

# Continuous improvement in project-based organizations? A management perspective

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## Abstract

**Purpose:** Continuous improvement (CI) can be seen as a fundamental principle, making it possible for organizations to adapt and evolve in an ever changing business environment. Consequently, there are many valuable research studies on CI, conceptual and case studies. However, they are mostly considered within typical process-based contexts, e.g. manufacturing and production processes, while CI within project-based contexts, e.g. construction and development projects, is more uncommon. The specific characteristics of a project based organization (PBO), e.g. unique deliveries, temporary teams and time constraints, influence how CI can be applied. Also, articles describing CI in a project management (PM) context, e.g. in different kinds of maturity models, appears to be on an overall level. Therefore, the aim of this study is to explore prerequisites (potential drivers and obstacles) of applying CI in a PBO.

**Methodology/approach:** Based on a literature review, a case study was performed at a Project Department (equivalent to a PBO), within a major Mining Company in Sweden. Interviews were made with Division managers at the Department (i.e. project managers responsible for project programs), together with complementary studies of their way of working (i.e. observations).

**Findings:** A strong task focus in the individual projects seem to obstruct a long-term perspective, becoming an obstacle for CI in a PBO.

**Research limitations/implications:** The case study findings contribute to increased understanding of drivers and obstacles which can influence the application of CI in a PBO. The study can be seen as initial and thereby as a basis for further research studies.

**Originality/value:** Few empirical research studies have been made considering how CI can be applied within PBOs. The case study findings contribute to the research field with increased in-depth knowledge.

**Keywords:** Continuous improvement, project-based organization, case study, drivers, obstacles

**Category:** Research paper

## **Introduction**

Organizations are constantly facing the challenge of doing more with less (Fryer, Antony & Douglas, 2007) in an endless pursuit to improve (Bhuiyan & Baghel, 2005). One major drive for this governing principle is the evolution of the global economy, which has expanded the base of competition for virtually all businesses (Muchiri & Pintelon, 2008; Jung & Wang, 2006). One way to meet these challenges is to apply continuous improvement (CI) in all aspects of the business (Jung & Wang, 2006; Jabnoun, 2001; Bessant & Caffyn, 1997). A common definition of CI is an organization-wide process of focused and sustained incremental innovation (Bessant & Caffyn, 1997). Jørgensen et al. (2003) simplify the essence of CI to be when all members of the organization contribute to improve performance by continuously implementing small changes in their work processes. In sum, CI can be seen as a fundamental principle, making it possible for organizations to adapt and evolve in an ever-changing business environment. According to Bessant et al. (1994) CI has a considerable attraction due to its low entry barriers and the potential to utilize the creativity of the members in an organization. Other advantages of CI are e.g. achieving flexibility, responsiveness and the ability to adapt quickly to changes within its environment (Kaye & Anderson, 1999), as well as increased innovation capacity (Bessant & Caffyn, 1997). The many advantages make CI attractive, but it does not come without hardship and struggle (Wu & Chen, 2006; Bhuiyan & Baghel, 2005; Bessant et al., 1994). For example, obtaining company-wide CI implies managing change on several organizational levels: management, group, and individual (Bhuiyan & Baghel, 2005).

CI has mainly been applied and explored in repetitive environments, for example manufacturing and production settings (Gieskes & ten Broeke, 2000), and the service sector (Sanchez & Blanco, 2014). However, much of the business in the world has become project-oriented (Jung & Wang, 2006; Williams, 2003), and managing projects have become an important instrument for change and development in organizations (Dai & Wells, 2004; Andersen & Jessen, 2003). Different project management (PM) standards, such as the guide to the Project Management Body of Knowledge (PMBOK) (PMI, 2008a), encourage CI in PM practices (Jung & Wang, 2006). Also, CI is seen as a part of the highest level of maturity in different PM maturity models (cf. PMI, 2008b; Bryde, 2003; Hillson, 2003). Nonetheless, few research initiatives have been made studying how PBOs apply and sustain CI. A PBO is here defined as an organization in which the majority of products or services are produced through projects, for either internal or external customers (Turner & Keegan, 2000). The aim of this study is to explore prerequisites (potential drivers and obstacles) of applying CI in a PBO. Especially, the focus of the study is on the management level, as management commitment and involvement is seen as fundamental prerequisite for CI at the other two levels (group and individual), reasoning in accordance with (Kaye & Anderson, 1999).

## **Theoretical framework**

Following is an outline of relevant literature on CI and PM, which is used as a basis for data collection and analysis.

### ***Continuous improvement and project management characteristics***

The literature review by Sanchez and Blanco (2014) reveals that CI as a concept has been significant for practitioners and researchers in over three decades (cf. (Bhuiyan & Baghel, 2005; Bessant et al., 2001; Bessant & Caffyn, 1997; Lindberg & Berger, 1997; Choi, 1995; Bessant et al., 1994). However, empirical research studies of applying CI in organizations are mainly based on repetitive business environments, e.g. manufacturing or production (see for example Meiling et al., 2012; Jørgensen et al, 2003; Savolainen, 1999; and Bessant et al., 1994). Few empirical studies of CI in PBOs can be found in the research literature. One interesting finding is a survey of CI and learning in infrastructure projects, involving 74 organisations, described by Gieskes and ten Broeke (2000). The survey results showed that a majority of the organizations were heavily involved in the day-to-day management of projects and not oriented towards improvement. This was in stark contrast with several of the organizations indicating that improvement and learning were important and should be addressed explicitly. Gieskes and ten Broeke (2000) concluded that it is not easy to establish continuous improvement and learning in a non-repetitive environment, when managing projects in the infrastructure sector. Hence, there are several aspects of a PBO making it interesting to study considering CI.

A project is defined the Project Management Institute (PMI, 2008a, p. 5) as *a temporary endeavor undertaken to create a unique product, service or result*. Since a project is temporary and its results are unique, PM appears to be in conflict with the principle of CI considering its focus in processes (Orwig & Brennan, 2000). Another implication is that CI requires the involvement and commitment of all participants in an organization. However, project settings many times imply the involvement of different entrepreneurs and consultants, which can be seen as collaborators and competitors at the same time. Hence, participants in one project cannot be sure that improvements will be applied in another project (Gieskes & ten Broeke, 2000). Also, in a multi-project setting, i.e. where several projects are being performed at the same time, projects are pursued in parallel, sharing the same personnel stock and the same management system (Zika-Viktorsson et al., 2006). Such prerequisites should probably have some kind of implications for managing CI in a PBO. According to Gieskes and ten Broeke (2000) the management of projects is predominantly short-term oriented and the strategic component in decision making often absent. This short-term focus can undermine the long-term emphasis on CI (Orwig & Brennan, 2000). Based on the theoretical findings previously described, further empirical studies on CI in PBOs seem to be needed.

Working with CI is as much a job of adapting the organization to CI, as to adapt CI to the organization and its context (Savolainen, 1999; Bessant et al., 1994). This means that there is no “one way” to apply CI. Instead it is about working with the prerequisites available, focusing on “where are we and where do we want to be?”. Further, Bessant et al. (2001) point out that it is important to see CI as an emerging and learned pattern of behavior that evolves over time, and not as a binary state (CI/no CI). To support this endeavor a planned and integrated approach is needed, if CI is not to be seen only as an “add on” (Kaye & Anderson, 1999). In a literature review based on the work of acknowledged scholars on CI (for example Bessant & Caffyn (1997) and Imai (1986)), Kaye and Anderson (1999) have identified five common Themes, and ten Criteria, for achieving and sustaining CI (see Table I). These Themes are also categorized as being a *driver* (ensure that CI is not only achieved, but sustained over time) or *enabler* (needs to be in place if CI is to be achieved in the first place).

**Table I: Themes and Criteria of importance to manage (consider) for an organization applying CI. Based on Kaye & Anderson (1999).**

Theme	Function	Criteria
Leadership	Driver	1. Senior management commitment and involvement. 2. Leadership and active commitment to continuous improvement demonstrated by managers at all levels.
Strategic focus	Driver*	3. Focusing on the needs of the customer. 4. Integrating continuous improvement activities into the strategic goals across the whole organization, across boundaries at all levels.
Organizational culture and focusing on employees	Enabler	5. Establishing a culture for continuous improvement and encouraging high involvement innovation. 6. Focusing on people.
Processes/ Standardization/ Measurement	Enabler/ Enabler/ Driver	7. Focusing on critical processes. 8. Standardizing achievements in a documented quality system. 9. Establishing measurement and feedback systems.
Learning from results	Driver	10. Learning from continuous improvement results, the automatic capturing and sharing of learning.
* An interpretation of Kaye & Anderson (1999) who categorize stakeholder focus as a driver, and argue that strategic focus is about focusing on stakeholders.		

### ***Leadership***

In this Theme, Kaye & Anderson (1999) includes both managerial and leadership aspects. Out of the five Themes, management is often put forth as the key enabler to succeed with CI (Bessant et al., 2001; Savolainen, 1999; Lindberg & Berger, 1997) since it is the management function that has the power to map the direction of the organization. It is management that has the power to incorporate CI into the organization, making the necessary adaptations to the context, and formulate strategies. Working with CI requires management commitment, confidence in CI, and support on all organizational levels (Bessant et al., 1994). CI can also be seen as a cyclical process, sometimes exemplified by the PDCA-cycle. Therefore, results will not always show immediately, and there will be phases of stagnation (Savolainen, 1999). In those phases it is easy to abandon the improvement effort on behalf of other endeavors, which would consequently result in a failed CI effort (Savolainen, 1999; Bessant et al, 1994). It is up to management to keep faith and search for “new drive” in the process, in order to succeed with CI. Much of the leadership Theme in CI is about managing, enabling and maintaining the other Themes identified.

### ***Strategic focus***

CI is much about keeping the business aligned with stakeholder requirements (Kaye & Anderson, 1999) and having a strategy is a way of achieving that. Setting clear strategic targets and communicating them across the organization is a prerequisite for CI success (Bessant et al., 1994). The organization needs a common goal, to ensure that everyone is working in the same direction. According to Bessant et al. (1994), successful CI initiatives are often rooted in crisis of some sort, forcing the organization to work together for survival, exemplifying the usefulness of clear goals.

A customer (and stakeholder) focus should be guiding strategy, since customer satisfaction is the objective of CI (Jabnoun, 2001).

Having long-term goals is needed in order to sustain a common focus throughout the organization. The long-term goals should be supported by the continuous setting and updating of milestones and short-term targets in order to continuously invigorate the process (Bessant et al., 1994). If this is not done, the risk of losing momentum is high. Management must also motivate team-members by providing feedback and displaying results, to show that the improvement work is paying off and to motivate further improvements. As CI has its roots in quality management the customer is of significant importance, and achieving customer satisfaction is seen as the goal of CI (Jabnoun, 2001). Therefore, the strategic focus should be set with the customer (and stakeholders) in mind. Continuously improving the organization to create value for customers and stakeholders can also help build imitable competitive advantages (Savolainen, 1999).

### ***Organizational culture and focusing on employees***

As argued by many (e.g. Kaye & Anderson, 1999; Savolainen, 1999), the concern for quality, and hence CI does not lie on management alone, it is everyone's responsibility. In order to support this, an organizational culture is needed that allows for action and that is forgiving. One example is that CI by its nature involves experimenting, and consequently the organization has to be forgiving towards mistakes (Bessant et al, 1994). Embedded in a CI culture should be both a wish to change and a readiness for change (Anand et al, 2009), since each individual has the ability to identify potential improvements. By creating a culture that encourages and promotes improvement initiatives it is possible to benefit from the collective of employees and achieve significant improvement (Bessant et al., 1994), utilizing the collective knowledge and ideas, or *collective intelligence* (Choi, 1995).

By engaging the collective in improving the organization there is a larger base for idea generation. Ideas for improvements most appropriately and naturally arise from those who are most familiar with the operation and are closest to the process (Choi, 1995). To support this, a culture for CI is needed, based on the belief that everyone has the potential to improve, believes in small-step change, and encourages experimentation and learning from mistakes (Bessant et al., 1994). Such a culture focuses on the employee and utilizes the potential of all in order to change and improve. A change initiative normally encounters skepticism and reluctance among the ones concerned. In order to manage reluctance among employees (on all organizational levels) it is important to have advocates of CI throughout the organization. These supporters should not only believe in CI, but also be prepared to act for it (Savolainen, 1999).

### ***Processes, standardization and measurement***

Processes are commonly seen as a fundamental requirement in CI. However, there is a dual meaning with processes. The first is that CI should be managed as a process (Bessant et al, 1994) and that it is of a cyclical nature (Savolainen, 1999). The PDCA cycle is put forth as an illustration of how to conduct improvements in a structured way, and as put by Bessant et al (p.22, 1994); *without closure of the cycle, there can be no reinforcement of the process and the motivation begins to fade*. A common reason for failure when working with CI is that ideas may be generated but not implemented. Applying a process view such as PDCA can mitigate the risk of failure

by supplying a structured way to both manage and implement ideas, as well making the improvements available for the entire organization through standardization. The second meaning is that it is “how things are done” that should be improved, i.e. the processes (Savolainen, 1999).

Routines and behavior embedded in the organization represent “the way things are done here” (Bessant et al., 2001), and is a reflection both of the organizational culture and processes. It is argued that building on these routines and behaviors not only mean adding new, but also updating and losing old and inappropriate ones. Evaluation is needed to understand if improvements have been made. By measuring performance in relation to both long-term goals and short-term targets powerful motivating effects can be achieved (Bessant et al., 1994). The focus of measuring should be the organizations strive to do things better than before (Choi, 1995). In order for measurements to have effect the results need to be fed back into the organization. Without feedback a CI initiative will most likely fail, since people do not experience positive changes and cannot experience the effects of their contributions (Bessant et al., 1994). Finally it is important to strengthen progress with CI training, e.g. supplying employees with new tools, and investments in infrastructure and communication (Bessant et al., 1994).

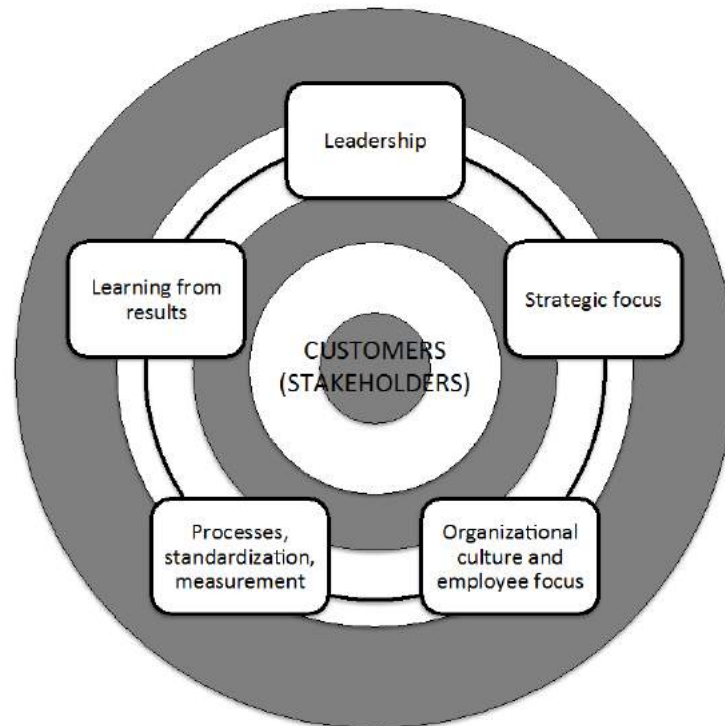
### ***Learning from results***

At the heart of CI is organizational learning, where information and experience is shared. Kaye and Anderson (1999) see learning from results as a driver for CI, and it can also be linked to the cyclical nature of CI, as described by Savolainen (1999). When one PDCA-loop is carried out, new things are known (lessons learned), and can act as a propellant for further improvement (the next loop). Gaining experience and learning in this way can be achieved at an individual, group, or at an organizational level. According to Bartezzaghi et al. (1997) learning occurs naturally at the individual level, and can be diffused at the organizational level. It is argued that this occurs naturally in organizations and the challenge is to facilitate and exploit this process. Both mistakes and good practice is beneficiary to spread throughout the organization, as well as seeking answers among colleagues (ibid.).

### ***The link***

From the description of the different Themes it becomes apparent that they all relate to each other, see Figure 1. For example the CI culture advocate an open climate where mistakes are allowed (Bessant et al., 1994), in order to learn from each other. Bessant et al. (2001) describe an evolutionary model of CI behavior, in which the highest level is “the learning organization”. What that implies is that learning is automatically captured and shared. CI is largely described as a set of routines for “doing what we already do better”, a sort of evolution in practice. In order to evolve one has to learn, and Bessant et al. (2001) emphasize the importance of learning both as improving existing routines, and adding new ones and integrating them with existing ones. Leaders of all levels have to support the culture in order to facilitate change and learning. Management needs to have a strategic focus with the customer and stakeholders in mind, and based on that, set both long and short-term goals and targets. Improvements need to be followed up and communicated to employees in order to keep the process moving and encourage CI. The result of changes should be measured internally and followed up. Changes that have lead to improvements should then be standardized in order for the entire organization to benefit from the lessons learned. The model in Figure 1 is based on the synthesis and interpretation of CI

literature by Kaye & Anderson (1999), illustrating that the five Themes have to be balanced against each other. Kaye & Anderson (1999) categorize “Customers and stakeholders” under strategic focus. In Figure 1 however, they are identified as a complementary Theme, for which the others have to be evaluated and synced against considering needs and requirements.



**Figure 1: Illustration of CI, the five Themes have to be balanced against each other, as well as being evaluated and synced against customer and stakeholder requirements.**

## **Method**

The research study is of an exploratory nature trying to better understand how a PBO can implement and apply CI. The criteria for selecting the case study organization have been that it could be classified as a PBO. According to Pemsel and Müller (2012), a PBO can be a standalone organization or a subsidiary of a larger corporation. The organization involved in the study is a Project department within a mining company in Sweden. The research design is based upon qualitative research, including a case study based on observations and interviews. Several field visits have been made to the Project department during approximately a one-year period, participating in Management group meetings as well as individual meetings with Project managers, Project leaders and Project coordinators. During spring 2014 individual interviews were performed with the members of the Management Group (involving Project department managers, a Project development manager and the Head of department), in sum six (6) interviews. The aim of the interviews was to try and understand the Management group’s view of CI in relation to their management activities. All interviews were based on a semi-structured interview guide, lasting for approximately one hour and were executed within the organization. The rationale for choosing a single case methodology was that the case gave an opportunity to observe

and analyze a phenomenon that can be difficult to get access to, which also is in line with the reasoning by Yin (2009). The Project department has approximately 100 employees, consisting of five divisions (e.g. mining, logistics and construction), each managed by a Project manager (i.e. responsible for several Project leaders), and a Business development function.

## **Analysis and results**

*“It should be achievable to get there, since we carry out a considerable amount of projects, and we do it by following specified PM processes... I believe that it should be achievable to get at least part of the way towards a learning PBO”* – Head of PBO

Many of the findings were in line with the conclusions presented by Gieskes and ten Broeke (2000). In broad terms the case organization could be characterized by a strong focus on delivering projects. Employees were described as having a strong commitment to the projects they were involved in, focusing on the delivery of projects within time and budget limitations. These limits were also the dominating way of evaluating project performance, which in turn implied major focus on managing activities in relation to time and budget. According to several managers, this resulted in a strong short-term focus among employees, overlooking the long-term effects; an obstacle for CI as described by Orwig and Brennan (2000).

Further results in line with Gieskes and ten Broeke (2000) were the large amount of involvement from different entrepreneurs and consultants in the projects. High turnover of staff during a project life-cycle made it difficult to identify and gather lessons learned. Documenting lessons learned in the final project reports were the only formal process described in order to gather experience to be used in future projects. The outcome of collecting experience and lessons learned were described to be dependent on the individual writing the report, which meant that the usefulness for future projects varied. In the same context several managers mentioned that there seemed to exist a fear among project members of exposing and sharing mistakes. As a consequence, important lessons learned did not reach beyond their origin. Parallels can be drawn to the need of closing the loop (or cycle) in order to improve as argued by Bessant et al. (1994). Managers described the collection and implementation of lessons learned as sporadic, which implies that the cycles (PDCA or similar) are not completed.

Learning seemed to take place at the individual level, as argued by Bartezzaghi et al. (1997), but on the levels of group and organization learning seemed to only occur sporadic and was seldom shared. Several of the managers pointed this out, which shows awareness of the problem. If shared, it was described to be through informal channels, to those closest to the knowledge (e.g. the office next door). Not sharing experience and the described reluctance to admit mistakes is an obstacle to CI according to Bessant et al. (1994) who describe learning and sharing of mistakes as important in CI. However, none of the managers could pinpoint any significant factors to why this would not be achievable in the PBO. One reason given for the lack of interaction between divisions was the lack of related processes. Clear processes for managing individual projects were used (i.e. according to the PM model), but no formal processes on an organizational level could be identified. Since it is the processes that should be improved when working with CI (Bessant et al., 2001), a lack of formal processes on an organizational level could be an obstacle to achieve CI



within the PBO. Without defined processes on an organizational level it could be difficult to achieve company wide improvement efforts. The fact that more than one manager described work in their organization as repetitive, indicates that processes should be identifiable in a PBO. This is in contrast to the general conflict regarding processes between CI and PM described by Orwig and Brennan (2000).

Strategic work in the case organization was guided by a customer focus, with clearly defined customers at all divisions. All managers emphasized that customer and stakeholder satisfaction was central to the organization, a focus in line with the reasoning by Jabnoun (2001), as well as illustrated in Figure 1. Yet, the strong task focus in single projects was described as an influencing factor, implying that employees focused on the specific customer in their respective projects, with limited consideration to the parent organization (the PBOs overall customer). Stakeholder management was a prioritized improvement area by the Management group, since they measured and evaluated their internal organizational performance using a PM maturity model. This shows a desire to improve, in line with the reasoning by Choi (1995) and can have strong motivating effects as argued by Bessant et al. (1994).

Other factors related to the applicability of CI in the case organization were; no training for employees in CI, limited feedback systems, and sporadic use of improvement teams. Although nothing from the empirical findings suggest that these factors should not be particularly difficult to implement in a PBO.

The interviews with the managers revealed awareness concerning what CI is about, but several also expressed uncertainty about how to achieve CI. When asked to give their view of CI all Themes in Table I were mentioned. However, several managers gave examples of gaps between the desired position and the current state of the organization concerning CI. This indicates that management commitment as one of the key enabler to succeed with CI (Bessant et al., 2001; Savolainen, 1999; Lindberg & Berger, 1997) was in place. The fact that all Themes were touched upon, and discussed as both important and applicable, indicate that there is confidence in that CI is an alternative in the studied PBO, and that managers act as advocators (Savolainen, 1999). Bessant et al. (2001) point out that CI is assumed a binary split between no CI and CI, but should instead be seen as evolving over time. Several findings suggested that the case organization had started this evolution, and gotten some of the way. Findings such as a strong customer focus, actively working with the organizational culture, focus on personal development of employees, internal performance measures of the organization, and a general acceptance for CI among managers, point to this.

Finally, a recurring reason given by the managers considering the gaps between the Management group intent and the current state of the organization was the strong task focus. This could indicate that it is a holistic view within the organization and its long-term strategy that has to be achieved. By comparing to Figure 1, the Theme most likely to influence this need for a holistic view is that of organizational culture, since culture is likely to shape behavior (Bessant et al., 1994).

### ***CI in a PBO, general drivers and obstacles***

By analyzing the results from the case organization some potential general drivers and obstacles to achieve CI in a PBO are outlined in Table II.

**Table II: General drivers and obstacles specific for CI in a PBO (preliminary)**

<b>Drivers</b>	<b>Influence on CI</b>
Readiness for change in PBOs, i.e. handling unforeseen events and change.	Important factors in CI according to Anand et al. (2009).
<b>Obstacle</b>	<b>Influence on CI</b>
A PBO seems to be characterized by members/participants with a strong focus on the individual projects.	CI requires a holistic view by all members in the organization
Projects are mainly evaluated based on the initial project plan, focusing on time and cost frames/limits.	The focus on compliance with the initial project plan prevents a more holistic and strategic perspective, critical in order to succeed with a CI initiative.
Organizational processes are difficult to identify	Lack of a process perspective on an organizational level makes it difficult for the members/participants to have a holistic view of the organization

The biggest hurdle seems to be the lack of processes on an organizational level, that relates to the entire organization. It should be mentioned that there was a basic understanding of CI in the case organization. Therefore, several of the findings discussed were already acknowledged and action plans were drawn up, showing an active effort to strive for CI.

## **Conclusion and discussion**

The identified obstacles for succeeding with CI in a PBO where all discussed by managers as specific issues within the case organization. However, none of the managers expressed these issues as impossible to be managed within PBOs. To continuously improve is a fundamental principle for all kind of organizations to survive in a competitive environment. However, empirical studies of how PBOs implement and apply CI are lacking. In this article, a Management group within a PBO has been studied with the aim to explore prerequisites (drivers and obstacles) for a PBO applying CI. The study is based on a general theoretical CI-model, built on different Themes and Criteria considered important for organizations to implement and sustain a CI-initiative (Kaye & Anderson, 1999). The empirical results indicate that the Themes and Criteria identified by Kaye & Anderson (1999) also seems to be important to consider for a PBO going for CI. But the study also reveals other aspects influencing CI in a PBO, for example, many different stakeholders involved in projects, a constantly struggle with time constraints and autonomous Project leaders. The results also indicate that organizational culture might be the key Theme to work with in order to achieve CI in a PBO. A possible driver specific to PBOs is the readiness for change that is inherent in PM practice. Obstacles seemingly specific to PBOs are the difficulty to identify organizational processes, the prevailing task focus within projects, and the strong focus on cost and time. Overall, the empirical results indicate that applying CI in a PBO should be possible, but requires carefully consideration how to manage the complexity of different drivers and obstacles.

### ***Proposals for further research***

Based on the previous reasoning, there is a need for further research initiatives. The study described has been focusing on the management level, where additional studies considering a Project leader (employee) perspective are needed. The study is also based on only one case company; therefore, comparing the results with findings from complementary case studies (PBOs) would be valuable, making generalizations of results possible.

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