

The key concepts of six sigma business essay



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Six Sigma is a methodology that provides businesses with the tools to improve the capability of their business processes. This increase in performance and decrease in process variation leads to defect reduction and vast improvement in profits, employee morale and quality of product.

(isixsigma, 2010)

Six Sigma was originally developed by Motorola that today enjoys widespread application in many sectors of industry. It is a systematic method for process improvement that often uses the five steps defined by the acronym: DMAIC (Define, Measure, Analyse, Improve and Control). (Schroeder, 2008)

Six Sigma seeks to identify and remove the causes of defects and errors in manufacturing and business processes, using a set of quality management methods, including statistical methods, and creates a special infrastructure

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of people within the organization (“ Black Belts” etc.) who are experts in these methods. Each Six Sigma project carried out within an organization follows a defined sequence of steps and has quantified financial targets (cost reduction or profit increase).

Cigna Corp., a 28, 000-employee provider of employee healthcare and related insurance benefits used Six Sigma to adapt to dramatic changes in the healthcare industry where a 49% decrease in total inpatient case costs was achieved.

The following is the report according to Cigna’s success story;

CORE PHILOSOPHY AND KEY CONCEPTS OF SIX SIGMA

Customers do not usually judge a product or service by averages like performance but by what they actually get out of each product. Overall customer satisfaction rests heavily on the consistency with which the products and services are delivered. This is a result of the combination of reduced process variation and improved process capability.

The following are the core philosophies and key concepts of Six Sigma in any organization:

Continuous efforts to achieve stable and predictable process results (i. e. reduce process variation) are of vital importance to business success. The more variability in a process the larger the probability for a defect somewhere. At the heart of this concept is elimination of variation of process for defect removal.

Manufacturing and business processes have characteristics that can be measured, analyzed, improved and controlled (DMAIC), so as to improve the existing company methodology or to create a new and improved defect-free methodology for production in the organisation.

Achieving sustained quality improvement requires commitment from the entire organization, particularly from top-level management to bottom level management in the organisation, every employee and worker is responsible for the success of the organisation or company at large.

(Berger, 2003)

DMAIC refers to a data-driven quality strategy for improving processes, and is an integral part of the company's Six Sigma Quality Initiative. DMAIC is an acronym for five interconnected phases which are Define, Measure, Analyze, Improve, and Control.

Each step in the cyclical DMAIC Process is required to ensure the best possible results. The process steps:

The DMAIC Methodology

(ASQ , 2010)

(Figure 1)

Define

In the Define stage, the project team identifies the purpose and scope of the project and confirms that a DMAIC project is in fact appropriate. The company should know who their customers are, what they need in terms of

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products and services and what are their expectations, the company should know the customers critical to quality issues and their core business processes involved. The tools that can be used are project boundary, where the company should define the project boundaries and the start/stop process. Another tool is process mapping which defines the processes to be improved in the company.

Measure

During Measure, the focus is on gathering data to describe the current situation through a data collection plan. It is critical to identify the appropriate process measures and gather sufficient baseline data, so that once improvements are made the impact can be verified empirically.

Here a detailed process map is created, including documentation of variations in how the process is carried out from as many sources as possible. With this information the project team can begin to see some of the factors that may be affecting process performance by comparing the customer survey results.

Analyze

The purpose of the Analyze step is to determine the root causes of the process problems and inefficiencies and opportunities for improvement. A variety of methods are used to identify potential root causes, narrow down the possibilities, and confirm the relationship between the suspected causes and the performance of the process, such methods may be The cause and effect chart or use of Pareto charts. The organization should determine if the process should be improved or redesigned.

Statistical analysis is a key component of this step, and is used to demonstrate these relationships.

According to Cigna the analysis reveals some interesting facts, including:

- Re-admission metrics were misleading – in fact, understated – because they did not include subsequent admissions and treatments of problems other than those related to the original diagnosis and treatment.
- Identification or engagement of patients at high risk was inadequate.
- Follow-up discharge plans and use of outpatient treatment were inadequate.
- Follow-up communication was not effective (too much and too confusing).

Improve

Then comes the Improve step, which involves designing creative solutions to fix and prevent problems from ever happening again, especially the root causes. Techniques involve brainstorming, FMEA (Failure Modes and Effects Analysis), and piloting the improvement plan before rolling it out in full.

The same data that was obtained during Measure to establish the baseline is again gathered after improvements are in place. Data analysis and charting techniques are used to confirm that performance has in fact improved sufficiently to meet the project's goal.

According to Cigna improvement included five components:

1. Redefine a more comprehensive, customer focused re-admission metric.

2. Improve discharge and follow-up planning.
3. Provide automatic ICM enrolment to providers and patients.
4. Consolidate patient communications, and improve delivery.
5. Implement protocols, templates and training for all care coordinators, including employee assistance programmes and nonclinical services, while emphasizing the importance of a comprehensive, holistic approach to care.

Control

Finally in the Control phase, steps are taken to ensure that the gains obtained during Improve are maintained, preventing going back to the old ways that the company used to run things. Common tasks include setting up ongoing data tracking and a plan for identifying when the process performance starts to slip and taking appropriate action. At the end of this phase, the project manager transfers ownership back to the process owner, and the team communicates the project results to all stakeholders.

According to Cigna a full-year study was designed using 286 patients enrolled in the ICM programme compared with 517 patients with similar problems in a control group.

(Bright hub articles, 2010), (isix sigma, 2010)

Probable Implementation Roles

One of the key innovations of Six Sigma is the professionalizing of quality management functions. Prior to Six Sigma, quality management in practice was largely relegated to the production floor and to statisticians in a

separate quality department. Six Sigma borrows martial arts ranking terminology to define a hierarchy (and career path) that cuts across all business functions and a promotion path straight into the executive suite. Six Sigma identifies several key roles for its successful implementation.

- Executive Leadership includes the CEO and other members of top management. They are responsible for setting up a vision for Six Sigma implementation. They also empower the other role holders with the freedom and resources to explore new ideas for breakthrough improvements. The executive leaders must show determination and confidence in the process, they must back it up with all integrity and must practise and model patience to their employees and organisation at large.

A CEO needs no qualifications to establish and support and promote the design for Six Sigma initiatives. He or she is at least minimally qualified by virtue of being the top person in the organization and ultimately responsible for all financial results of the organisation. The more knowledge that the CEO has on Six Sigma the better for the organisation at large.

- Champions are responsible for Six Sigma implementation across the organization in an integrated manner. They are selected by Executive Leaders from upper management.

Champions serve as mentors, leaders and coaches supporting the project teams and ensuring the resources necessary. The champion promotes Six Sigma methodology throughout the company and especially in specific functional groups. The qualifications of a champion depend on the organization and the Six Sigma infrastructure.

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- Master Black Belts, identified by champions, act as in-house coaches on Six Sigma providing technical leadership of Design for Six Sigma (DFSS).

They devote 100% of their time to Six Sigma. They have the highest level of technical and organisational proficiency. They assist champions, coordinate the various projects and guide Black Belts and Green Belts when necessary. Apart from statistical tasks, their time is spent on ensuring consistent application of Six Sigma across various functions and departments.

The master black belt must be able to work with statistical and non-statistical tools, to train, and to facilitate and coordinate activities. They must be able to facilitate problem-solving effectively without actually taking over a project.

- Black Belts operate under Master Black Belts to apply Six Sigma methodology to specific projects. They are responsible for leading DFSS projects and teams full time. They are the key agents, fully dedicated and thoroughly trained in Six Sigma techniques and tools and they devote 100% of their time to Six Sigma. They primarily focus on Six Sigma project execution, whereas Champions and Master Black Belts focus on identifying projects/functions for Six Sigma.

- Green Belts are the employees who take up Six Sigma implementation along with their other job responsibilities. They receive more simplified training than black belts and work on DFSS only part time; they can spend from 10% to 50% only of their time on DFSS. They operate under the guidance of Black Belts and support them in achieving the overall objectives. They generally help black belts collect data and develop experiments, they

may lead small projects, or they may form DFSS teams, facilitate their work, and manage projects from start to finish.

- Yellow Belts are employees who have been trained in Six Sigma techniques as part of a corporate-wide initiative, but have not completed a Six Sigma project and are not expected to actively engage in quality improvement activities.

(iie, 2010), (Brue, 2003)

The Probable Six Sigma organisation in Cigna

Six Sigma organizations is a structure or chart which shows the different managerial positions of workers in a Six Sigma organisation from top level management (Executive managers or head of organisations) to bottom level management (Green belt or yellow belt workers depending with the organisation). The following is the probable organisational structure according to Cigna;

http://www.sixsigmaalchemy.com/images/six_sigma.jpg

(six sigma alchemy, 2010)

Conclusion

In conclusion, from the experience of Cigna we can see the effectiveness and efficiency of Six Sigma in an organisation. That is by following the Six Sigma DMAIC methodology, Cigna has been able to gain process and organisational improvement in a way that is systematic, sustainable, confirmed with data, and in alignment with customer and stakeholder quality expectations.

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We can see that through the use of Six Sigma the health insurance provider company Cigna managed to obtain the following impressive results.

- A 53% decrease in re-admissions.
- Savings of about \$3, 000 per patient and the previously mentioned 49% decrease in total in-patient care costs.
- A 14. 9% improvement in the rate of patients taking medications as prescribed.

Along with the impressive cost savings in outpatient care, Cigna saw even more significant savings for patients in the ICM inpatient care programme:

- The total number of admissions in the ICM group decreased 53% vs. increasing 11% in the control group.
- The total cost for inpatient care decreased by 49% in the ICM group vs. an increase of 225% in the control group.