




PROJECT MANAGERS' UNDERSTANDING OF CONTINUOUS IMPROVEMENT IN PROJECT MANAGEMENT¹

COMPREENSÃO DOS GERENTES DE PROJETO SOBRE A MELHORIA CONTÍNUA NO GERENCIAMENTO DE PROJETOS

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Abstract

In today's dynamic business world, companies must be able to adapt flexibly to constant change. To maintain their competitive advantage, companies must constantly review and improve their operating protocols. The concept of continuous improvement is based on a process-oriented view and aims to constantly refine the tools used to identify and solve problems. The adoption of the continuous improvement paradigm has steadily gained momentum in the field of project management. A comprehensive review of the existing literature reveals a conspicuous gap in the field of project management - insufficient attention to the integration of continuous improvement principles. In order to close this recognisable knowledge gap, this study examines in detail the role and reception of the philosophy of continuous improvement in the field of project management from the perspective of the project managers themselves. To achieve this goal, the insights and perspectives of project managers were systematically collected and subjected to rigorous analysis using an approach rooted in qualitative research methodology. The results of this research shed light on the high regard that project managers have for the continuous improvement approach. Nonetheless, they lament the incongruity of perspectives within the organizations they work for and point to a pronounced lack of understanding at the corporate level. It becomes clear that cultivating an institutional understanding of continuous improvement is essential for more effective execution of project management and mitigation of deviations from intended outcomes. Following the establishment of organizational awareness and the internalization of the principles of continuous improvement, the subsequent phase necessitates the training, motivation, and the establishment of a priority for continuous improvement throughout the entirety of the project management process.

Keywords: Project management. Continuous improvement. Project managers. Training. Project principles. Project process.

Resumo

No dinâmico mundo dos negócios de hoje, as empresas devem ser capazes de se adaptar com flexibilidade às constantes mudanças. Para manter sua vantagem competitiva, as empresas precisam revisar e aprimorar constantemente seus protocolos operacionais. O conceito de melhoria contínua baseia-se em uma visão orientada a processos e tem como objetivo refinar constantemente as ferramentas usadas para identificar e resolver problemas. A adoção do paradigma da melhoria contínua tem ganhado impulso constante no campo do gerenciamento de projetos. Uma análise abrangente da literatura existente revela uma lacuna evidente no campo do gerenciamento de projetos - atenção insuficiente à integração dos princípios de melhoria contínua. Para fechar essa lacuna de conhecimento reconhecível, este estudo examina detalhadamente o papel e a recepção da filosofia de melhoria contínua no campo do gerenciamento de projetos a partir da perspectiva dos próprios gerentes de projeto. Para atingir esse objetivo, as percepções e perspectivas dos gerentes de projeto foram sistematicamente coletadas e submetidas a uma análise rigorosa usando uma abordagem baseada na metodologia de pesquisa qualitativa. Os resultados desta pesquisa revelam uma grande consideração que os gerentes de projeto têm pela abordagem de melhoria contínua. No entanto, eles lamentam a incongruência de perspectivas dentro das organizações para as quais trabalham e apontam para uma acentuada falta de compreensão em nível corporativo. Fica claro que cultivar um entendimento institucional da melhoria contínua é essencial para uma execução mais eficaz do gerenciamento de projetos e para a mitigação de desvios dos resultados pretendidos. Após o estabelecimento da conscientização organizacional e da internalização dos princípios da melhoria contínua, a fase subsequente requer o treinamento, a motivação e o estabelecimento de uma prioridade para a melhoria contínua em todo o processo de gerenciamento de projetos.

Palavras-chave: Gestão de projectos. Melhoria contínua. Gestores de projectos. Formação. Princípios de projeto. Processo de projeto.

How to cite the article

American Psychological Association (APA)

Dağgöl, E., & Özsoy, T. (2024, Jan./Apr.). Project managers' understanding of continuous improvement in project management. *Revista de Gestão e Projetos (GeP)*, 15(1), 36-68. <https://doi.org/10.5585/gep.v15i1.24965>

¹ "This article is derived from the master's thesis of the first author under the supervision of the second author."

1 Introduction

The dynamic structure requires organizations to adapt a strategic level in a rapidly changing context of globalization. The optimization of management processes has become increasingly important in this context. In general, organizations are not able to identify a good management technique at a high level and apply it across the board (Jung & Wang, 2006). The development of management styles based solely on organization-specific factors is often insufficient. From this perspective, it is crucial to have the ability to keep pace with the dynamics of change and to act proactively. The effectiveness of organizations today relies heavily on continuous improvement initiatives (Brown & Eisenhardt, 2000; Hamel, 2000).

Continuous improvement (CI) is described as a critical component of project management in the Project Management Body of Knowledge (PMBOK) handbook published by the Project Management Institute (PMI) (PMI, 2008). The widespread adoption of project management in organizations has provided a platform for the growth of CI methodologies (Jung & Wang, 2006). Project management approaches that emphasize CI are considered critical to the success of global organizations (Meredith & Mantel, 2003). CI is inevitable as project management consists of dynamic and sequential processes (Orwig & Brennan, 2000). CI practices also represent an organizational learning strategy (Oliver, 2009). The cumulative transfer of project experience from the past to current projects helps organizations to build an institutional memory, learn from past mistakes and not repeat them in the future. However, organizations that do not adequately understand the importance of CI or do not adequately implement it miss the opportunity to improve their performance as they transition from one project to the next (Scarborough et al., 2004).

It is acknowledged that CI strategy is not fully recognized in the project management literature despite its critical importance (Backlund & Sundqvist, 2018). They also noted that research examining CI from the perspective of project-based organizations is remarkably lacking. In short, despite the undeniable importance of CI for project management success, there is a conspicuous lack of scholarly attention in the academic literature.

In this context, the primary step toward addressing this deficiency entails the investigation of how individuals engaged in project management perceive and engage with the concept of CI, thereby serving as a pivotal initiation to bridge the existing gap in the literature. The analytical exploration of the strategies employed by principal stakeholders in project management can play a fundamental role in establishing a coherent conceptual basis for this

topic. Thus, the propose of this study is to investigate the role and degree of acceptance of CI in the project management process as perceived by project managers. To address this discernible knowledge gap, the present study undertakes an in-depth exploration of the role and reception of the continuous improvement philosophy within the domain of project management, as perceived by project managers themselves. In pursuit of this goal, insights and perspectives of project managers were systematically gathered and subjected to rigorous analysis, employing an approach rooted in qualitative research methodology. It is anticipated that the results of this research will contribute to the narrowing of the existing knowledge gap and stimulate further inquiries in this domain.

2 Literature review

2.1 Project management and quality

The contemporary wave of globalization places increased pressure on companies to enhance their competitiveness. Businesses are adapting their competitive strategies to embrace this unprecedented globalization trend, all the while striving to preserve or bolster their competitive edge (Hayes, 2006). The present circumstances have brought the concept of projects and project management into the spotlight. An increasing number of organizations are adopting a project-based approach in their operations, as highlighted by Geraldi et al. (2011) and Zika-Viktorsson et al. (2006). Projects have evolved into a vital tool for facilitating organizational change and development, as emphasized by Dai and Wells (2004) and Andersen and Jessen (2003).

The PMI defines a project as "a temporary endeavour to produce a unique product, service, or result" (PMI, 2008). The project applied to a unique product is the management of resources in terms of time, cost, and scope in line with the target (Kömürlü & Toltar, 2018). By a different definition, it is the management of needs in accordance with time, cost, and volume by organizing the needs to reach the target (Kocakulak, 1997). Within organizations, a project signifies a transient endeavor aimed at producing a singular product, process, service, or outcome (PMI, 2017). The ultimate delivery of a project is typically tied to strategic considerations, such as advancing the business, resolving issues, or adhering to new legal requirements (de Almeida Pereira & de Freitas, 2019).

There are many definitions of project management in the literature, for example, project management is defined by PMI as the application of knowledge, skills, tools, and procedures

to project activities to achieve project requirements (PMI, 2017). Project management is described by Kerzner (2017) as the process of arranging, directing, and coordinating resources to accomplish particular goals within restrictions. According to Nicholas and Steyn (2020), project management is the discipline of organizing, planning, and controlling resources to achieve specific project goals and objectives.

Quality is a multifaceted concept that has been extensively studied and defined across various fields. Quality is defined by the American Society for Quality as the total of a product's or service's characteristics and features that have an impact on its capacity to satisfy explicit or implicit needs (ASQ, 2023a). Juran (2003) defines quality as the suitability of purpose and use. Crosby (1979) defines it as the conformity of the product with the requirements. Türkan (2018) defines it as the production of goods or services suitable for consumption and consumers with close to zero defects instead of products or services that are difficult to use with high costs and deficiencies.

The revolutionary growth of production methods, particularly following the Industrial Revolution, has prompted a change in management strategies to accommodate rising customer demands. In this regard, total quality management, which is founded on the rationale of continual improvement of all processes, has evolved as a management strategy that would guarantee customer satisfaction by identifying the desires and needs of the customer. To excel in a competitive landscape, both professionals and scholars have highlighted the importance of group activities and collaborative teamwork to bolster an organization's CI efforts. This includes initiatives like self-directed work teams, executive teams, cross-functional teams, quality circles, Kaizen projects, and CI projects (Gonzalez-Aleu et al., 2018). Organizations that deem their quality programs successful assert that their organizational culture aligns with both CI and a learning-oriented approach (Oliver, 2009). These organizations tend to perceive quality as an evolving, dynamic process, rather than a static end product, thereby fostering the development of continuous quality improvement processes (Jonsdottir et al., 2014).

CI has remained a prominent concept in the purview of professionals and researchers (Sanchez-Ruiz et al., 2019). It constitutes an indispensable element within the domain of quality management. The CI approach has been studied in different fields, including automotive, private security, food, furniture, health, and industrial sectors. However, when the literature review was made, it was seen that the CI system within the scope of project management was not sufficiently researched.

In the literature, it is seen that there are studies in different fields related to CI practices and benefits. Albayrak (2018) states that techniques that focus on CI, such as Kaizen and Six Sigma, will minimize quality losses and increase productivity in enterprises if they are applied correctly and become a corporate culture. Tekin et al. (2018) concluded in their study that Kaizen systematics is not applied in enterprises. They emphasize that Kaizen studies should be taken as an example, and added to the application as soon as possible, the participation of employees in the CI process should be ensured, the talents and skills of employees should be utilized to the maximum extent for CI, and the way of rewarding should be preferred to ensure the active participation of employees in the process through suggestions.

Divanoğlu et al. (2021) argue that CI efforts save time and reduce financial costs. In addition, space can be saved by providing free storage in manufacturing. Güner and Giritli (2011) draw attention to the difficulties experienced in the implementation of total quality practices in the context of the construction sector and emphasize the importance of the concept of corporate culture in the CI process. Czajkowska and Kadłubek (2015) argue that the only way to improve competitiveness in the construction industry is CI and propose the process approach model.

Blanco-Encomienda et al. (2018) and Prístavka et al. (2016) suggest utilizing statistical methods in quality control and development. In particular, they emphasize that possible problems in the production phase of companies may not be recognized by managers, so it is very important to use statistical methods in production as an important way to increase product quality and reduce costs. Temelkuran (2019) conducted to determine the effects of Kaizen systematics on the success power of private security personnel, it is seen that Kaizen actions, strategic human resources management practices, and the perception of the success power of the personnel are significantly and positively affected.

Özveri and Çakır (2012) included a Lean Six Sigma application in a wheel manufacturing company in their study. The application was made in the pulley department where the most losses occurred in production. At the end of the application, while there was a decrease in the waste rates occurring in the pulley production process, waste was also prevented with lean applications. In a study conducted in the automotive sector (Durmuşoğlu & Keskin, 2015), it was found that the problems that occurred in the manufacturing stages of the enterprise and caused ergonomic risks were improved by utilizing the Six Sigma approach.

Gijo and Rao (2005) draw attention to the difficulties experienced by enterprises in Six Sigma implementations. They argue that the main problems are limited to certain areas, insufficient resources, lack of coordination, insufficient patience and determination, and unrealistic project selection criteria. Burton and Sams (2006), in their study, examine Six Sigma, lean approach, and Kaizen systematics and support the use of these three systematics together as complementary but not interchangeable.

Dalğar et al. (2010), in their study, examined the financial advantages obtained by companies that have succeeded in minimizing errors in production by using the production processes of the Six Sigma approach. As a result, they obtained the assumption that Six Sigma is used as a financial management tool and that very important benefits will be provided to companies. Öncül et al. (2014) carried out a study on the reduction of errors in the production stage by using the Six Sigma approach in garment production. As a result of Six Sigma applications, it was determined that a 13% efficiency increase was achieved in trouser production with the efforts to minimize sewing thread breaks. In another study carried out in the textile sector (Gürsoy & Yıldız, 2021), with the successful implementation of the Identification-Measurement-Analysis-Phase Development-Control transformation circle, many faulty products and waste in the enterprise were prevented.

2.2 CI for project management

Organizations face various challenges in the business world, and to remain competitive, they must keep refining their structures and processes continually, always seeking ways to get better, as suggested by Bessant and Caffyn (1997). This is particularly important for organizations that primarily rely on projects for their business, as they need to continuously enhance their project management skills (Backlund et al., 2015). However, many project-based organizations seem to overlook the need to assess their capabilities and instead focus on the present without considering future strategic aspects, as highlighted by Qureshi et al. (2009).

Projects exhibit multifaceted complexity, manifesting across social, technological, environmental, and organizational dimensions (Pinochet et al., 2019). Managing projects involves handling various, sometimes complex processes because of their nature. Furthermore, both internal and external project factors can change over time, making a one-size-fits-all approach ineffective in project management. Effectively administering a project necessitates the orchestration of multiple distinct phases, at times exhibiting intersections. A diverse array

of methodologies, techniques, and project management tools is routinely deployed in the management of intricate projects (de Nadea & Carvalho, 2019).

CI in project management is a widely recognized and essential concept to enhance project success and optimize project processes. According to the PMI CI embodies the relentless pursuit of excellence through ongoing, incremental enhancements to products, services, or processes. It is fueled by a strong dedication to delivering value to stakeholders and exceeding their expectations (PMI, 2018). CI garners significant popularity due to its accessibility and its ability to harness the creativity of a large workforce addressing common issues, thereby facilitating substantial enhancements (Bessant et al., 1994).

CI can be comprehensively understood as a well-structured and systematic process involving ongoing, incremental, and company-wide modifications to existing practices, all aimed at enhancing overall company performance (Boer et al., 2017). Zollo and Winter (2002) extend this definition by characterizing CI as a learned and stable pattern of collective activity, where organizations systematically generate and adapt their operating routines to enhance effectiveness. This aligns with the perspective that CI is essentially a methodical approach for consistently seeking and implementing new and improved working methods (Wu & Chen 2006).

Compared to general improvement initiatives, CI possesses a more comprehensive, systematic, and strategic essence. A widely accepted definition characterizes CI as "an organization-wide process of focused and sustained incremental innovation" (Bessant & Caffyn, 1997). Additionally, CI is an integral element of project management, as endorsed in the Project Management Book of Knowledge (PMBOK) (PMI, 2008), and often represents the pinnacle of maturity in various project management models (Backlund & Sundqvist, 2018).

CI is the mindset of never settling for the current state, persistently seeking opportunities to enhance and optimize performance. CI involves a perpetual commitment to gradually enhance products, services, or processes, prioritizing quality, efficiency, and customer satisfaction as the primary objectives (ASQ, 2023b). Embracing a culture of CI empowers companies to identify areas for enhancement, streamline processes, and stay ahead of competitors by consistently refining their products and services. The systematic nature of this approach ensures that the organization remains agile and adaptable to market changes, technological advancements, and customer preferences. Moreover, this approach also fosters a

learning-oriented environment where employees are encouraged to contribute ideas and solutions, further propelling the organization's growth and innovation.

3 Materials and methods

A qualitative research design was used in this study. Qualitative research is the process of simplification, elaboration, and interpretation applied by the researcher to observe people in their natural environment and to investigate the formation processes of events and phenomena to clarify the salient features of personal and social events and phenomena experienced by individuals (Creswell & Poth, 2016).

Qualitative research is defined as research in which qualitative data collection methods such as observation, interview, and document analysis are used, and a qualitative process is followed to reveal perceptions and events realistically and holistically in a natural environment (Yıldırım & Şimşek, 2011). Qualitative research is a type of approach that prioritizes examining and understanding social phenomena in their natural environments and aims to create theories (Patton, 2018). The investigation process is researcher-oriented, so qualitative research has a subjective structure in a broad context and is likely to be affected by the individual views of the researcher (Shenton, 2004), but the researcher strives to analyze, interpret, and make sense of events and phenomena on his scale (Baltacı, 2019).

Qualitative research methods facilitate in-depth examination and understanding of the views of the participants and provide flexibility to the researcher in designing and conducting the research (Karataş, 2015). In qualitative research designs, three types of data are generally collected (Yıldırım & Şimşek, 2011):

- Data related to the environment; psycho-social, cultural, demographic, and physical characteristics of the environment where the research is conducted.
- Data related to the process is related to what happened during the research and how these events affected the research group.
- Data related to perceptions are related to what the individuals in the research group think about the process.

In this study, data on project managers' perceptions of CI in the project management process was collected.

3.1 Sampling

The participants in the study consisted of project managers. The participants were selected through convenience sampling. This sampling method is a technique that accelerates the research because, in this method, the researcher pays attention to selecting participants who are close and easy to access. This sampling method is generally preferred when there is no possibility of using other sampling methods (Kılıç, 2013). In light of this objective, an outreach strategy was employed to engage project managers via LinkedIn, a prominent platform designed for professional relationship management. Direct participation requests were dispatched to 28 project managers, inviting them to take part in the study.

Additionally, influential project managers were approached to utilize their extensive professional connections across various channels, facilitating the engagement of additional project managers and ensuring their active involvement in the study. Despite the initial strong interest expressed by the contacted project managers, the final research participation was limited to just nine individuals. Basic information about the project managers participating in this study is given in the table below.

Table 1.

Demographic Information of The Participants

	Age	Gender	Experience	Certificate
Participant 1	45+	Male	13+ years	PMP
Participant 2	40-44	Female	5-8 years	PMP, PSM I
Participant 3	45+	Male	13 years	PMP
Participant 4	45+	Male	13 years	PMP
Participant 5	25-29	Female	<5 years	-
Participant 6	45+	Male	<5 years	-
Participant 7	40-44	Female	13+ years	-
Participant 8	40-44	Male	13+ years	Graduate lectures
Participant 9	30-34	Male	5-8 years	PMP, PSM I, PSPO I

Source: Elaborated by the Authors.

As indicated in Table 1, the age range of the participants is between 25 and 45 years of age and above. Four participants were aged 45 and over; three participants were aged 40-44; and the youngest participant was aged 25-29. Six of the nine participants were male. In addition, five participants have 13 years or more of experience in project management. Only two participants have less than five years of experience. In terms of certificates, only three participants did not specify any certificate in the field of project management, and the

certificates held by the other participants are PMP, PSM I, PSPO I, and field-specific postgraduate courses and special training.

3.2 Data collection

Data were collected with an open-ended questionnaire (Appendix). A total of 21 open-ended questions, including demographic information such as age, gender, and years of experience as a project manager, were asked of the participants. In addition to questions, an unstructured open-ended question area was provided to allow the participants to express their views on other issues not included in the form.

3.3 Analyzing the data

The data collected by the qualitative method were subjected to content analysis. Content analysis is one of the most frequently used methods in qualitative research (Hsieh & Shannon, 2005). There are five basic steps in content analysis, also called content analysis (Gül & Nizam, 2021):

- Selecting content for analysis
- Creating content units
- Content preparation for coding
- Word counting in quantitative analysis / determining categories for qualitative analysis
- Describing the results in quantitative analysis/interpretation in qualitative analysis

Baltacı (2019) lists these stages as follows:

- Coding the data,
- Finding codes, categories, and themes,
- Organising codes, categories, and themes,
- Describing, and interpreting the findings

According to content analysis, there is no standardized category system developed by each study, so each study needs to create its category system from its analysis material, and content analysis categorizes the information agreed upon in the context of meaning (Çilingir, 2017). The main goal of content analysis is to reach concepts and connections that will explain

the data analyzed. Data summarised and interpreted through descriptive analysis are examined in depth through content analysis, and new concepts are found (Karataş, 2015). Content analysis is to bring together similar data within certain concepts and themes and organizing and interpreting them in a way that can be understood (Yıldırım & Şimşek, 2011).

4 Findings and discussion

This study aimed to determine the understanding of project managers towards the use of CI in project management. For this purpose, open-ended questions were asked of the participants. The answers to the questions were analyzed and the findings were evaluated under different categories.

4.1 Importance and benefits of CI in project management

Adaptation: Participants mentioned the aspect of CI that facilitates adaptation to changing conditions, and according to Örtten (2006), it is to become fully compatible with time and developments. The participant responses that can be associated with the subject of adaptation are as follows:

“Continuous improvement in the project management process is necessary to adapt to changing conditions. PMI’s updating the project management standard book every 4 years, adding new knowledge areas, changing methodologies, and changing the focus of project management, is a good example of continuous improvement. It also enables quick adaptation to changing project dynamics” (P1).

“Yes, systems and individuals who stay away from innovation and do not look for the better go backwards. For this reason, continuous improvement should be included in every project process, and the decisions taken should be implemented meticulously, and the results should be reviewed regularly, and necessary changes should be made” (P9).

When the participant responses were analyzed, it was seen that it was emphasized that CI requires following innovation and getting better, and therefore it was argued that it should be applied systematically in project management.

Customer Satisfaction: Customer satisfaction is important in CI, and even Total Quality Management is a systemic approach that has come into being by meeting customer expectations and satisfaction in the developing world and constantly developing multinational, management understanding (Aydoğmuş, 2015). Participants mentioned the following about customer satisfaction:

“Yes. Without continuous improvement, it becomes difficult to progress and respond to customer needs as well as those of competitors” (P2).

“In this way, a better quality product is obtained than targeted in the project. A high level of customer satisfaction is achieved” (P6).

In addition to reasons such as compliance and following innovation, the participants also mentioned the positive effect of CI in meeting customer needs, so it is possible to say that applying CI can have a positive effect on meeting customer expectations.

Risk Management: CI in risk management is recommended in ISO 31000 by the standards within the framework of purpose and scope. It can be applied to the whole organization in almost all areas at any given time, as well as to specific projects and activities. In the risk management process, it is expressed within frameworks such as establishing the context, risk assessment, treatment, monitoring and review, consultancy and communication, recording, and reporting (Uysal, 2021).

Risk management ensures that the risks that may occur, which may be a risk until the end of the project, are identified and preventive measures are taken (Kömürlü and Toltar, 2018). Based on the responses of the participants, another noteworthy benefit of compliance, in addition to customer satisfaction, was expressed as the contribution of CI to risk management.

“It is necessary to reduce risks in projects and increase accuracy” (P5).

This situation can be interpreted as the benefit of CI to reduce possible risks in project management. When the participant responses were analyzed, it was seen that the effect of CI on project management in the context of risk management is bidirectional. In this direction, it is possible to say that CI can both reduce potential risks and increase accuracy.

Time management: The project management knowledge area is time management to complete the project/projects within the specified time. The plan of time management in project management processes is listed as activity definition, sequencing, resource estimation, time estimation, development, and control of the timeline (Bilir & İnce, 2019).

In the context of project management, it provides an estimation of the duration of activities, sequencing, and time control (Kocakulak, 1997). In an organization, time management and planning are required in an organizational sense rather than individual efforts, therefore time management should be considered within the scope of CI (Akyüz et al., 2015). At the same time, CI enables obtaining output in a shorter time than expected and increases productivity (Soydan, 2006). Participant responses regarding time management are as follows:

“The likelihood of repeating the mistakes made is reduced, agility is ensured, and project performance or success can be increased” (P2).

“Reduces project durations, increases utilization of lessons learned, and provides improvements in cost-quality areas” (P5).

“It reduces repetition, increases the performance and quality of the project team’s production, provides a financial contribution in the medium and long term, and serves the steps for employees to be more effective and efficient and to realize themselves” (P9).

The participants consider time management an important element for ensuring CI in project management. According to them, time management should be used effectively to increase the efficiency of CI. In this way, time and cost can be optimized while reducing repetition and improving quality.

Cost: All stages of CIs are systematic and aim to strengthen competition in enterprises by meeting customer expectations and minimizing the cost of CI with small steps (Köse, 2009). Participant statements that can be associated with costs are as follows:

“Work completion reduces the cost of time. Following and applying the technology closely, having an idea about how the processes are applied not only locally but also all over the world, and enables employees to advance the processes more consciously” (P7).

“It can provide quality efficiency, cost savings, and time gains in the processes after the project” (P8).

In addition to the gains in terms of time, it was stated that it is also beneficial in terms of cost and efficiency, which can be associated with the multidimensional benefits of CI.

4.2 National and international perspectives on CI in project management

Participants consider CI activities insufficient in the project management ecosystem in Turkey compared to abroad. They gave different reasons for this.

Implementation of CI within the organization: CI should be explained to all employees for the healthy applicability of CI in enterprises because it concerns everyone, and CI should be supported by allocating a budget. Participant responses regarding the implementation of CI within the organization are as follows:

“The continuous improvement perspective is limited in two areas. One of them is methodology-oriented improvement efforts, and the other is transformation-oriented improvement efforts. These two perspectives are very limited, and it is inevitable to encounter problems in improvements made without seeing the big picture” (P1).

“I see that it cannot be implemented much due to time and cost pressure in projects” (P6).

“In Turkey, continuous improvement activities are mostly carried out with the mentality that they are cost-effective, it is okay if they are not, they are accepted anyway” (P7).

“Although there is a pretense of familiarity and usage practice, we are not at a sufficient level in essence. Person-dependent processes prevent continuous improvement, and since individuals and their influences and strategies unfortunately shape company strategies, it is a phenomenon that everyone talks about, but a large part of it is actually either wrong or incomplete” (P9).

As can be seen from the responses of the participants, the applicability of CI is negatively affected by the insufficient understanding of CI activities in Turkey, the limited perspective, and insufficient budget allocation.

Role and job description of human resources in CI: It has been emphasized that human resources/relationships in CI systematics are highly related to components such as job description, role definition, task authorization, responsibility, and that TQM, which is part of CI, also affects this (Uyurdağ et al., 2022). The participant responses regarding the importance of defining the roles and duties of project managers in the use of CI activities in the project management process are as follows:

“The owner and role definition of the Project Management Process in organizations in Turkey is not clear. Consequently, the continuous improvement activity cannot be coordinated centrally, and the company project management methodology cannot be updated centrally.

In Europe, project management process ownership is clear, and contributions from project managers are centrally collected by the project management office” (P4).

“In Turkey, I observe that some executive and very important processes are not taken into improvement because they are not given much importance. The most important of these, in my opinion, is Risk Management. While special roles are defined for this sub-process abroad, this role is given to Project Managers in our country.

Another one is Change Management; this role is intertwined with Configuration Management in Turkey. Since it is costly to separate the roles, in general, many roles have to be in the hat of the project manager” (P7).

Another reason for the participants' negative perspective towards CI in Turkey is their belief that the roles and job descriptions of project managers are not adequately defined. This situation can be interpreted as the need for more concrete and clearer roles and job descriptions for project managers to use CI effectively in the project management process, especially at the national level.

Process monitoring: In project management, proceeding with a process-oriented perspective rather than a result-oriented perspective contributes positively to the success of the project. As Atmaca and Girenes (2009) state, in the Six Sigma system, which is an index of CI, the process control plan makes the improvement continuous. The participant response evaluated about process follow-up is as follows:

“In the company where I work, continuous improvement is closely monitored and implemented through lesson-learning meetings due to the high level of corporate understanding. Other than that, I do not think that continuous improvement is handled very well in the companies in Turkey where I have worked before and observed their work as stakeholders. Even if there are notes at project closures, I think they still have problems in the implementation phase” (P8).

The participant response can be interpreted as meaning that the meetings facilitate process follow-up and CI can be monitored, but there are also examples at the national level where control is not fully realized throughout the process.

4.3 Types of projects where CI can be used

Extended Kaizen: It is the systematic application of complex and generally unsolved problems that we encounter over a long period and with the participation of many individuals (Uluskan, 2019). When the participant responses are evaluated, one of the types of projects where CI can be used is in projects with uncertainty and complexity and more comprehensive projects, and a type of CI that can be used in these projects can be associated with Extended Kaizen.

“In projects with high uncertainty and complexity” (P1).

“I think continuous improvement activity is important for any project. However, it may be more important for production projects” (P2).

“Continuous improvement is important for all projects” (P4).

In addition to these, according to the participants, construction, IT, and production projects are also areas where continuous improvement practices can be used.

“Projects using waterfalls are projects where the flow can be determined more clearly, such as construction projects” (P3).

“IT projects, including defense industry projects (classified, top secret level projects), systems with embedded software (software + hardware) projects” (P7).

“Continuous improvement is more important in product development projects, projects involving a high number of employees and different teams, projects coordinated with different organizations, and projects with fixed prices” (P9).

The participants did not restrict the projects in which CI activities gain more importance to a single project area, and it was mentioned that it can be applied to every project type.

4.4 Challenges and barriers to implementing CI in project management

The participants evaluated the challenges of implementing CI in project management in the context of top management, supervisors, employees, and innovation.

CI for top management: CI should be explained to all employees because it is a process that concerns everyone. Communication with workers should be increased, motivation and self-power should be ensured to be high, and small group work and personal suggestion systems should be supported. Participant responses related to this sub-heading are given below:

“The number of competent and experienced project managers is quite low” (P1).

“It is necessary to know the way of doing business and people very well. In other words, I think it is necessary to get the support of senior management and employees” (P2).

“The most important obstacles are that the ownership of the Project Management Process is not clear and the project management office has not been established” (P4).

“The fact that the contribution of Process Improvement activities to Project Management is not fully perceived by the relevant roles and the oppressive attitude of the senior management to avoid additional costs are the most important difficulties” (P7).

“In the current project time and hustle and bustle, it may be difficult to allocate time to carry out separate improvement work or to create extra costs and human resources” (P8).

Based on the responses of the participants, it is possible to interpret one of the negativities in front of CI activities as the attitudes of the top management. In the context of CI, senior management not allocating sufficient time, a lack of communication with employees, and project managers not having sufficient experience can be interpreted as obstacles arising from senior management.

CI of team members: According to the evaluations of the participants, another obstacle to CI activities is related to employees. It is possible to say that the inclusion of employees in the process and their active role in project management are effective in ensuring the efficient progress of the project. The essence of CI is small but CIs made by workers throughout the

process, and it supports the efforts of workers as it focuses on the process (Soydan, 2006). At the same time, CI enables workers to actively participate in solving problems and gives them the opportunity to change their work in the process (Duran & Çetindere, 2012). The participant responses related to this sub-heading are as follows:

“When we talk about continuous improvement, it sounds like a movement, a change. Employees may resist change. Also, the process of determining the exact objectives of continuous improvement activities can be challenging” (P2).

“Gathering teams and getting common outputs on this issue, postponing the work by constantly prioritizing projects, not revealing the issues that are not talked about because they will be fixed anyway, people not sharing information on improvement issues because they think they are lacking” (P5).

“The competence of the personnel working on the project or their inability to be proactive” (P6).

“Resistance and conflicts of employees and organization, budget, lack of planning or wrong planning, and lack of common strategy understanding” (P9).

Analyzing the answers of the participants, it is possible to interpret that by focusing on the process, which is the basis of CI, workers' resistance to change can be prevented, information sharing can be provided by increasing the awareness of employees on CI, and workers can be involved in the process with active participation, thus preventing possible difficulties.

Cost management in CI: The goal of cost management in CI is to reduce costs by searching for alternative ways to increase the efficiency of production processes (Altınbay, 2006). In other words, to reach the endpoint of the project, enterprises need to choose the most appropriate cost estimation techniques.

Participants consider financial concerns as another factor that makes it difficult to use CI in project management. Participant responses regarding this evaluation are as follows:

“The pressure to complete the work on time, within the budget, and the scope of a project” (P3).

“Time and cost pressure in projects” (P6).

“Time-costly Process Improvement activities and tight project schedules that business owners present to the customer without accurate estimation” (P7).

“Time, cost, and human resource challenges, as well as customer barriers, can be experienced” (P8).

It is possible to say that encouraging project managers to use CI practices that seek solutions with existing opportunities to reduce the cost pressure on projects and cope with financial difficulties has positive effects.

4.5 Increasing CI performance in project management

In this question, the following sub-headings and evaluations were formed by analyzing the answers given by the participants for increasing the CI performance in project management.

Monitoring and control processes: All projects have inherent uncertainties. Therefore, there may be a need for change from the beginning to the end of the project. It is essential to manage these changes in a way that does not allow the project(s) to fail and to develop an effective monitoring and control system (Gökçe, 2014).

The main purpose of the monitoring and control process is to monitor and regulate progress and take measures with early awareness (Andersen et al., 2009).

“The commitment and belief of all employees should be ensured. The way of doing business should be controlled, and the results should be shared with everyone” (P2).

“Increasing process-oriented studies, ensuring that the concept of continuous improvement is understood by all stakeholders” (P3).

“Project Managers should define continuous improvement results as a project output in the project plan. Project Managers should be trained on ‘continuous improvement’ by the project management office” (P4).

“While the work is being done within the team, the project manager and other key managers should inform the employee about which step of the process he/she is in, which creates awareness about the process and ensures that the employee is involved in the process. In this context, the performance of each employee in activities related to process improvement increases” (P7).

“Short meetings are held at 2-week or 4-week intervals, and action plans are drawn up” (P5).

“Continuous-project improvement stages should be controlled and standardized with at least monthly lesson learning meetings. Its implementation should also be monitored and observed” (P8).

According to the answers of the participants, it is possible to say that they emphasized the lack of awareness and control processes to increase the performance of CI in project management.

4.6 CI steps and resources in project management phases

It is thought that the responses of the participants regarding the CI steps and resources in the project management phases are united around the PDCA cycle, Kaizen, and Six Sigma systematics. This judgment was reached from based on the following participant responses and evaluations of the responses.

Plan-Do-Check-Act: The PDCA cycle, which is one of the Japanese management systems, can be expanded to include planning, implementing, controlling, and taking measures (Derdiyok, 2019). Participant responses emphasizing the process and the steps in the process are as follows:

“P-D-C-A” (P3)

“Meeting and general meeting before each Project: - action plan – action follow-up – action closure” (P5)

“1. Identification of the problem; 2 feasibility calculation of the problem; 3 cost etc. Calculations of solution proposals; 4 implementations; 5 closing the problem by observing the implementation or returning to item 1” (P8).

“First of all, situation and impact analysis should be made; decisions should be taken according to the results of this analysis, and the necessary change, reduction, and increase steps should be taken by evaluating the results” (P9).

“Plan-Do-Check-Act and Lean principles are applied” (P4).

In addition to the factors that increase the performance of CI in project management, the participants were also asked about the steps and resources to be applied. The responses were centered around the CI cycle and its types. The answers of the participants included the improvement made to reach the result in steps within the System Cycle. As a common opinion among the participants, the PDCA cycle was generally emphasized in the CI system.

4.7 Employee role and motivations in CI

In addition to the CI steps and resources, the views of the project managers on employee roles and motivation were also taken into account.

Full participation and responsibility: A CI system is expressed as a system with the full participation of all employees, managers, and workers (Divanoğlu et al., 2021). If CI is targeted in an enterprise, the participation of all employees, including managers, should be ensured

(Kaya, 2020). In process improvement activities, everyone participates and takes responsibility, and those who want to take responsibility are authorized (Soydan, 2006).

For this reason, it is possible to say that the participation of employees in the process forms the basis of CI and increases motivation. Participant responses regarding participation and responsibility are given below:

“I think the dedication and commitment of each employee is important” (P2).

“The project team, which is formed with the competence to take initiative and responsibility in project work, should be free in the decisions to be taken about the project” (P6).

“They should implement the decisions taken as both implementer, supervisor, and director, review the results, and evaluate the process” (P9).

“I give them authority and responsibility in their work, receive frequent feedback, and take action without wasting time according to the feedback I receive” (P6).

When the participant responses are evaluated, it is emphasized that the full participation of the personnel is important, and it is seen that the importance of the personnel taking responsibility is mentioned. This situation can be interpreted as meaning that the motivation and loyalty of the employees who are involved in the process and given responsibility will increase, and healthy interaction with the employees will contribute positively to the process.

Commitment and reward: In CI systematics, the expectations of employees should be determined and supported by rewards (Çakmakkaya & Akpınar, 2019).

The fact that the management is aware of the efforts that integrate quality and value and the establishment of a reward system for the results obtained are among the incentives that can be considered sufficient for employees to participate in CI activities (Köse, 2009). In their responses, the participants also mentioned that employee loyalty and rewards would increase loyalty.

“It can be reminded that this is a necessity, and its positive results can be mentioned” (P2).

“Reduction of the troubles experienced, a happy working area, increase in productivity” (P5).

“It is a motivation not to do current and future project processes by showing possible problems in time, cost, human resource effort, quality, and customer satisfaction. Or activities and incentives such as meals, etc. At points that require additional work” (P8).

“By exemplifying the development of activities in a way to ensure value-added production, not just production, and that new challenges will take us forward, and also by rewarding success” (P9).

When the participant responses are evaluated, it is possible to think that the incentive and reward system will increase the motivation and, therefore, the commitment of the employees, so that the expected benefit from the CI practice can be achieved more easily.

4.8 Possible disruptions in CI

Participants considered possible setbacks in CI as a loss of innovation and labor.

Kaizen systematics and innovation: Kaizen Systematic is the implementation of innovations in small steps. In the systematic approach, permanence, regularity, and continuity, which require the participation of all employees and will be carried out gradually with small steps, are very important (Öğünç & Doğru, 2017). Participants gave the following answers regarding CI and innovation:

“Forcing company managers to use newly developed tools that do not benefit the process” (P7).

“Resistance of employees and management to change; lack of time and resources for continuous improvement activities” (P2).

While some participants perceived innovation positively in the CI process, others perceived it negatively. Both forcing participants to use newly developed tools and resistance to innovation were seen as threats to CI by the participants. However, CI is essentially a systematic way of improving the process by taking small steps rather than through innovation.

Loss of labor force: Another setback stated by the participants is the loss of labor force due to a lack of sufficient information. The participant response regarding the labor force is as follows:

“Misinterpretation of the activities after the results are ignored or analyzed from a narrow framework, and loss of motivation and workforce within the team, resulting in loss of time, Money, and labor” (P9).

When the participant's response is evaluated, it is possible to say that addressing the process follow-up from different angles, evaluating it objectively, and increasing employee motivation can prevent labor losses and thus, a healthier return for the labor can be obtained.

4.9 Sustainability of CI

Under this heading, the views of the participants on how to make CI continuous were analyzed.

Top management strategy and meeting: In businesses, senior management should pay attention to the opinions of all employees, and meetings should be held where employees can convey their ideas and opinions (Akpınar et al., 2019). Participants also mentioned the importance of the support of senior management and the importance of meetings held at regular intervals. Their responses in the context of sustainability and CI are as follows:

“I cannot achieve this alone. Top management support is important. It is important to inform the employees” (P2).

“Through regular and short meetings” (P5).

“With internal audits targeted to be carried out within the year, we receive regular annual reports” (P7).

“Lesson learned: meetings being standard and important, implementation, encouragement on important items in the implementation” (P8).

“Making regular and frequent reviews of the results, and making necessary changes if needed, and receiving feedback from stakeholders” (P9).

The importance of the support of senior management and the importance of meetings held at regular intervals were mentioned. It is possible to state that systematic monitoring and process follow-up are important for the sustainability of CI. The participants were also asked about the sector in which they provided the information they shared on CI in the context of project management, whether they received any training, and they were asked to give examples of CI activities they carried out.

When the responses of the participants were analyzed, it was seen that the sectors regarding the information they shared were very diverse. Since both project management and CI are not limited to a certain number of sectors (defense, banking, energy, finance, paper production, informatics, etc.), diversity in responses is expected. It is also possible to say that this data will motivate people in different sectors who want to use CI. However, from the answers given to the question of whether the participants have received special training on CI, it can be said that only two participants have received relevant training in this field. It was observed that the answers given by the other participants were not related to CI.

“We are trying to continuously improve the analysis documents and templates we prepared before the project. We document the lessons learned as a result of the project and work according to these lessons in our next projects” (P6).

“Installing a siphon instead of a valve outside the sample boiler so that the customer is prevented from damaging the boiler by accidentally closing it” (P8).

Likewise, it was observed that only one participant’s example was related to CI in the answers to the question asking for examples of CI activities carried out by the participants.

“Automation tests and other automation steps, dissemination and development of test-driven development, coordination of the error resolution process, etc.” (P9).

When the responses of the participants were analyzed, it was seen that the sectors regarding the information they shared were very diverse. Since both project management and CI are not limited to a certain number of sectors, diversity in responses is expected.

The examples offered by other participants, it was discovered, were unrelated to CI. In particular, one participant stated that he did not receive any special training but that it would raise awareness in this field.

“I did not receive any special training, but I did an MBA and received traditional and agile project management training” (P2).

“I did, I received internal training as a group after evaluating several projects on Analysis, Design, Software Development, and Testing under the name of Project Management” (P7).

“I did not receive any special training, it may be good in terms of raising awareness” (P8).

This finding is thought to be motivating for the training and consulting to be given in this field.

5 Final remarks

In recent years, a growing number of organizations have embraced project management to drive their strategic goals, leading to significant expansion in the field over the past decade, as it became a core component of operational practices for both for-profit and non-profit entities, emphasizing a systematic approach to planning, execution, and control, highlighting the importance of integrating competitive strategy with operational frameworks for successful project management performance (Jung et al., 2009).

In the global context, both project management and CI have visible importance. The role of CI, which aims to improve the current situation systematically, is undeniable in project management as in every managerial process. In this direction, the presence of CI in project management was analyzed from the perspective of project managers.

With this study, it has been seen that project managers have a positive perception of the implementation of CI in the project management process. In summary, the comments provide a holistic perspective on CI in project management. They collectively underscore the wide-ranging benefits, emphasizing its role in enhancing customer satisfaction, competitiveness, risk mitigation, and overall efficiency in projects. These comments also draw attention to the need for a more comprehensive, less cost-centric approach, particularly in the context of Turkish project management.

Addressing the challenges associated with role clarity and fostering a deeper understanding of the CI process are critical to consistent and effective implementation. Although CI is recognized as universally relevant, its importance can vary depending on project characteristics, complexity and methodology used. Challenges include the need for competent professionals, strong organizational support, clear communication and overcoming resistance to change.

Employee commitment, clear communication, training, and structured processes are highlighted as key drivers of success and data-driven methodologies such as PDCA and Lean principles are deemed essential. Additionally, the critical role of employees, dedication, empowerment, and motivation are emphasized in fostering a culture of CI. Overcoming common obstacles, such as forced tool adoption, resource constraints, and addressing resistance to change, is crucial. Top management support, regular meetings, structured assessment, standardization, and an implementation-focused approach are stressed for successful CI. The comments collectively indicate a dynamic and evolving landscape of CI practices, emphasizing its adaptability across diverse sectors and the importance of education in fostering a culture of CI in project management.

In this study, it was concluded that the positive effect of CI practice in project management is recognized, but it is not implemented at a sufficient level. To address this situation, studies can be carried out to raise awareness about the subject. While project management can be applied in many fields, systematic CI has a feature that can be applied in

every field. Therefore, as a first step, it can be added as a course to the education curricula in higher education institutions.

These issues can be studied more in graduate theses, and more scientific publications can be produced on the subject so that research in interdisciplinary fields can be expanded. All these are steps that will contribute to the awareness issue, which is also a finding of the study. Similarly, project managers can be trained on CI. Certifications can be provided through continuing education centers. At the same time, CI practices in related projects in companies and enterprises can be encouraged more. Exemplary practices abroad can be utilized. Project management and the ways and steps of CI to be used in this process should be effectively explained to employees, and adequate guidance should be provided. In addition to this, healthy supervisory mechanisms should be in place. Therefore, factors that increase the commitment and motivation of project employees for CI should not be ignored.

In this study, in general terms, the current status of CI understanding in project management has been tried to be analyzed from the perspective of project managers. In the literature review, it has been determined that there is a gap in this direction and an exploratory research initiative has been exhibited. In this sense, the main limitation of the research is that it was conducted on a very limited sample group consisting of project managers in Turkey. Expanding the research sample with project managers from different countries and/or subcultures, different project areas, and different levels of institutionalization may serve to reveal different inferences. In this respect, the effect of geography, culture, sector, and organizational culture on the understanding of CI in the project management process can be determined. In addition, to reach deeper insights, the current application can be supported by focus group interviews as a research method, and quantitative data collection methods can be utilized in cases where the sample size is high.

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Appendix

In-Depth interview questions

- Do you think "continuous improvement" activities are important and necessary in the project management process?
- What kind of benefits and facilities do you think "continuous improvement" activities can provide in the project management process?
- What is the perspective of "continuous improvement" in project management practices and ecosystems in Turkey?
- In which project types do "continuous improvement" activities gain more importance?
- What are the challenges of designing "continuous improvement" activities in the project management process?
- What are the barriers to the adoption and dissemination of "continuous improvement" activities in the project management process?
- What should be done to increase the performance of "continuous improvement" in the project management process?
- Which steps should be followed for "continuous improvement" in the project management process?
- Which resources and measures should be utilised for "continuous improvement" in the project management process?
- Compare the Turkish and global practices regarding "continuous improvement" activities in the project management process.
- What should be the role of project staff for "continuous improvement"?
- What are the possible mistakes that can be experienced in "continuous improvement" activities in the project management process?
- How do you motivate your team to participate in continuous improvement activities?
- How do you ensure that continuous improvement activities are sustainable and not just one-off efforts?
- In which sector do you provide the information you share? In which sector do you work or are working?
- Have you received training on the concept of continuous improvement? If yes, can you share the training titles?
- Can you give examples of your continuous improvement activities?
- If you have certificate(s) related to project management, please state their names.