

KEY LEARNINGS OF INTRODUCTION OF PROCESS IMPROVEMENTS PROGRAMS

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Summary: Launching of Six Sigma / Lean Programs like the introduction of other Process Improvement Programs (TQM, ISO 9001, BPR) requires a serious and long term commitment from the management. Research shows that it takes at least two years and a high amount of financial investment until the program can be declared matured. The main elements of the program – customer focus approach, waste-free and standardized processes with process owners, introduction and regular usage of KPI's during decision-making processes – require dramatic changes in the organization's culture, in the daily way of thinking. Because of the above mentioned reasons careful preparation is inevitable before starting the Program and top management's support is also vital. The introduction strategy of the Program, selection of target groups, ways of communications, training methods, bonus system, etc. depends mostly on the organizational culture and structure. Mastery of these and the strengths and weaknesses of the organization are crucial. The aim of the paper is to present the introductory steps of a Process Improvement Program and to show key points of interest based on international articles and personal experience.

Keywords: Business Process Improvement, Lean-Six Sigma, success factors, organization culture

1. INTRODUCTION

In the last couple of years, we faced an entirely new age of frequent and intense turbulence¹ in the global economy, which requires a very new mindset and approach from companies. While in the previous decades, economies have returned to their original "normal" state, in the new age, a certain amount of turbulence remains constant, which becomes the new normality. Companies need to live together with constant risk (which can be measured) and with uncertainty (which can't be measured and managed); for this reason they must develop those skills, systems, and processes which are able to quickly realize and forecast the potential turbulence in their environment and determine, in time, the vulnerability and the potential generated by it (Kotler, 2011).

Business Process Improvement (BPI) helps companies to adapt themselves to the continued changes of technological, political, and economical environment. By stabilizing and by controlling processes, companies are more likely able to manage changes and risks in an appropriate way. Companies realize the potential in Business Process Improvements, research shows that improving business processes was the „number one priority” among the ten business priorities in 2009 and 2010 based on nearly 2000 interviews with CIO's. In 2011 and 2012 – due to the economic recession – the main goal became enterprise growth, in addition to continued attention on cost and operational efficiencies (Gartner survey, 2009-2012). Despite of the growing popularity of process improvement programs not all process improvement efforts lead to profitability or to customer satisfaction increase.

2. BUSINESS IMPROVEMENT PROGRAMS

2.1. THE MEANING AND TYPES OF BUSINESS PROCESS IMPROVEMENT

Business Process Improvement is an approach to increase the effectiveness and efficiency of business processes that generate a benefit to internal and external customers (Harrington, 1991). Process improvement - defined by Hammer in 2002 – is “a structured approach to performance improvement that centres on the disciplined design and careful execution of a company’s end-to-end business process”. Six Sigma is a powerful business strategy that aims to make a dramatic reduction in defects, errors, or mistakes in (service) processes, resulting in an enhancement of performance and a vast improvement in business profits, employee morale, quality of products and customer loyalty (Antony, 2005). The original goal of it is less than four mistakes or errors per million opportunities, which means the company has reached the Six Sigma level.

As organizations grow, at a certain point they need to collect their processes and to continuously analyze and refine the processes to ensure good control over them in order to do business effectively. The aim of BPI is to have defect-free and waste-free, controlled processes, which take the customer’s needs into account. It is not only a strategy, but also a tool to help an organization to fulfil its long term goals and objectives.

A lifecycle of a process improvement project includes the following steps: define scope and KPI’s, measure of main KPI’s, collect and analyze detailed data, and improve the process using the original concept of the Deming cycle. Metrics may be customer-based (customer satisfaction, time to market, accuracy of process) or organizational-based (cost, revenue, utilization of resources).

The most important process improvement methods are the following: business process reengineering (BPR), Six Sigma, and Lean. BPR is different from most other process improvement methods because it does not focus on an AS IS, but on a TO BE status. This means a more radical process redesign method (Samia, 2008). Six Sigma and Lean process improvement methodologies are considered advances from Total Quality Management (TQM).

2.2. (LEAN) SIX SIGMA, ONE OF THE LATEST PROCESS IMPROVEMENT TOOL(S)

There have been three recognizable generations of Six Sigma. In the first period (1987-1994), the aim of process improvement projects was a reduction of defects. Motorola was one of the first companies, which successfully implemented this new quality improvement approach. The second period lasted for 6 years; the focus was on cost reduction. Great examples of this period are General Electric, Du Pont, and Honeywell. During the third period, companies recognized the possibility of creating value for customers and for the enterprise (Antony, 2007). Nowadays, it is quite common that companies combine Lean with the Six Sigma methodology, their Process Improvement Programs are called Lean-Sigma Programs. The main key performance indicators in the last case are cycle time, takt time, customer satisfaction etc., which come from the Lean methodology. The aim of Lean method is to map the value or non-value generation of each process steps and to identify the unnecessary steps of them (called waste). At the end result is reduction of cycle time of the whole process.

However, well-known companies such as General Electric, Motorola, and Honeywell have been using it for years, the application of Six Sigma in the service sector is still quite limited, as only the third generation of Six Sigma addresses service, commercial and transactional

system quality. Research shows that most of the service processes like billing, shipping, order entry, response to service requests, baggage handling, etc. performs at less than 3.5 Sigma quality (Yilmaz and Chatterjee, 2000).

3. DEPLOYMENT OF (LEAN) SIX SIGMA PROGRAMS

3.1. MISCONCEPTIONS OF SIX SIGMA, WHICH HINDER (SUCCESSFUL) DEPLOYMENT OF A SIX SIGMA PROGRAM

Before launching a Six Sigma program in a company, it is not only enough to know and deeply understand the methodology itself, but it is also good to be aware of the common myths and misconceptions about Six Sigma, which can hinder the acceptance of it by the management team in order to be able to handle them. The first four misconceptions, that appear below, are mentioned by Kumar and Antony in 2008.

Myth 1: Six Sigma is the flavour of the month

TQM, ISO, BPR were also seen as ‘magic tools’ at first, but over time their strength have decreased. The popularity of Six Sigma is still growing. Lean Sigma is more than a method; it is a way of thinking. Companies, which successfully deploy Lean-Sigma, have lived a real cultural transformation, which results in a continuous appetite for improvement of processes, quality and efficiency. Japanese automobile companies – where Lean methodology is already part of the company culture - got an average of 61.8 ideas per employee per year, while U.S. and European counterparts averaged only 0.4 ideas (Womack, Jones, and Roos, 1990).

Myth 2: Six Sigma is all about statistics

There is a common misperception and criticism towards Six Sigma, which is that the method is all about statistic. This myth comes not only from the name itself but also from the fact that a Black Belt Training² takes, in general, four weeks. 60% of it is about the statistical methods and programs. Process improvement project’s improvement decisions are based on facts and on statistical data, which can be gained from customers or from internal data. Beside the statistical analysis, these process improvement methods use the tools of classic project management, which help the structural approach. Lean-Sigma can be seen as a special project management way.

Myth 3: Six Sigma is only for manufacturing companies

Origins of Six Sigma go back to mid 1980’s, when first, Motorola, and next, General Electric, began to use this systematic process improvement approach giving the impression that it could be deployed only in manufacturing. Nowadays, companies often combine Six Sigma with another process improvement methods, Lean, which ensures them a wider selection of improvement tools and more flexibility. Tools of Lean-Six Sigma like Value Stream Map, Pareto Chart, Voice of the Customer, and Fishbone Diagram are very easy-to-use to detect waste and defects in processes in order to increase their service level. Browsing job offers, it is remarkable that the number of Six Sigma jobs dramatically increased in service sectors in the USA, especially in the health care sector, but we can find some job offers also in libraries, airports etc.. In the case of service processes, some factors hinder the spread of the Six Sigma methodology; difficulty in quantifying and gathering data, difficulty in distinguishing between service processes and sub-processes, data collection in manufacturing is easier than in the service industry (Hensley and Dobie, 2005).

Myth 4: Six Sigma works only in large organizations

Although Six Sigma was only used at the beginning in large enterprises, Six Sigma can be used everywhere where processes and problems exists. Many traditional manufacturing

companies are taking their six Sigma experience to their service operation in order to improve their supporting functions like accounting and supply chain management.

Myth 5: Six Sigma is considered too difficult to implement

As Six Sigma is quite a complex methodology, which combines statistical and project management knowledge, it is hard to explain its essentials and benefits.

A key factor is that those persons who lead the program and projects must be well-trained experts with good project management skills.

3.2. STEPS OF DEPLOYMENT OF (LEAN) SIX SIGMA PROGRAMS TO A (SERVICE) ORGANIZATION

As business process improvement programs require high commitment from the organization (high cost, long wait time while it becomes mature), careful preparation and a deployment strategy are needed before starting the introduction. Companies that have decided to adopt Six Sigma must be aware that to see a benefit, they need to wait.

Gleicher's formula for change ensures an easy-to-follow structure for determining whether an improvement program will be successful or not (Eaton, 2010).

*Probability of change of success = dissatisfaction with the current state * clarity of the vision of what the organization is trying to achieve and what it means to individuals * clarity of what the first steps will be to the desired state > standing for resistance*

It shows that if there is no dissatisfaction with the current state, or no clear vision about the scope, or the implementation steps are not defined, the improvement programs can fail. The formula was improved by Kathleen Dannemiller in 1992, when she added a fourth factor to the original formula: creative leadership to make the process work. If any of the elements is missing, there is a strong chance that the business improvement program fails (Eaton, 2010).

The steps of the deployment are the following:

1. Recognition of the strong need for change

Based on the above-mentioned formula there must be a strong need for change within the organization which must be recognized in time by the management. This need could be generated by internal (quick organizational growth, chaos in processes, quality problems, employee dissatisfaction, employee churn rate, long take to market time etc.) and by external factors (decreasing revenue, economic recession, new competitors in the market, new regulations, low product quality, customer dissatisfaction, increasing cost, etc.).

Recognition of need for change in time is very important, as from the launch until the first results it takes at least six months, while until the maturity two or three years. It also means that if the management support is missing already at the beginning the fall of the Program is almost sure.

2. Invitation of business improvement experts

After the need for change is identified and the management agrees to implement a process improvement program, experts and consultants should be invited to map the current state and the best way and method to introduce a business improvement program. Sometimes, especially in the case of multinational companies, internal experts and knowledge is available to deploy a new program.

3. Analyzing process culture and process maturity

Not every organization is suitable for introduction of a complete business improvement program at the beginning, which involves all departments of the organization. Complexity of deployment depends on more factors; level of management support, amount of resources, need and openness for change, maturity of the organization from process and culture aspect.

These factors are revealed in general during in depth interviews with top, middle management, process experts, and process owners. 10-15 interviews should be made at this stage, which can be also completed by quantitative research. In case of low resources and support, stepwise deployment is suggested.

Organizational culture has been recognized as a very important factor, which has an influence on successful deployment (Zu, 2010). Three of four cultural orientations, *group culture* (participation, teamwork, facilitator-type leader, people and commitment), *developmental culture* (creativity, flexibility, entrepreneurship-type leader, innovation and new resources), and *rational culture* (efficiency, task focus, achievement-type leader, goal orientation and competition) are important for implementing business improvement culture. The fourth, *hierarchical culture* (centralization, order, administer-type leader, regulation, control), does not play a role in the importance of Lean Six Sigma (Zu, 2010). The four organizational culture classifications are based on Quinn and Rohrbaugh's work, 1981).

4. Elaborate the deployment strategy

After having a clear picture about the organization's culture and about the process maturity, the deployment strategy must be elaborated using the company strategy. It includes the action plan of deployment, vision, communication plan, stakeholder management, bonus system etc. Here, very different strategies can be applied; companies can integrate process improvement into a bigger change management program or process improvement can be introduced stepwise; for example, only in selected departments or first, the more comprehensive Lean method, after Six Sigma will be introduced, etc.).

5. Involve-top management and middle management team

Resources for the Program, acceptance of goals and results are ensured by the management, which means without their support a Business Improvement Program can't be successful, their involvement is crucial.

Different deployment strategies can also be applied in this case. A critical question (which also depends on the organization's culture) is which management level should be targeted with what kind of message. The approach can be top-down, bottom-up or middle out. Mintzberg affirms that the acceptance of a new mindset change requires an open, strong organizational culture and active communities who are willing to change. These communities can mainly be found in the middle management team, so he suggests relying on them (Mintzberg,2009).

6. Set a clear vision, measure of success

Gleicher's formula suggests that setting a clear vision is a crucial success factor. The most typical goals and objectives include obtaining:

- 3.4 defects per million customer opportunities
- Excellent customer satisfaction
- Less than 10 percent inefficiency in all key processes by eliminating waste from the processes (Lean method).
- Revenue increase, cost reduction

It is very important to create at the beginning a concrete measurement system which gives a clear picture about the Program status and about the success to the Management and to the Organization, as well. This measurement system must be aligned with the company strategy. Interest towards the Program can be reached, sustained only in that case if its KPIs have strategic importance. In other case it won't be supported by the Management.

7. Select the most talented people for change agents

Other key success factor is project leaders. They are the Black Belts, Master Black Belts. They must be those talented persons of the organization, who have professional experience, able to lead bigger, cross functional projects. They must be good communicators, who have enough power and belief to make changes happened.

These change agents are mainly selected by assessment centres ensuring that the most talented and prepared persons are selected. Black Belt status is perceived as great career opportunity, they are often seen as the future leaders of the company. Welch and Welch (2005) points out that “Perhaps the biggest but most unheralded benefit of Six Sigma is its capacity to develop a cadre of great leaders.”

Companies can apply another deployment strategy when not internal professionals are selected for these positions, but external consultants are invited to deploy the Program and to run projects. The advantage of it can be that these consultants have more experiences as they led more projects. The disadvantage can be that they are not familiar with the company and with its culture.

8. Train the change agents and other team members

The key attributes of Project Leaders identified from a pilot study of UK manufacturers include: effective communicators, change agents, customer advocators, team builders, results-driven-mindset personnel, positive thinkers, etc. (Antony, 2007). In order to obtain the necessary statistical and methodological knowledge in case of Six Sigma, Black Belt must be take part in a 15-20 day training, which includes statistical, project management elements. It is also required that other core team members become involved in the method with a shorter, from 1 to 5 days training (Yellow Belt, Green Belt). They are called Green Belts. Lean training takes less time and less statistical knowledge is required. Trainings play important role in deployment, as they offer good opportunity to learn the method personally by case studies. 10-15 persons take part in general in a training, so the trainings are also good communication tool of the Program. Training and communication are also extremely helpful during deployment.

Effective implementation of an improvement program is about organizational learning and without organizational learning there can be no continuous improvement (Wiklund and Wiklund, 2002).

9. Select the Project

Selecting the right project in a Business improvement program is a crucial factor in the early success and long-term acceptance within any organization (Antony, 2004). In the deployment phase, the first focus is to create acceptance and excitement. The first projects should provide enough financial benefit to demonstrate the potential of the program and convince top management. It can be a potential failure risk if their scope is too wide or too short, or the selected process is not a clear process or irrelevant from the strategy aspect.

4. RESULTS: KEY FACTORS OF BUSINESS IMPROVEMENT PROGRAMS

Research (see Table 1) shows that the most important factors, which influence the success of Six Sigma deployments, are:

- 1 .) Commitment, support of the Management and Organization
- 2 .) Understanding of methodology, training
- 3 .) Project selection aligned with the company strategy

Table 1: Most important factors influencing the success of Six Sigma deployments

Ranking	Factor	Average	Standard deviation
1	Managing involment and commitment	4.3	0.6749
2	Understanding of Six Sigma methodology	4.2	0.6726
3	Linking it to a business strategy	4.1	0.8403
4	Linking it to customers	4.1	0.8973
5	Project prioritization and selection	3.9	0.7906
6	Organizational infrasturcture	3.9	0.9992
7	Cultural change	3.6	0.8842
8	Project management skill	3.6	0.9413
9	Linking it to supplier	3.5	1.1536
10	Training	3.4	0.8012
11	Linking it to employees	3.1	0.8853

Source: Antony and Banueals, 2002

Research's results are similar to those successful key factors, which are experienced also by me during the last years. As a Business Improvement Programs requires some highly qualified, trained, full-time employees and at least six months until the first results start coming, support and focus of the management team is the key success factor. Attention of the management team can be sustained by communication of successful projects. The keys of successful projects are careful project selection and good project leaders, with supportive team members.

Researches also underline the importance of training. Teaching team members, both middle and top management, helps to spread the new way of thinking and process culture. During the trainings, participants are able to understand structural problem solving methods helped by tools and templates and a decision making process based on data by practicing it with case studies.

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GLOSSARY

- 1.) Turbulence: violent or unsteady movement of air or water (Oxford Dictionary)
- 2.) Black Belt: expert in Six Sigma methodology, project manager
- 3.) Governance: mechanism with it an organization control its action, decision making process