Continuous Improvement Maturity Model (CIMM™)

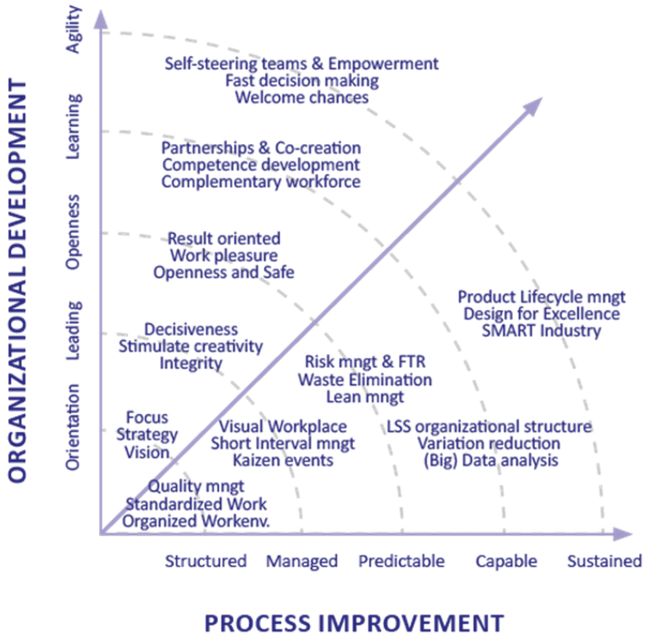
Introduction

Each organization has the same challenge: "How can we provide products and services with maximum value for our customers, at the lowest possible cost and with the shortest delivery time?" Even if an organization still develops such beautiful products or provides the best services, it is necessary that these are delivered without errors, efficient and predictable.

In order to achieve this, organizations must constantly work to improve their processes and develop the organization. Continuous improvement consists of both visible and invisible aspects. The visible aspects are the techniques and activities, while the invisible aspects are the strategy, leadership, competencies and involvement of the employees. It is not just about improving the processes, but continuous improvement must also focus on developing the organization and its employees.

Continuous Improvement Maturity Model

To support organizations in the continuous improvement process, the LSSA has developed the 'Continuous Improvement Maturity Model' (CIMM™). CIMM summarizes all best practices elements of many different improvement methods in one framework, along two axes. The first axis focuses on developing the employees and the organization, while the second axis focuses on improving processes. In order to bring an organization to the higher maturity level, it is important that the development of the processes go hand in hand with the development of the organization.



CIMM Organization Development

The first axis is about developing the employees and the organization. Organizational development can relate to the development of products and services, improvement of efficiency, market development, and so forth. However, within the CIMM framework, we will deepen the development of leadership, the development of employee's competencies, the development of organizational culture and the way in which the organization is managed.

1. Clear Direction and Focus (Strategy):
This element focuses on developing a clear vision and strategy. Employees are more involved and motivated by why they do things, than the actual things they do. Without a clear strategy, the organization is not effective at its goal. The process of continuous improvement and renewal begins by defining a clear strategy that will distinguish the organization from other organizations. The strategy must ensure cooperation and coordination between the different parts of the organization and connects strategic and operational objectives, initiatives and implementation. In order to ensure that set goals are indeed met, it is necessary to maintain focus. The required time and resources must be allocated and management must adhere to the defined priorities.

2. Quality of Management (Leading):
This element focuses on developing those who need to ensure that the strategy is implemented successfully. This depends strongly on the organizational culture and the role of leadership. A leader's responsibility is to facilitate improvement initiatives to achieve better results. This can be done, among other things, by inspiring, motivating and coaching employees. Also, leaders must stimulate ideas and initiatives and be visible at the Gemba (shop floor).

3. Openness and Action Orientated (Openness):
This element focuses on an open and safe culture. In an open organization there is a constructive dialogue between management and employees. Employees are involved in important decisions and projects, and employees feel involved and connected with the organization and their work. Another characteristic is that employees go to work every day with pleasure. Secondly, this element focuses on stimulating employee responsibility. The organization is result-oriented. Result-oriented leadership is a combination of task-oriented leadership and human-oriented leadership. The manager understands that, on the one hand, results must be achieved and on the other hand, that he needs the trust his employees to achieve this by themselves.

4. Learning Organization (Learning):
This element focuses on the creation of a so-called learning organization. In a learning organization, attention is paid to both visible and invisible aspects, both of which are part of the organization's DNA. Employees are encouraged to develop their competencies by following training and by getting involved in improvement projects. Competency is the proven ability to effectively apply knowledge, skills and personal competencies. In some definitions, the terms 'attitude' and/or 'behavior' are used instead of 'personal competencies'. It is also important to recognize and appreciate those with unique product knowledge or skills. Employees should be given the opportunity to learn from others by working together in teams with colleagues, suppliers and customers. An organization must therefore ensure that it has a diverse and complementary team of employees. In a learning organization, employees are not blamed for making mistakes. A

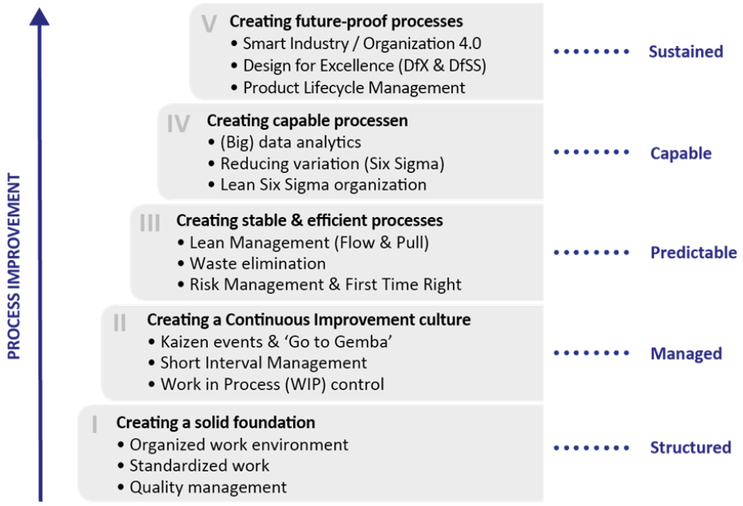
mistake is seen as an opportunity for improvement.

5. Organizational Agility (Agility):

This element focuses on creating a flexible and agile organization. Employees have a positive attitude and changes are seen as a chance rather than a threat. There is a good balance between standardized work and the ability to answer to special customer wishes. Instead of a large inert organization and stuck employees, self-steering teams will be put in place. These teams have their own result area, are accountable and empowered. Techniques that contribute to an Agile organization are Short Interval Management and Scrum.

CIMM Process Improvement

In order to implement the strategy, the organization must continuously simplify, align and improve its processes. This can sometimes also mean that unnecessary procedures, protocols and controls need to be abolished. The result of process improvement is that the organization is able to respond efficiently and effectively to events. In most larger organizations we find three levels of control: Strategic, Tactical and Operational. 'Business Process Management' (BPM) is about managing and improving core processes. It involves management processes (strategy, monitoring, evaluation and adjustment), primary processes (operational and execution) as well as supporting processes (to support primary processes).



1. Creating a solid foundation (Structured)

Before organizations can work on process improvement programs like Lean and Six Sigma, it is necessary to establish a proper foundation. The basic principle of the first level includes a safe and professional work environment, reliable equipment and standardized work (clear procedures, work instructions and protocols). This provides a solid foundation for all future initiatives and improvement programs. At this level, we are working to create a safe and organized work environment, standardized work and a quality management system.

2. Creating a Continuous Improvement culture (Managed)

The second level focuses on creating a culture in which all employees are involved in the improvement process. This level follows the Kaizen philosophy of Masaaki Imai. Kaizen focuses on improvements in the workplace, in Japanese called the 'Gemba'. The Kaizen philosophy is based on a process of continuous improvement in small steps. The idea behind this is that by realizing a large number of minor improvements, eventually a big improvement has been achieved. Also, it is much easier for employees to adapt to small changes instead of dealing with a major change. The process improvement roadmap used at this level is the PDCA cycle, which stands for Plan - Do - Check - Act. A Kaizen project lasts about a few days and is often executed by employees at the shop floor. In order to support the realization of a continuous improvement culture, it is important to involve as many employees as possible so that the entire team becomes part of the improvement culture. Communication about daily performance is important to keep everyone involved and to keep track of daily performance. This is achieved through the introduction of communication boards. Short stand-up meetings may be organized daily to review daily performance, address issues and to assign actions to be taken.

3. Create stable and predictable processes (Predictable)

The third level focuses on creating stable and reliable processes with a predictable outcome. The main goal of creating predictable processes is the prevention of unsafe situations, stress, firefighting, long delivery times and poor quality. In other words, creating an environment where one knows what will happen and where clear promises can be made to customers. Remember that a reliable delivery time is usually better than a fast but unreliable delivery time. This level focuses primary on optimi ing operational logistics rather than quality improvement. However, by creating stable and reliable processes, where people focus solely on adding value and eliminating waste, the quality also automatically I creases. The five Lean principles are the basis for this level. Processes are described and deployed in an efficient manner by identifying and eliminating wastes. One of the most powerful techniques used here is Value Stream Mapping. In production environments that are very m chine-intensive, such as the automotive and food industries, 'Total Pr ductive Maintenance' (TPM) is also often used. The 'Theory of Co traints' (TOC) or Bottle Neck theory, developed by Eliyahu Goldratt, I another powerful method.

4. Create capable processes (Capable)

The fourth level focuses on reducing the variation of the stable processes created in the first three levels. The goal is to increase predictability and quality. The improvement method used in this level is Six Sigma. Six Sigma's starting principle is reducing variation and increase capability. The roadmap followed at this level is the DMAIC approach, which stands for Define - Measure - Analyze - Improve - Control. At this stage, statistical techniques are used to analyze and improve the performance of processes and products. To be able to use statistics, data is required. Therefore, it is important to use a good measurement system that is capable of generating reliable data. Six Sigma projects are often called breakthrough projects, as these are usually larger projects with a huge impact. This approach is suitable for problems that cannot be solved by applying simple techniques. A Six Sigma project usually takes 3 to 6 months and is led by a Green or Black Belt.

5. Create future-proof processes (Sustained)

The fifth level is a combination of 'Product Lifecycle Management' (PLM) and 'Design for Six Sigma' (DfSS). PLM is the process of controlling the entire product lifecycle (development, growth, maturity, decline). DfSS is a systematic approach and application of some powerful techniques in the development process of new products or systems. The goal of DfSS is to ensure that new products are performing at a high quality level from the first day of production. DfSS brings the process much more into a controlled state by focusing on risks and on critical customer requirements from the first stage of the development process. The application of Design for Six Sigma is done by Black Belts, Reliability Engineers and, in some cases, by Green Belts. At this level we also look at Industry 4.0 or Smart Industry, to apply modern technologies in the operational process such as Big Data, Internet of Things and Cyber Physical Systems.

Previously, we indicated that it is possible to work on multiple elements at the same time for developing employees and organization. For the development of the process however, it is important to work on these sequentially. It is not recommended to flow quickly to the higher CIMM process levels if the lower CIMM process levels are not sufficiently developed and sustained. For example, it does not make sense to apply statistical techniques to reduce the variation at instable and unpredictable processes. Furthermore, it is important to realize that organizations operating at the higher CIMM levels should continue to pay attention to the lower CIMM levels to maintain the results achieved and

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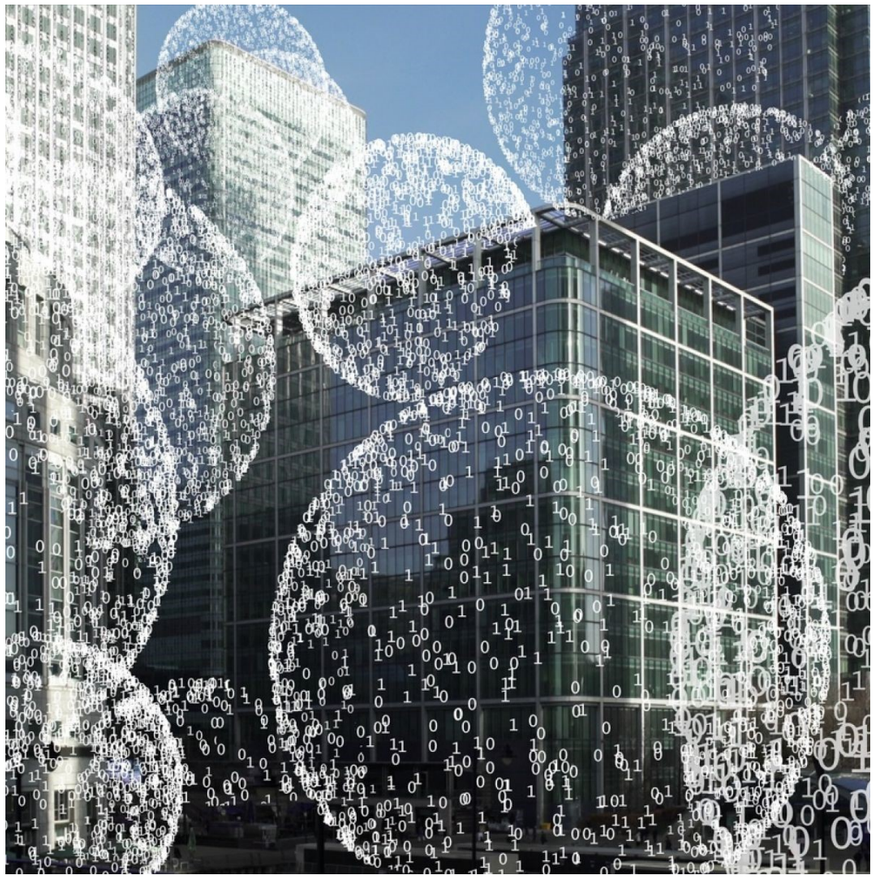

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