Difficulties Implementing Continuous Improvement Initiatives in SMEs

Robin Baier

Dissertation written under the supervision of professor Peter V. Rajsingh

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Abstract

English:

Constant Improvement initiatives offer a significant potential to improve quality and operational efficiency in enterprises but often fail to be implemented effectively to achieve desired results. Since enterprises of different sizes face different problems with implementation, small- to medium-sized companies are looked at in more detail within this thesis. The most common theoretical approaches used for implementation are Total Quality Management, Six Sigma, and Lean Manufacturing. These frameworks have a high failure rate, which enterprises should analyze and minimize before implementation. Specialists in the field of continuous improvement from different organizations have been interviewed, questioning the reasons for failures in their enterprise. The main issues that cause an initiative to fail are divided into Motives and Expectations, Culture and Environment, Management Leadership, Implementation Approach, Training, Project Management, Employee Involvement Levels, and Feedback and Results. Employee involvement level, Motives and Expectations, and Organisational Culture and Environment have been analyzed as the most impactful. The actions to decrease the failure rate depend on the individual enterprise. Although three different categories are mentioned, most failures in small- to medium-sized enterprises can be traced back to the education and knowledge of employees and managers.

Portuguese:

As iniciativas de melhoria contínua oferecem um potencial significativo para melhorar a qualidade e a eficiência operacional nas empresas, mas muitas vezes não são implementadas eficazmente para alcançar os resultados desejados. Uma vez que as empresas de diferentes dimensões enfrentam diferentes problemas de implementação, as pequenas e médias empresas são analisadas em maior pormenor nesta tese. As abordagens teóricas mais comuns utilizadas para a implementação são ”Total Quality Management”, “Six Sigma” e “Lean Manufacturing”. Estes quadros têm uma elevada taxa de insucesso, que as empresas devem analisar e minimizar antes da implementação. Especialistas na área da melhoria contínua de diferentes organizações foram entrevistados relativamente a este tópico nas suas empresas. Os fatores principais que levam ao insucesso de uma iniciativa dividem-se em Motivos e Expectativas, Cultura e Ambiente, Liderança, Abordagem de Implementação, Formação, Gestão de Projetos, Níveis de

Envolvimento dos Funcionários bem como Feedback e Resultados. Os seguintes fatores foram identificados como os mais impactantes: Níveis de Envolvimento dos Funcionários, Motivos e Expectativas bem como Cultura e Ambiente organizacional. As abordagens que podem ser adotadas para diminuir a taxa de insucesso dependem de cada empresa. Embora sejam mencionadas três categorias diferentes, a maioria dos insucessos nas pequenas e médias empresas pode ser atribuída à educação e aos conhecimentos dos funcionários e dos managers.

Keywords

Continuous Improvement, SMEs, Kaizen, Six Sigma, Lean, TQM, failure factors

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Preface

In the process of writing this thesis, many people have helped reach the outcome. Firstly, I want to thank my parents, Evelyn and Karlheinz Baier, for always supporting me throughout the process. A special thanks also goes out to my supervising professor, Peter V. Rajsingh, who was very supportive during the creation of this thesis. I would also like to thank all the participants from the interview for their valuable time and insightful answers.

List of Abbreviations

Abbreviation	Definition
SMEs	Small to Medium sized Enterprises
CI	Constant improvement
KPI	Key performance indicators

Introduction

The Continuous Improvement (CI) of processes in firms has been extensively discussed over many years. This trend started with the framework first introduced by Imai named Kaizen (Imai M. , 1986). The success achieved with the implementation at Toyota caused a positive disturbance in the market. Higher quality, better processes, and the inclusion of employees caused a worldwide sensation. Ever since, companies tried to implement the initiative or thought of extending this framework for better success of the organization. Over time, the framework became more complex, and new applications were developed. The frameworks mostly known originate from Kaizen's original thought: Six Sigma, Lean, and Total Quality Management. These initiatives brought great success for the companies that successfully implemented them. However, many organizations have also failed to implement the different initiatives.

Regarding enterprises' failures, regardless of which areas the problem relates to, it is usually kept from the public because it might have implications for competitors or partners. The same applies to the implementation of CI initiatives. Many companies have failed but never discussed the problems that caused the failure. Roughly 2/3 of the approaches to implementing a Six Sigma initiative fail. The failure rates of other initiatives are even higher (McLean, Jiju, & Dahlgaard, 2015). Since the problems are sometimes similar or derivable, enterprises can learn from other companies' mistakes that caused the initiative to fail and prepare for or avoid the issues.

However, the success stories of companies successfully implementing CI initiatives are unrivaled. This should make enterprises that do not work with the frameworks focus more on the initiatives. The implementation will become more appealing and effective with the knowledge of possible reasons for failure in other companies.

The implementation of CI has become more relevant in recent years due to the fast-changing world. Not improving internal processes constantly will lead to a less competitive enterprise. With the use of CI initiatives, processes will be reviewed over and over. New technologies will be included, and sequences of a wasteful process will be discovered and, if possible, removed.

Global players and large companies have focused more on implementing CI initiatives and face other problems than small- to medium-sized companies (SMEs). Since the relevance of SMEs has become more significant in recent years, the issues they face are not to be underestimated.

Importance of SMEs in the European market and their dependence on the implementation of CI Initiatives

Many small to medium-sized companies must investigate initiatives that improve processes more often. There are diverse advantages of internal and external nature this brings to the firm. Furthermore, the importance of SMEs is investigated in detail, and the reason for the differentiation between SMEs and large organizations is demonstrated.

For companies implementing CI initiatives, there are several possibilities for internal improvement. Constantly looking at the latest technologies for all company processes will drive innovation forward. New production methods, IT, and process-improving investments can be taken. Indeed, investments need to be investigated before taking them, and the budget and Return on Investment need to be adequate, but other advantages must also be considered. Taking investments that are driven by innovation will also be more appealing to employees. New production methods, especially for personnel looking for self-improvement, will cause satisfaction and development of the employees. In cases where CI initiatives are "lived" in the whole company, there are investment applications by employees who are driven to improve processes. With new processes suggested by employees and following implementation, the motivation to involve themselves and improve future processes grows. This can be crucial for enterprises to acquire new, highly qualified employees.

These factors play a significant role in the internal development of an enterprise. However, implementing CI initiatives regarding external and competitiveness improvements enhances many other factors.

Staying competitive is one of the critical factors that need to be considered. This can be achieved by constantly improving processes in combination with new technologies. The faster progression in technologies makes it necessary for enterprises to investigate processes more frequently to analyze if there are any advancements. This will lead to constantly evolving processes, lower costs, and increased competitiveness. Adding to that, due to globalization, there are more competitors than ever. This forces companies without monopolies to improve their processes according to the current state of technology to lower price and production time but increase Scope. These create the value of a specific good and should be improved constantly to stay competitive. Larger companies and Global Players can outsource processes for lower

production costs. For most SMEs, this is impossible due to Budget constraints and too high costs in planning for logistics, supply chains, and others.

Many SMEs face constraints when adapting to today's markets, such as limited budget, time, and workforce. However, the number of SMEs in the European Union has grown in the past years and has significantly impacted the economy more than ever. In 2022, more than 60% of employed people in the non-financial business economy work for an enterprise with up to 249 employees. The share of value added by SMEs in the European Union is also significant, with more than 50% in 2022. The statistics also differentiate between Micro-, Small-, and Medium-sized companies. The share of each segment is 18,63%, 16,53%, and 16,62% (McEvoy, 2023).

Due to the growing importance of SMEs in the European market, the main reasons for failures, especially regarding CI initiatives, should be analyzed. This will help develop the existing processes to improve and grow as a company, and constant improvement of the organizations can create more value for the overall economy. The importance of CI initiatives can be seen in companies' success stories after implementation. The first step to successful implementation is understanding the frameworks used to provide a structure.

Theories that are assimilated with CI in businesses are Kaizen, Total Quality Management (TQM), Lean Principles, Six Sigma, Theory of Constraints (TOC), Plan-Do-Check-Act (PDCA), the 5S-Method, and others. The most used theories will be displayed in the Review of relevant literature.

Review of relevant literature

A detailed literature review will be laid out before analyzing the collected data to build a foundation of knowledge in CI initiatives and to show the examination of scholarship. Essential frameworks used in enterprises for CI processes are further explained. A separation between Theoretical frameworks and the most used Implementation tools is made.

Theoretical frameworks

A combination of the different theoretical frameworks can be seen in many use cases. These concepts provide a structure to an enterprise and its CI and must be chosen according to the organization's goals. The basis for most of the CI initiative frameworks is built on the Kaizen concept. Therefore, many similarities can be observed. This basic framework is explained first.

Kaizen

Kaizen was first defined by Imai (1986). The expression means "improvement" and has become more relevant ever since. Due to the openness of this expression, different, more specialized explanations of what this truly means were defined. A more detailed definition of the expression by Imai (1989) is:

"a means of continuing improvement in personal life, home life, social life, and working life. At the workplace, Kaizen means continuing improvement involving everyone – managers and workers alike".

Newitt (1996) went further with the literal translation Kai – change, Zen – good, "change for good", and Lillrank and Kano (1989) define it as "Continuous improvement or principle of continuous improvement". These definitions are the most used by practitioners and applicants of the theory. Other definitions regarding Kaizen have been made over the years, but the ones mentioned are primarily in use.

The concept of Kaizen is focused on eliminating waste in processes and increasing the flow of activities while increasing the product's value. The variation in processes is decreased as a result of this. Excess inventory, defects, overproduction, overprocess, transportation, wasted motion, unused employee potential, and customer waiting time are defined as wastes and included in the MUDA abbreviation. These are subject to be eliminated using the described Implementation tools and more. Due to the disruption caused by the implementation of Kaizen in the

management system of an enterprise, changes need to be driven by top managers. Skilled workers are also needed to apply the tools. Training and highly educated employees and managers can be costly and time-consuming (Sahmi, El Ahmadi, & El Abbadi, 2023).

Since Kaizen mainly operates on internal improvements, other frameworks focus on different factors in implementing CI. A framework that is regarded as effective when focusing more on the customer is the Total Quality Management (TQM) theory.

Total Quality Management (TQM)

The TQM approach is focused on the quality of the product or service provided to the customer. Understanding and improving the product quality characteristics that customers search for sets the goals to be achieved with the initiative. While satisfying customers' wants and needs, operations' financial results should also be achieved. This requires a specific management capability and the adaption of the management system. Since enterprises have different customers, the goals of a TQM initiative vary (Kareska, 2023).

According to Bowen & Lawler (1992), developing quality, maintaining quality, and improving quality while creating the most cost-effective way inside an organization will increase customer satisfaction and improve the organization’s profit. Customer satisfaction can be achieved with a high-quality product. The most used practices in TQM are top manager commitment, employee involvement, customer focus and satisfaction, training and education, supplier quality management, quality information and performance measurement, process management, human resource management, and quality systems. Literature shows that a combination of several principles is necessary to implement TQM. The precise practices for successfully implementing the TQM methodology cannot be defined (Adem & Virdi, 2023).

Decisions made in the different practices in TQM are made with data-driven decision-making. Tracking process numbers and Key Performance Indicators (KPIs) of processes before and after a change is necessary (Kareska, 2023).

The Six Sigma approach is a framework that has almost been developed simultaneously with Kaizen.

Six Sigma

This Methodology was developed for Motorolla in 1987. The goal was a reduction of defects in production. Since then, it has found many use cases since it can be applied in various organizations. The framework is focused on eliminating as many deviations as possible. This includes improving processes, employees' skills, production of high-level results, and the change of culture inside a company. However, definitions of Six Sigma are rarely defined carefully and therefore cause confusing views on the initiative (Schroeder, Linderman, Liedtke, & Choo, 2007).

Difficulties with the definition have also been discovered by Schroeder, Linderman, Liedtke, & Choo (2007) and were analyzed, resulting in the definition of Six Sigma:

> *"Six Sigma is an organized, parallel-meso structure to reduce variation in organizational processes by using improvement specialists, a structured method, and performance metrics with the aim of achieving strategic objectives."*

It is also stated that this definition is not suggested for all cases. Each organization could have variations of it to address the situation faced. The most commonly used implementation tools in practice are the PDCA-Cycle and the DMAIC method, which will be defined shortly (Schroeder, Linderman, Liedtke, & Choo, 2007).

This tool is among the most widely used CI tools across many companies. The approach's effectiveness can be proven by the success of firms like Motorola, AliiedSignal, and General Electric from 1987 onwards. The difficulties with implementing Six Sigma are shown by the failure rate of almost 2/3 (McLean, Jiju, & Dahlgaard, 2015). However, for a framework to be applied in an enterprise, it needs to be implemented successfully. This difficulty is also faced with the Theory of Constraints (TOC).

Theory of Constraints (TOC)

When implementing this concept, two understandings must be cleared within the whole organization. Enterprises must understand that every system or process must have at least one constraint, and constraints and wastes within a process are not seen as problems but as opportunities for improvement. All processes in an enterprise are looked at with this understanding in mind (Rahman, 1998). The process analysis and improvement technique is divided into five steps.

Identifying the constraints in a system creates the foundation for further steps. A process is looked at in detail, and constraints that harm efficiency are listed. In processes, there usually is more than one constraint that impairs the effectiveness of a process. These can be of a physical or managerial nature. The listed constraints are prioritized according to the impact on the final goal of the process. Subsequently, the analyzed constraints are reviewed, and possible improvements to eliminate a constraint are decided. The most impactful constraint that is analyzed is to change with the defined optimizations. Other listed subordinate constraints are not changed since they do not bring as much improvement. A successful improvement of the constraint improves the KPIs and eliminates said constraint. In cases where this change does not bring the anticipated effect, the most harmful constraint could still be the same. Therefore, a follow-up process analysis can reveal the new constraint to be improved. This process can be repeated and lead to the CI of systems in an organization. It needs to be assured that during the implementation of a change, none of the other constraints are impacted negatively (Rahman, 1998).

This systematic review of processes can be done with any operation inside an enterprise. As described, the TOC is also a cycle that can be revised repeatedly in all sorts of scenarios. A concept that is also widely spread is the Lean Principles.

Lean Principles

The Method is based on the improvement of quality control while reducing costs. To achieve this improvement, wastes and activities that do not add value are reduced as much as possible or eliminated. It also focuses on lowering the number of equipment, investments, inventory, space, and people needed to complete a process (Abrahams & Ngulube, 2023).

The first of five principles to be followed when implementing the lean thinking approach is value identification. The duration and cost of production processes and all process specifications must be identified and monitored. After value identification, the mapping of value streams follows. The different sequences required to produce a good are split. A differentiation between the value-adding and non-value-adding activities is made as well. These separated sequences are restructured or realigned to create a flow that can run uninterrupted. Problems that could occur are decreased, and the critical sequences can be monitored and identified better. The pull principle explains the concept of only producing a product whenever it is requested by a customer and, therefore, a production on command. The consequence is a

lower inventory. The last principle that is required to be followed is the demand for perfection. Constant improvement of the internal process is the key for the principle to be successful (Abrahams & Ngulube, 2023).

The theoretical frameworks represent how an organization structures its CI initiatives. To set these frameworks into practice, several practical applications help to implement the analyzed possible improvements into process developments successfully. The most used and known are displayed in the following.

Implementation tools

These practical frameworks supplement the CI initiatives in organizations that successfully implement a theoretical framework. The frameworks are also used in enterprises that still need to integrate a theoretical framework concept since they can also be applied to improve individual processes.

5S-Method

The 5-S Method can be split into the five Japanese words Seiri, Seiton, Seiso, Seiketsu, and Shitsuke, which can be translated into Sort, Set in Order, Shining, Standardize, and Sustain (Chapman, 2005). It has seen many used cases since its origin in 1950. Its main application can be found when an unorganized workplace needs restructuring. Due to the easy application of this Method, every employee can adopt it and keep a cleaner and well-organized workplace. It represents a low-cost method to organize all areas in a company efficiently and understandable for all colleagues (Filho, Lodi de Brito, Crestana, & dos Santos Prado, 2017).

The five steps are taken in the mentioned sequence. The first step is to sort out all unnecessary entities in the workplace. To Set in Order defines the reorganization of the cleaned workplace. More important entities can be placed in a spot that is easier to reach. Third, the workplace will be appropriately cleaned and standardized. The most important task is to keep the workplace cleanliness sustained. Therefore, maintenance plans can be introduced by or to the employees' (Chapman, 2005).

As a result, processes are easier to complete, and faster adaptations can be taken. Due to the better-organized workplace, co-workers can also find their way into a new process much more

quickly—the 5S-Method functions as a significant tool for reorganizing and structuring a workplace (Filho, Lodi de Brito, Crestana, & dos Santos Prado, 2017).

Another practical framework often connected to CI is the Plan-Do-Check-Act concept, which will be explained in the following. In contrast to the 5S-Method, the PDCA-Cycle focuses on improving processes rather than reorganizing warehouses or workplaces.

Plan-Do-Check-Act (PDCA)

This method is divided into four steps that need to be taken for constant improvement. During the **P**lan step, a description of the to-dos that need to be done for improvement is established. All relevant limitations and possible problems that can be prevented before the practical application are being examined. **D**o explains the actual implementation of the steps that should cause improvement. Due to possible issues in the implementation process, a review to monitor all results needs to be done. Therefore, targets and product requirements are monitored and reported to **C**heck before and after the implementation. As the last step, **A**ct, measures are being taken to see which performance indicators affect the process the most. This worked-out knowledge can be used and considered more when performing the next PDCA-Cycle (YAO & YANG, 2022).

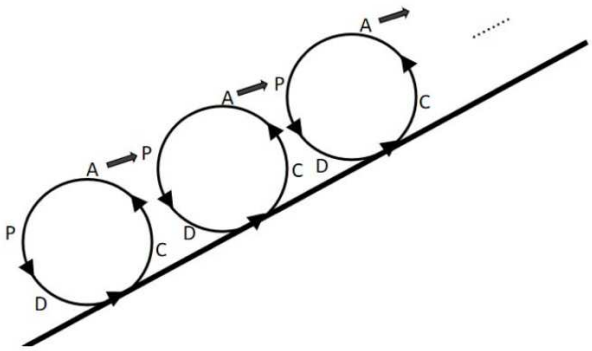

Figure 1: PDCA-Cycle (YAO & YANG, 2022)

The repetitive execution is displayed in the figure above. An improvement of the process will be continuous if the cycle is repeated effectively in an enterprise. In organizations with a similar process, an exemplary process is often performed to see improvement on a small scale. If the change improves the monitored data, further production lines will be adopted like the exemplary process. The third tool frequently used in enterprises, especially in combination with the Six Sigma initiative, is DMAIC.

DMAIC

This approach defines five steps that need to be taken to improve a process effectively. Define, Measure, Analyze, Improve, and Control.

Defining the process to improve and clear out measurable goals of the initiative while identifying the customers' needs and the problem to address is the first step in the approach. These quantifiable goals are primarily defined as KPIs. **M**easuring the identified KPIs of the process's current state and their analysis allows the identification of improvable numbers. These numbers will lead to the effectiveness of the implemented change. **A**nalyzing these observed numbers can identify the root of the problem. The third step involves statistical tools to find defects and develop a hypothesis. **I**mproving is the phase in which the development approach to improve the KPIs that have been identified is implemented and tested. KPI measures from the new process are compared with the noted measures from the original process. **C**ontrolling the changes made and sustaining the improved KPIs are the last steps. Effectively monitoring the process to ensure that fixed problems do not occur again is critical. This requires a high involvement of employees who learn the improved process (Mast & Lokkerbol, 2012).

As mentioned, the presented frameworks are not all frameworks in use for CI initiatives. The most known and the ones that find the most applications are displayed. This leads us to the question: Why do CI initiatives fail so frequently? The structuring and the path toward an answer to this question are displayed in the Definition of Research Question and Methodology.

Definition of Research Question and Methodology

Research Question

The frameworks discussed in the Review of relevant literature and the Importance of SMEs in the European market and their dependence on the implementation of CI Initiatives displayed the necessity and opportunity for SMEs with the implementation of CI initiatives. For successful implementation, difficulties, and problems during an implementation need to be minimized and prepared adequately. Reasons leading to the failure of CI initiatives are analyzed. Interviews with managers from SMEs responsible for improving CI initiatives are held to provide developing SMEs with problems that others faced with implementation.

Methodology

The problem required interviews with experts due to the specific field of study. We tried to survey random participants, but only some could answer the core questions. The interviewees were chosen through personal contacts and online research for suitable companies all around Europe and with a variety of expertise. Companies and participants that took part in the interviews will stay anonymous.

The interviews were conducted with various specialists in CI who consulted or worked at SMEs to improve processes. The reasons for failure in the implementations in the past year will be analyzed as a dependent variable. A factor representing the importance of a project was included. If this factor was not included, more significant projects would have the same impact as smaller ones. Independent variables were the number of investment applications submitted by employees, projects exceeding the cost expectation, the budget used for CI initiatives, and the knowledge about CI initiatives interviewees.

The reason for failure in the different cases is questioned and regarded as key for comparability with existing literature. Unique insights taken from the interviews will also be reviewed and shown in the analysis of the results. To demonstrate the steps taken for this Thesis, a systematic review of the process is shown in the following chapter.

Systematic review process

Firstly, a Literature Review was conducted to provide information about CI initiatives. Secondly, the literature was used to create questions for interviews. These interviews are conducted with specialists in CI of SMEs in Europe, whose companies are specialized in different fields. Due to the various problems that can cause the failure of a CI initiative, the reasons were segmented as in McLean, Richard S.; Jiju, Antony; Dahlgaard, Jens J. (2015) article, which represents the current state of research in this field. This separation allows for a comparison of the failure rate of projects in each category between large companies and SMEs. Following the conduction of the interviews, the answers will be analyzed and compared, resulting in a Conclusion.

Statement of Research and categorization of reasons for failure

The focus when looking at the current state of research is Richard S. McLean, Jiju Antony & Jens J. Dahlsgaards (2015) article. This leading article looks at the failures of CI initiatives in enterprises. It focuses on research papers only and includes no conduction of interviews.

The article looks at 72 papers that include and describe failures of the CI initiatives. In the analysis of the papers, Richard S. McLean, Jiju Antony & Jens J. Dahlsgaards (2015) define eight categories that summarize all reasons that caused an initiative to fail. The papers analyzed in the literature display several reasons for failure and need further explanation for a correct classification into the eight categories.

Motives and Expectations

In 17% of the papers analyzed, motives and expectations are mentioned. This represents the most observed cause for the failure of a CI initiative. The wrong reasons to start an initiative mainly harm the project's success rate. The projects should be undertaken due to the needs of the individual firm. Not because other firms adopted the change. As the needs of firms are individually different, the initiatives must be adapted according to an enterprise. Joining the bandwagon can cause another problem source of failing initiatives. Adding to the problems that motives cause, the expectations firms have of CI initiatives cause difficulties with the implementation. Whether there are unrealistic expectations or goals set for a project, the likelihood of disappointment and failure of the project is higher. Problem-causing expectations can be various: the guilt of wanting instant results, a reward-based initiative, or simply a misunderstanding between employees. The capabilities and interests of employees involved in a project also need to be considered. Employees can show a lack of knowledge, a lack of understanding, or a feeling of uncertainty or intimidation. Outlining the difficulties facing wrong motives and expectations, efforts and success rates of projects will decrease significantly if there is notable resistance towards the initiative (McLean, Jiju, & Dahlgaard, 2015).

Project management

The second most impactful reason CI initiatives fail, according to the analysis of Richard S. McLean, Jiju Antony & Jens J. Dahlsgaards (2015), are problems in project management, which are mentioned in 15% of the papers. A poor selection of projects can be a reason. Examples are

projects that are not aligned with the business targets, nor with a benefit for the businesses, or lay the focus too much on cost reduction, which leads to less customer satisfaction. Project scopes that are projected too large make the application of methods more complicated and can be a reason for initiatives to fail. The management of a project is named another critical success or failure factor. Difficulties can occur if the project is poorly defined, lasts more than six months, has little technical support, or if team meetings are not held frequently but only spontaneously. This leads to a slower progress of the project and a slower learning curve for employees. It is also necessary that employees participating in a project are the right people. This includes knowledge of the critical fields and time to be available for meetings and work on the project. Key individuals need time to be involved in the project to succeed. This time constraint can easily lead to a project team that is too large, causing prioritization and planning of the activities to become more complex. Sponsors who want the project to succeed can provide particular urgency when needed so employees take time to work on the project. This pressure needs to be obtained by a sponsor to be effective. These sponsors are often active in positions where leadership is necessary. In cases where this sponsor is not motivated enough or does not have time to work on the project, it might lead to failure (McLean, Jiju, & Dahlgaard, 2015).

Management and Leadership

Management and leadership have been displayed and analyzed as one due to the overlapping reasons regarded as the origins of failure. 14% of the analyzed papers mention this to be the cause of failure in an initiative. A strong personality, commitment, and qualifications are necessary to drive an organizational change. In cases where there is a lack of a strong personality leading the change, CI initiatives fail. The change needs to be implemented from the very top of management to support lower-level management in the development process. This requires the whole upper management or only one senior person to thrive. The lack of commitment by the management can be seen in different scenarios. Shifting attention from the CI initiatives, having different priorities not linked with CI, poor management support, and poor involvement of employees or delegating responsibility to others are the causes. The lack of commitment in management can also turn into a lack of commitment in the workforce. Problems in implementing CI initiatives or lots of effort that has yet to cause the wanted change can cause frustration in management and the workforce. The lack of training and knowledge of leadership is highlighted as the main reason to lead projects towards failure in this category.

This problem can also be seen when looking at the management style of middle managers compared to top managers. It can be caused by the lack of high-quality managers, problems gaining the commitment of frontline supervisors, or the shortage of managers with the required knowledge in general. In cases where managers are less qualified, it can be overwhelming to finish the daily duties and projects of CI that need to be managed and worked on. The projects are sometimes not regarded as essential, which results in the lack of work done for CI initiatives. Adding to the mentioned problems, the mobility of management is another impactful problem as improvement efforts change. Different managers might find existing practices threatening, not wanting to risk as much as other managers, or cannot establish the urgency required (McLean, Jiju, & Dahlgaard, 2015).

Feedback and Results

Another central theme analyzed by Richard S. McLean, Jiju Antony & Jens J. Dahlsgaards (2015) is the problem with feedback and results, which represents 13% of causes for failure. The issues that occur due to feedback mostly appear during the project. Not communicating positive and negative results can lead to distorted feedback and the wrong interpretation of the metrics, depending on the numbers achieved. A closed vertical communication will determine the outcome of the initiative. There needs to be more frequent reviews or follow-ups on projects to ensure the effectiveness of the assessment. The results must be differentiated between the short-term and long-term results as these differ significantly. The disruption caused by a CI initiative will likely involve excess capacity, financial stress, pressure for layoffs, and, therefore, significant costs in the short term. The results that will occur due to the CI implementation are to be seen in the long-term improvements but can often not be as significant as foreseen before the project. Since some projects do not show measurable results, especially financially, managers can become frustrated with the results. Spreading CI initiatives effectively across the site is vital to increasing success and productivity. To maintain the state achieved with the project, a mechanism is necessary to monitor the results and benefits. This will lead to a more accurate representation of improvements and make long-term benefits more visible. Management's long-term follow-up regarding the numbers is crucial to the success of a project. The risk of losing the project's focus, effort, and priority will increase the longer a project and the full implementation takes.

Organizational Culture and Environment

As an organization's culture and environment can back the intention of CI initiatives, it is worth including as a factor for failure and success. With 11% of projects failing due to the considered point, it is necessary to go into further detail. Changing the organizational culture can become problematic and cause significant disruption in an enterprise, but sometimes, this change is required to succeed in new projects and approaches. It is stated that organizations might not be ready for the intervention of new and the adaption of old processes, which can cause a mismatch between culture and project. This social aspect is often underestimated. Cultural problems regarding implementation are summarized by too much bureaucracy in the organization and organizational complexity. This cultural change is often regarded as more effortless than it is due to unrealistic assumptions of the organization. The transformation of beliefs and possible language barriers come to mind when creating a new culture. However, organizational factors like inadequate budgets, weak quality systems, and poor support from other areas can hinder efforts for change. Structural changes can also influence the change efforts. Hierarchical management structures, an excessive number of employees in management and support roles, frequent employee turnover, and insufficient communication between departments can cause failure. Even though it might not have total control, the organization's environment can significantly impact implementation. Therefore, thinking about and preparing for the possible difficulties is essential. Timing can be tricky, particularly in unstable markets or tight economic conditions where allocating resources differently could be dangerous (McLean, Jiju, & Dahlgaard, 2015).

Implementation approach

A poor implementation approach, deployment, or execution is a problematic theme that can hinder CI initiatives from succeeding. In the research of Richard S. McLean, Jiju Antony & Jens J. Dahlsgaards (2015), this problem is the reason for 10% of failing projects. This can primarily be attributed to poor implementation, execution, or deployment. Potential benefits, success factors, and respectable restrictions inside an enterprise's culture can be missed if the project is implemented ceremonially, as it may not be integrated into the organization's structure. Implementing a change too fast while not considering or understanding the mechanics of an implementation can also lead to failure. The involvement of everyone working in the process to be improved is also vital to the success of a project. Implementations by individuals

or homogeneous groups to standardize process improvements should be avoided (McLean, Jiju, & Dahlgaard, 2015).

Involvement level of employees

Another theme that causes 10% of projects to fail is the involvement level of employees in CI initiatives. This is closely related to leadership and management. Difficulties in time allocation, role conflict, and the level of participation of employees can hinder the success of projects. These can lead to employee resistance towards the initiative, causing failure. Time constraints from employees and management will lead to less contribution to improvement efforts. Personnel who have been introduced to the CI initiatives in an enterprise may lack a vision of the process and consequently miss out on opportunities the initiative offers. Investments in top talent, human resources, training and development, and a clear career path for employees caused by the proper allocation of resources are mentioned as good assets. This allocation of resources may become more complicated when firms grow. A further issue larger firms struggle with is the inability to change and implement a comprehensive change (McLean, Jiju, & Dahlgaard, 2015).

Training of employees

The least significant reason that causes 9% of CI initiatives to fail is the training of employees and management. A lack of education and training can cause projects to fail. Necessary skills, knowledge of techniques, appropriate use of methods, and how to provide relevant content need to be trained. The acquisition of knowledge should not be purely theoretical but with certain relatability for the employee and, therefore, with examples in practical application. Issues managers fear when training employees include the desirability of other firms with trained employees. Thus, retaining knowledge becomes more difficult (McLean, Jiju, & Dahlgaard, 2015).

As can be observed, the reasons for failures in CI initiatives are widely spread and can sometimes be regarded as incidental or minor problems, which can still lead to failure. By researching the literature and conducting the interviews, different limitations and constraints regarding this Thesis emerged and will be explained in the following.

Limitations and Constraints

As from the categorization, the exact reason for failure is not represented. This can bring a limitation, considering that not every reasoning can be placed precisely into one category. Reasons overlapping in two or three categories are complex and must be sorted.

The weight and impact of a project are sometimes different. There are always projects that have more impact than others. Therefore, the absolute number of completed projects can only be considered severely by looking at the impact. This made using factors necessary, so projects are displayed as more or less critical. The interviewed specialists also regarded this to be the most adequate Method to make the impact of projects more representative.

Only interviewing specialists, not the broad masses, caused the problem of being unable to gather a view of a more comprehensive range of enterprises. This constraint has been analyzed in the literature of Richard S. McLean, Jiju Antony & Jens J. Dahlsgaards (2015).

A limitation that also was discovered during the start of the research for suitable interviewees was the limited number of SMEs that have an expert in the field of CI. It was not easy to find enterprises with an employee who was specialized or knew about the topics discussed. The number of interviewees could have been improved further with more time. Therefore, time was another constraint that the author experienced. Nevertheless, 12 interviews were conducted, and the findings are as follows.

Analysis of the Interviews

The interviews were held via online meetings or in person, and a clear structure of the topics and questions to discuss was clarified before the interview. The discussed questions can be found in the appendix and build towards the researched question, which analyses the problems that cause CI initiatives to fail in SMEs. More information about the company had to be clarified before going into more detailed questions regarding CI initiatives.

General questions about the enterprise.

The information about company size was necessary since smaller projects can have more impact in small companies and less in medium-sized ones. Therefore, the number of employees, the fields of specialization, and the company's annual revenue were questioned.

17% of the interviewees worked in a micro-sized company with up to 9 employees, 42% have 10-49 employees, which emits a small-sized company, 25% have between 50-249 employees, making a medium-sized company, and 17% have more than 250 employees which are defined as a large company. Usually, companies with more than 250 employees are not regarded as SMEs anymore, but the number of employees was not significantly higher than 250 and, therefore, were counted as SMEs. The yearly revenue of the companies would also not qualify them as large-sized companies.

The interviewees were from different fields, mainly manufacturing with 50%, and other interviewees work in various fields like consulting, tourism, industrial engineering, aviation, the Red Cross, and care of disabled people.

The yearly revenue reported by the interviewees is between 0-50 million. 25% made up to 1,9 million, 50% made between 2-9,9 million, and another 25% reported a revenue of 10-50 million.

Considering these results, all organizations of interviewees qualified to be SMEs. The author's contacts can reason the high percentage of manufacturing enterprises.

What CI frameworks were known?

Following the general questions, the knowledge about the most known CI initiatives was queried. On behalf of this inquiry, it was tested if the understanding of the available frameworks is given. The interviewees had to name all the CI initiatives they knew themselves first. Initiatives that had yet to be mentioned were displayed afterward to see if an initiative they knew was forgotten.

50% knew the TQM approach and the 5S Methodology. Only 33% knew about Kaizen and Six Sigma, 25% about Lean principles, and 17% about the TOC approach.

Only one interviewee did not know any of the initiatives. After questioning the approach that was taken in the company to create continuous improvement, it was answered that the improvements are made with the common sense of the employees and management.

These results showed that even at the management level, which plans and organizes projects for CI initiatives of SMEs, the knowledge about theoretical frameworks needed to be improved. The answer to whether these frameworks are unknown was, that most interviewees said they stumbled over these initiatives only by accident but not through education. This showed that the education of managers regarding CI initiatives needs to be improved.

Were there enough CI initiatives?

Following the question about their knowledge of different frameworks, their own opinion of whether the number of CI initiatives in their current company was enough came up. This was measured on a scale of 1 to 5, with 1 representing 'rarely seen' and 5 'there are constantly new improvements'.

8% of the interviewees answered with 1, 42% answered with 2 and 3, and another 8% answered with 4. No one replied that there were constantly new improvements. This showed that, according to management, there must be more initiatives to improve internal processes constantly. The reasons why so many CI initiatives fail are answered below.

How much budget was used for CI initiatives?

Since the answers to the previously asked question were not as positive, the amount of budget companies provide for projects improving internal processes was debated. This budget depends on the company's size and cannot be considered crucial. It is still very informative.

60% of the companies only invested a maximum of 50k per year on CI initiatives. 17% invested between 50k and 100k per year, and 25% invested between 100k and 250k per year. The low relevance of CI is displayed here as well.

How many Investment applications were submitted?

The willingness for improvement from employees and management can mainly be monitored and displayed by the number of investment applications for CI initiatives. Because this is a primary driver of CI, it showed how integrated and motivated employees are to improve processes in a company. This needed to be divided into the sizes of the companies since the micro-sized companies did not receive any applications for investments by employees. The decisions and investment ideas were all taken by management. Since smaller companies have fewer employees, it was expected that there would be fewer investment applications.

In small-sized enterprises, the number of investment applications in the past five years varied between 5 and 10. This number increased to 15-30 investment applications within medium-sized enterprises. This showed that some employees inside the enterprises showed initiative to improve processes. The overall number of investment applications in the ten small- to medium-sized companies was 101. That made 10.1 applications per enterprise on average when looking at small- and medium-sized enterprises together.

How many Investment applications were accepted?

Since some investment applications did not align with the company's goals or were rejected for other reasons, the percentage of accepted investment applications has been discussed.

Taking the micro-sized companies out of consideration, since there are 0 requests and 0 denials of investment applications, only 55% of the investment applications regarding CI initiatives are accepted.

How high was the failure rate of accepted Projects?

The failure rate of accepted projects also needed to be taken into consideration. Projects that exceeded the predetermined budget or time constraint by a lot were also regarded as failures.

Out of the accepted projects, only 11% failed, which appeared to be low, but the failed projects were not monitored enough in most SMEs. According to most interviewees, this number cannot be taken very seriously. It can also be assumed that this number is so small due to the more careful decisions made when accepting an investment application. Since only 55% of the applications are accepted, it can be assumed that only safer improvements are accepted and do not cause a high failure rate.

What were the Motives for failures in CI initiatives?

The most critical and discussed question was about the motives for failure. This also needed further explanation due to the possibility of overlapping reasonings. A short introduction to the literature of McLean, Jiju, & Dahlgaard (2015) was given to provide the interviewee with the relevant information to answer the question adequately. A graphical comparison of the importance of the different reasons for failure can be seen in Figure 2: Reasons for failures analyzed with papers compared to the results from the interviews with SMEs.

The least problematic theme that was mentioned was the training of employees. This has been mentioned in 4% of the cases, but not directly. The training, the missing education, and the understanding of the investment application writer were mentioned. As the interviewee explained, the improvement an employee examined in a process is sometimes not beneficial for the organization. The project management and implementation approach displayed the same number as the cause of failure.

In the case of project management, this low impact can be reasoned with the different implementations SMEs take. Projects included fewer employees since the constraints like workforce, time, and budget were more limited. This caused fewer difficulties in Project management than comparably in the analyzed papers.

The percentage of reason for failure regarding the implementation approach can be logically explained. The knowledge of different possible CI initiatives was rather mediocre. Therefore,

an implementation approach could not be mentioned as often as a reason for failure. Other reasons were more impactful.

Leading 7% of the initiatives towards failure, the feedback and results were measured. In these cases, the feedback was left fallow, especially on improvements that were not implemented as desired or did not bring the anticipated impact. Information to higher management mainly existed when the implementation went well. Bringing a project to complete success and closing it has also caused problems for enterprises.

The management and leadership are the smallest gap between the McLean, Jiju, & Dahlgaard Field (2015) paper analysis and the conducted interviews. In the interviews, 11% of the cases led to failure because of this reason. Most mentioned was the problem of needing a person driving the change forward. Someone in upper management who supports the initiatives and causes urgency regularly was missing or could not make as much time for CI initiatives due to daily duties.

According to the interviews, the involvement of employees was why 21% of the CI initiatives failed. This showed a significant difference compared to the literature. A shift in the importance of reasons from the Literature and the interviews displaying SMEs' reasons for failure was observed. Almost all the interviewees who mentioned this as a reason for failure explained the problem as follows. The enterprise could not bring in as many employees into the quoted "unproductive sector of the company". Management reasoned this with employees using their time to improve processes instead of working productively.

The most impactful in the literature were the motives and expectations. It also represented 21% of the failures analyzed in the interviews. Projects were often undertaken because "this has been seen/done at other companies," but this was the wrong approach to achieving less failure in CI initiatives. Improvements must be applicable and suit the enterprise's interest. The problem that occurred when an initiative had goals focused on long-term improvements was also discussed more frequently. The acceptance of having sunk costs at the beginning of a project to be successful in the long term was mainly disregarded. What was also mentioned several times by employees or management who handed in investment/improvement applications is that their knowledge of the area that required improvement was not enough to create an adequate investment application. This could also be drawn back to the training of employees.

However, this problem could also originate from the organizational culture and environment. This represented the highest cause for failed CI initiatives, with 29%. Employees need to be empowered more by most organizations to build specific expertise to be able to think of possible ways to improve processes. What was observed during the interviews was the difficulty tenure managers and employees had when old processes were reviewed and renewed. These employees needed to be taken along more adequately. This is closely related to the employee involvement levels. The maturity of an enterprise was not only displayed within the employees. Some organizations from the interviewees showed a rather old structure. This could also hinder the improvement of processes towards new technologies since management and employees are retracted and accept the current state of the process. Changes were seen more as a complicated new way of working. According to managers, comments like "we achieved the exact same thing before with the old process" were obtained from employees shortly after introducing a CI initiative. This negative attitude towards an initiative could sometimes turn positive because employees understand that the change was only for good. It was rarely spoken about too much bureaucracy, which was anticipated since hierarchies are usually flatter than in large organizations.

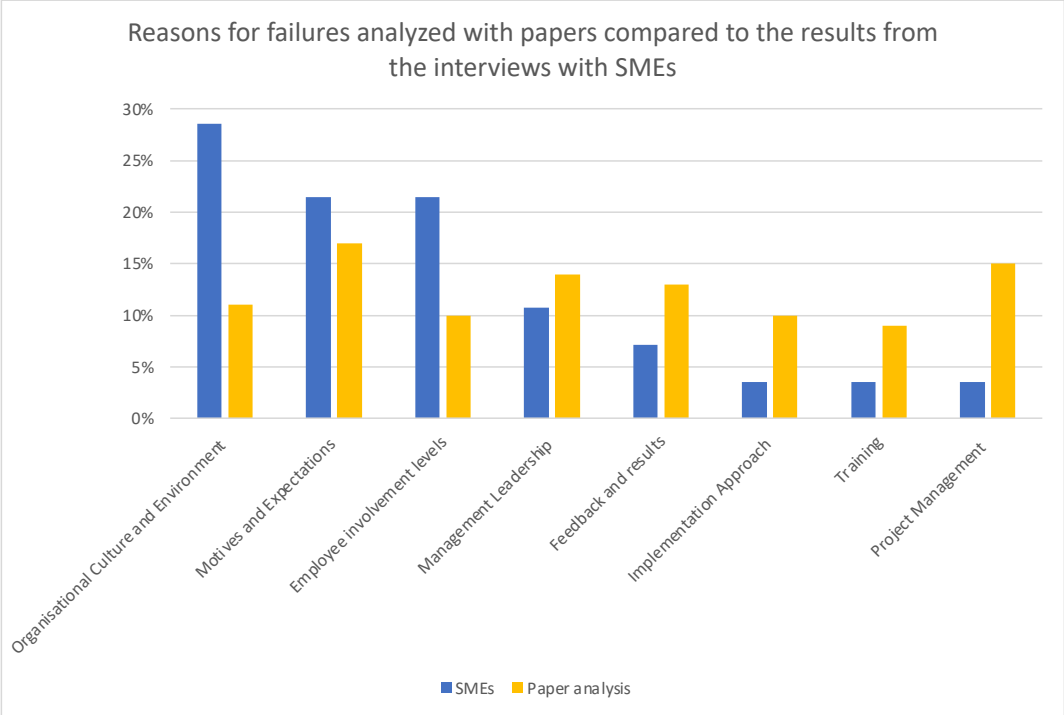

Figure 2: Reasons for failures analyzed with papers compared to the results from the interviews with SMEs

The displayed graph shows the reasons for the failure of CI initiatives listed according to the failure rate from the interviews. Besides the blue pillar, the percentages from the paper by

McLean, Jiju, & Dahlgaard (2015) analysis are shown. The different reasons for failure can be observed by comparing the blue and yellow pillars. Improvement approaches can be various, but from the information observed in the interviews, the main problems can be drawn. This shift of reasons leads to a different focus on goals and changes that should be set for companies of different sizes when implementing CI initiatives.

Summarizing the problems that interviewees directly mentioned, success factors can be categorized into knowledge, goals, and Resources. Knowledge can be divided into the knowledge of the process and CI frameworks. Goals are split into the subcategories of the willingness to change and a vision that shares the same interest. Lastly, the resources are mostly respected with time and budget. If an enterprise and an employee can provide and merge these, an implementation approach should have a higher success rate.

Conclusion

The difficulties when implementing Continuous Improvement initiatives in SMEs differ from the problems in a large company and need to be dealt with differently. The issues that make most initiatives fail in SMEs are connected to Employee involvement level, Motives and Expectations, and most impactful the Organisational Culture and Environment. Several other problems can also lead to the failure of an initiative. The exact problems are individually different for each enterprise and must be considered by the managers driving the implementation forward. The analyzed problem categories can indicate the areas to investigate before an implementation approach. The mentioned categories represent the most occurring problems but can be drawn back to managers' and employees' missing knowledge or education when looking at the issues in more detail. This is often interconnected with the Culture and Environment of an organization. Understanding the possibilities each framework brings to the enterprise needs to be taught to managers that will drive the implementation of CI initiatives forward. The possibilities and focuses an implementation brings to an organization have been displayed in the literature review. All approaches mentioned require the involvement of employees in CI initiatives and the willingness to change from all employees.

The two main influences observed in the interviews that make it difficult for managers to succeed with a CI initiative are insufficient knowledge and qualification regarding CI initiatives and the difficulty they experience when taking along tenure employees. The difficulty with tenure employees becomes more relevant due to an aging society, and only 33% of the interviewees knew the Kaizen and Six Sigma frameworks, although they are two of the most impactful and used theories.

Enterprises should provide the possibility for employees to educate themselves regarding processes in the organization and leave more room for employees' implementation. Since only 55% of the investment applications have been accepted, more of the initiatives asked for by employees can be looked at in more detail for possible implementation. This leads to a further integration of employees in the CI process. Motives and Expectations for the investment applications submitted by employees would also see quality improvement and could be considered more seriously.

Further research in this field can be done with the participation of more SMEs. Since the different sectors will have different difficulties with the implementation, the sectors can be regarded as disjointed in the analysis. This can lead to a more detailed discovery of problems that can be analyzed more deeply. A study of what employees think of constantly improving and adapting processes could help to understand employees' goals better and align these with the goals of managers and enterprises.

Appendix

Interview Questions:

1. How many employees does your enterprise have?
2. What is your company specialized in?
3. What is the yearly revenue created by your company?
4. Do you know principles of Continuous improvement?
5. Which CI initiatives do you know?
6. Which CI initiatives from this list do you know?
    a. Total Quality Management
    b. Kaizen
    c. Six Sigma
    d. Lean principles
    e. Plan-Do-Check-Act (PDCA)
    f. Theory of Constraints (TOC)
    g. 5S-Method
7. According to your perception. Are there enough improvements in running processes in your organization? (On a scale of 1-5; 1 = not really, 5 = yes there are a lot of improvements)
8. How much does your enterprise spend on CI initiatives every year?
9. How many investment applications for CI initiatives do you receive from employees annually?
10. How many CI projects have not been completed successfully? (in percent)
11. What problems caused an initiative to fail or the denial of an investment application? (Explanation of the different categories and discussion of how impactful this project or investment application was for the enterprise)
    a. Motives and Expectations
    b. Organisational and Structural
    c. Management and Leadership
    d. Implementation approach
    e. Training
    f. Project management
    g. Employee involvement levels
    h. Feedback and Results

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