestions for improvement from an external perspective. Respondents report that there is a difficulty in the issue of involving people in other units outside the host country or in smaller units, either because of the cultural issue or even because of the amount of resources and low diversification of local professionals.	The projects usually involve cross-functional teams, but there is still a lack of clear definition by the project leader about who are the key people for that project and seek to involve them.

Feature		Summary of responses	
Propositions	**ID**	**Company 1**	**Company 2**
Perception of Project Success	PSP01 PSP02 PSP03 PSP04	There are project and organization KPIs, usually related to each other. Quality professionals report, however, that despite there being financial control, there is no link and centralization of these KPIs, between the area of quality and controllership, for example, and this is something they are working on. In addition, the projects, in some cases, do not fully achieve the objective, only a percentage of what was initially agreed.	The areas control the results of the improvement projects, but there is still a lack of standardized control and management and dissemination of the results by the leadership. Some areas have internal controls and KPIs, designed and managed only by them.
Benchmarking in other companies or areas with similar activities	EB01	Partially the company performs benchmarking, it is not a rule. Some respondents report that in the past the number of benchmarking between areas or even the search for improvements in model companies in each process was higher.	The company does not perform benchmarking. One of the interviewees mentions that improvements have been observed and that they have worked in other areas, but nothing formal.
Project management	GP01 GP02 GP02 GP04 GP05 GP06 GP07 GP08 GP09	There is a dedicated area within the company for improvement projects, most of these professionals have expertise in Lean methodology. The projects follow in part a traditional project management but simplifying for the Kaizen model. A decentralization in the data is perceived, making it difficult to monitor the results. The issue of culture and standardization of processes also suffers from deviations due to issues from different locations. The Six Sigma methodology is not used in these projects at the option of the organization.	Quality professionals are specialized in Lean Six-Sigma. Project planning is done, but some respondents report that this is not enough, lacking formalization, standardization of templates, among others. In addition, it is reported that in some cases the team is focused on putting out fires and ends up not carrying out more robust planning. However, the projects are not accompanied by a specialist in Lean Six Sigma.

Source: Developed by the authors.

It is possible to observe, according to the answers obtained, analyzed and summarized above, that both companies have improvement projects and all professionals know and know how the process is within the organization (EPM01; EPM02 and EPM03). In addition, most of the projects have common sources, such as: Kaizens Project, Lean Six Sigma, Strategic Projects and PDCA.

Both companies demonstrate a culture of continuous improvement well established and rooted in their processes, although some employees or units do not fully accept its

application or follow the suggestions for good practices carried out by the areas responsible for quality and Lean / Six Sigma philosophy (CVM01).

Regarding the organizational structure, both companies declared during the interviews that there is a promotion of improvements originated from the leaders, which translates into a structure that supports the achievement of continuous improvement in organizations (EOA01)

Related to transformational leadership (ELT01; ELT02; ELT03; ELT04; ELT05; ELT06; ELT07; ELT08; ELT09; ELT10; ELT11; ELT12) in both companies it was possible to observe that there is the involvement of leadership in improvement projects, there is openness for suggestions and recognition, however some interviewees recognize that some points are not dealt with satisfactorily.

There is no unanimity on leadership and in both cases the interviewees mention points to be improved in order to achieve transformational leadership within organizations.

According to the interviewees, the companies provide enough training to employees (ET0; ET02 and ET03).

When asked about teamwork, they all claimed the participation of different members or stakeholders within the organization. They only reported a certain degree of difficulty in the involvement and participation of people in cases of units more distant from the headquarters (TE01).

About the success of the projects (PSP01, PSP02, PSP03 and PSP04). “Company A” reported that even if the improvement project does not reach 100% of its objective, it is considered a gain for the organization. However, on the other hand, it declared that they identified that some projects formulated by the areas could have more challenging goals.

A point of note is that in the question of KPIs (Key Performance Indicator), there is management in a decentralized way, which hinders the analysis and visibility by the leadership. In "Company B", the company describes that it follows the results, mainly in what remained as values or resources saved from the "saving" improvement projects.

In the interviews with “Company A” it was stated that the company has benchmarking practices (EB01) between areas, some formal cases and other more formal cases and that in the past this culture was stronger and that it would be interesting to be resumed, already in the as far as other companies are concerned, the practice was reduced and today the company is considered a model in quality management for external companies, as stated by one of the interviewees.

As shown in Table 5, project management (GP01; GP02; GP02; GP04; GP05; GP06; GP07; GP08 and GP09) is used within organizations, however its application in improvement projects is not applied in its entirety. Company A declares the use of some tools but declares that others are not applicable as it would make the process complex for simple projects.

On the other hand, one of the interviewees of "Company B" states that related to the theme: "there are essential definitions, they are mandatory criteria and projects cannot happen without these actions. There is a communication plan to publicize the projects". However, the other interviewees declare partial assistance, recognizing that there is no application of project management in all improvement projects.

At Company A, it is also stated that the projects, for the most part, are accompanied by a PMO (Project Management Officer) who is a specialist in Lean, who instructs the team on the tools to be used during the improvement projects and accompanies the project and your progress. At "Company", the interviewees declared that there was no Lean or Six Sigma consultant accompanying the implementation of improvement projects.

4. RESULTS AND DISCUSSIONS

The interviewees, unanimously, confirmed their participation in improvement projects. In general, they demonstrated knowledge about quality tools and declared to participate in improvement projects within the organization on a recurring basis in their day-to-day activities.

From the data collected, it is possible to observe that both companies have strengths and weaknesses both in terms of the management of continuous improvement projects and the application of traditional project management tools in these projects.

In Table 6 below, it is possible to observe which were the highlights reported by the interviewees, both positive and those to be improved according to the individual opinion of each employee:

Table 6 - Points highlighted the improvement of project management methodology within organizations

Main points	Company A	Company B
Strong	- Lean methodology; - Quality system and continuous improvement centralized in an area; - Strategic projects and results-oriented vision. - Well-structured improvement project system; - Sponsorship of senior leadership; - People's knowledge and deployment of strategies; - Monitoring of a KPO throughout the Kaizen processes; - Organization of improvement projects; and - Encouraging improvement processes.	- Organizational structure; - Will for change; - Internal resources; - Company does not limit ideas; - Give people space to explore new ideas; and - Use of tools, processes, and procedures.
Weak	- Complete the review of improvement processes to make them simpler; - Return training and greater support to office areas; - Organize the projects with the company's strategies by making a source-destination mapping. - Linking of KPIs with the accounting system; - Standardization and centralization of data; - Lack of engagement by the average leadership to see that the improvement projects are good; - Assertiveness in the choice of projects; - Leadership engagement; - Monitoring of results; and - Standardization of processes in different areas and locations, when applicable.	- Methodology and preparation of *stakeholders* for improvement projects; - Standardization in different areas; and - Leadership engagement.

Source: Developed by the authors.

Both companies highlight the use of lean methodologies, six sigma and project management techniques are strengths. This interview analysis demonstrates that the use of world-renowned techniques is beneficial to companies, as they have achieved financial and operational results.

We also noticed that both companies demonstrate engagement actions for the use of tools and techniques. The statements demonstrated that people are encouraged to come up with new ideas, that there is no limitation to questioning the status quo beyond the leadership support that is highlighted by Company A.

Companies also converge when it comes to weaknesses in continuous improvement programs. Topics such as preparation of parts designed to face an improvement, ways to simplify basic improvement concepts, and leadership engagement were found in the two analyzed companies.

These results demonstrate correlations between the companies analyzed, indicating that even belonging to different segments and with methods of structuring the improvement program, the points of improvement and benefits tend to be similar.

Regarding senior management, the interviewees did not mention it as a strong point, however, during the interviews, most professionals reported that the directors and CEOs (Chief Executive Officer) of the organizations have a stance of encouraging improvement projects and, at the same time, interviewees from Company A reported difficulties with the average leadership.

Within this context, as can be seen in Antony *et al.* (2019), senior management can play an important role in relation to resistance changing the thinking of leadership and they must understand the reasons and develop corrective actions to mitigate the causes of resistance to improvement projects.

Some respondents mention the complexity of the traditional project management methodology being complex for improvement projects. In this case, it is important to note that the project management methodology suggests good practices for the organization to manage its projects, leaving it to the company to analyze the applicability of each step or tool.

5. CONCLUSION

During field research it was observed that Project Management can help organizations with best practices for organizing improvement projects as specified by Ika (2009). Examples of this beneficial influence are the possibility of applying the methodology to guarantee a clear and formal objective for the projects. In addition, to making the objective traceable at the end of the project to verify that it has been achieved.

Some interviewees cited, for example, that an opening statement helps and in cases where the project does not have the verification of the objectives and even the planning is not formal and ends up being forgotten. Therefore, project management brings the possibility of a better definition of the scope of improvement projects, especially about the objective and

necessary resources and better organization in the planning and execution of projects, through the application of project management principles in accordance with the success criteria presented by Pereira and Varajão (2016).

Having a clear objective of a specific improvement project, it is possible to carry out a self-assessment to check whether that project is in line with the organization's strategies or not, when done informally the project ends up being carried out and without a clear or challenging objective that brings relevant results to the organization, as stated by some interviewees.

In addition, with the performance of a project leader, this project can be monitored more closely, as mentioned by some interviewees, with the necessary resources duly allocated for greater efficiency and effectiveness in the improvement projects established within the organization. Besides high leadership that has an important role in the team's engagement in improvement projects, as shown in Antony *et al.* (2019).

With planning carried out in a clearer way, it is also possible to have greater clarity about what are the priority activities within the project. In the end, with adequate documentation, without necessarily being complex, the company has a model there for application in similar projects. Some respondents reported the issue of a lack of standardization between documents and even how to manage similar improvement projects, what is solved with the application of project management.

A relevant issue mentioned by some interviewees is the issue of culture in alignment of Silva and Gil (2013) and Gunasekera and Chong (2018). Both analyzed companies have a strong organizational culture focused on Lean and / or Six Sigma, however not all employees recognize the relevance of the methodology or apply it in a standard way.

Regarding KPIs, a relevant fact was the question of both companies demonstrating to have KPIs of the company and of the projects, but in some cases, they are not integrated. With a suggestion for improvement, the integration between these KPIs would generate greater synergy so that the projects have objectives aligned with the organization's strategies as exposed by Kenny (2003).

In addition, in the case of different locations there is a cultural issue that makes it difficult to standardize processes and form of project management, in some cases due to the distance from the headquarters and in other cases, even due to local cultural issues. Another point of the issue of locality is the wealth of opinions achieved in the involvement of other

areas. In the units furthest from the headquarters, it is not possible to involve so many people, making it difficult for all project stakeholders to assess and participate, due to the fact that many are in another location, or the resources in a given location are smaller than others.

Another issue raised by the interviewees is that they have difficulties in "projetification" of improvement projects, as these are simpler projects than end solutions. Respondents reported that traditional project management becomes complex to apply to these projects that are considered simpler. Therefore, in some cases, respondents cite the realization of stages as the opening statement and mention, for example, the non-application of others such as a planning schedule, a critical path assessment and budget management.

Limitations of the present are the low representativeness of the number of professionals interviewed within the scope of professionals working in the area, in addition to the question of conducting research in only two countries.

For future work, it is suggested to investigate the influence of project management on improvement projects of other organizations, from different segments and regions. In addition, an analysis with quantitative data could be useful to numerically demonstrate the influence of project management on improvement projects. A third suggestion is to verify a standardization model for improvement project management processes globally, observing possible cultural, regional barriers or communication issues about the improvements and standardization of post-improvement processes, commensurately at a distance from the headquarters and, for example, finally, respective strategies to overcome these barriers.

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