Chapter 5

Six Sigma Marketing Methodology and Productivity Improvement

The "science" of Six Sigma resides in its reliance on two things: measurement of activities and results, and secondly, a rigorous approach to problem solving. It is a disciplined methodology of *defining*, *measuring*, *analyzing*, *improving* and *controlling* the quality in every one of the company's products, processes and transactions–with the ultimate goal of virtually eliminating all defects.

The five steps of DMAIC are as follows:

- *Define* - the problem
- *Measure* - the current process or product performance
- *Analyze* - the current performance to isolate the problem
- *Improve* - the problem by selecting a solution
- *Control* - the improved process or product performance to ensure that the targets are met.

Technically speaking, Six Sigma is described as a data driven approach to reduce defects in a process or cut costs in a process or product, as measured by, "six standard deviations" between the mean and the nearest specification limits. From a statistics perspective, how well a desired outcome (or target) has been reached can be described by its average or mean (μ), which is nothing but the sum of all data points divided by the number of data points. The standard deviation (σ) describes how much variation actually exists within a data set, which is calculated as the square root of the variation from the mean.

As explained by Muralidharan (2015), organization has to undergo structured problem solving approach through proper data collection and deliver the expected customer satisfaction. The growth of the organization may be valued in terms of its financial gain, marketing strategies, stakeholder confidence, employee retention, productivity and resource utilization etc.

A relatively simple approach to speed up the process and productivity improvement is Lean Six Sigma (LSS). LSS (sometimes referred to lean or lean manufacturing) is a process improvement program that combines two ideas: *Lean* - a collection of techniques for reducing the time needed to provide products or services, and Six Sigma - a collection of

techniques for improving the quality by combining the two. Lean Six Sigma is a proven business management strategy that helps organizations operate more efficiently.

In Lean Six Sigma the emphasis is on reducing costs by eliminating product and process waste (Shuker, 2000). It also focuses on eliminating non-value added activities such as producing defective product, excess inventory charges due to work-in-process and finished goods inventory, excess internal and external transportation of product, excessive inspection, and idle time of equipment or workers due to poor balance of work steps in a sequential process. The goal of lean manufacturing has long been one of the goals of industrial engineering (Gryna et al.,(2007); Muir (2006)).

According to many business analysts and quality improvement experts, Lean Six Sigma is the most popular business performance methodology in the history of corporate development of quality of products and services, substantially contributing to increased customer satisfaction. The operating philosophy of Lean is to eliminate waste through continuous improvement. This is achieved through

- defining value from the client's perspective,
- identify the value stream,
- only make what the client pulls,
- keep the flow moving continuously, and
- always improve the process.

The process improvement, with its definitions and measures of value, can help management put a process or parts of a process in place that will keep everyone honest when it comes to adding value for customers. Promoting more sophisticated Lean manufacturing is another value adding phase of marketing activity. The Lean manufacturing has become widely accepted in supply-chain management, as it identifies customer value and maps the value stream and also helps to pursue perfection by continually reducing errors, mistakes and waste. Another relatively new concept of Six Sigma is the Six Sigma marketing which integrates marketing concepts into Six Sigma methodology, which is discussed in section 5.1 below.

This chapter emphasizes the importance of Six Sigma marketing, relatively an upcoming topic and explores the marketing essentials needed to improve the quality of service, product

and growth of the organization. The chapter addresses management professionals, Six Sigma consultants, and quality professionals responsible for the Six Sigma marketing processes and sales. In various sections below we discuss the science of marketing through the DMAIC methodology of Six Sigma approach.

5.1 Six Sigma Marketing: The process methodology

With major focus to create integration between VOC and VOB, SSM efforts aimed at designing scientific structure for business growth. SSM bridge the gap between VOC and VOB through fact based rigorous approach instead of intuition and guessing.

Creveling et al., (2007) offers three unique methods of Six Sigma marketing namely, Strategic, tactical and Operational areas of business processes. According to them, the natural flow of marketing work starts with strategic renewal of the offering portfolios, to the tactical work of commercializing new offerings, and finally to the operational work of managing the product and services lines in the post-launch sales, support and service environment. Marketing's role in each of these three business areas can be defined by the work it performs in each. This work can be characterized by a process unique to each. These three processes define how marketing's work links the strategic, tactical, and operational areas in a closed-loop fashion.

The method to guide marketing strategic work is called IDEA (Identify, Define, Evaluate and Activate). The approach for tactical work is called UAPL (Understand, Analyze, Plan and Launch) and the method to direct marketing's operational work is called LMAD (Launch, Manage, Adapt and Discontinue). The methods described above are product/service specific and are useful for commercialization of the projects. Each of these processes features distinct phases in which sets of tasks are completed. Each task can be enabled by one or more tools, methods or best practices that give high confidence that the marketing team will develop the right data to meet the task requirements for each phase of work. Marketing processes and their deliverables must be designed for efficiency, stability and most importantly, measureable results and hence the importance of Six Sigma. Therefore, the phases discussed in IDEA, UAPL, and LMAD processes ensure measurable results that fulfill any company's requirements.

Reidenbach (2009) discuss SSM with reference to value delivery system of the organization. Considering *"satisfied customers are not necessarily loyal customers*", author discuss DMAIC approach based on effective value delivery system. Author emphasis upon importance of SSM approach to increase effectiveness and efficiency of value delivery system of the organization. Importance of SSM is explained based on establishing effective value delivery system, which ultimately leads to acquring new customer, inducing current customers to purchase more and retaining current customers. Such effective management of value delivery system puts organization at the advantageous position over competitors and there by incresing cash flow and growth in market share.

In this SSM specific DMAIC approach, *Define* phase emphasis upon identifying market opportunity for gorwth and inveting in to the one which can give maximum ROI.Defining value for the target market is the goal of *Measure* phase of SSM approach.Objectives of this phase are to identify treade of between price and quality and to identify critcal CTQs that drive value equaltion. Author explain major tool for this phase as Competitive Value Model. *Analyze* phase focus upon capturing market perceived value through different tools like Competitive Value Matrix, Competitive Vulnerability Matrix, Customer Loyalty Matrix. Improving the processes that bridge the gap between competitors and your organization is the objective of *Improve* phase. Improvement in the process that supports value enhancement is expected goal of this phase. This phase use different tools like cause and Effect Matrix and Value Stream Mapping. *Control* phase focus upon sustaining improvement efforts and developing alarming system regarding value performance.

Pestorius (2007) very well address the issue of delayed implementation of Six Sigma to transactional processes like sales and marketing. According to the author, following reasons are responsible to hinder spread of Six Sigma into sales and marketing:

- One of the major preconception regarding Six Sigma is that it is only to improve manufacturing processes. In manufacturing process almost every input variable is controllable and process boundaries are clear, where as in transactional environment it is not possible to control majority of input variables and process boundaries are at most blur. Human element of transactional process makes it more difficult to adopt fact based Six Sigma approach.

- Majority of Six Sigma professionals hailed from manufacturing. Since they are not familiar with sales and marketing processes, they don't recognize potential to apply Six Sigma to transactional processes.
- Lack of strong cause of improvement actions for transactional processes is another major reason for delayed application of Six Sigma in transactional processes.

In his book, author propose DMAIC methodology for different marketing functions like hiring sales representative, new product sales, sales representative competency, field-visit process, sales territory planning, product promotion process etc. According to author since transactional process directly drive sales, application of Six Sigma to it can directly claim revenue generation which is not the case with manufacturing setup. The advantage of using Six Sigma to solve any business problem is that Six Sigma challenges teams to systematically *define* the project intent and goals and hence creating an economy of efforts. *Data* will replace *measurement* and that allows understanding capability of the process. *Analysis* replaces gut and supposition in identification of root cause. A structured *Improvement* is deployed to test to refine processes. *Control* will put in place to ensure that what was fixed will stay that way.

Another important contribution of SSM is an informative piece by Webb and Gorman (2006). In this book author justify application of Six Sigma to sales and marketing based on shifted power in customer's basket. According to the author, presence of ample providers in market has put customers in the advantageous position and hence to survive in the market companies need to propose quality offerings at minimum price. This scenario leads to the need of improving all business function and since sales and marketing are most customer intense functions their improvement pave ways to financial success to the company. Analogous to raw material, procurement, assembly, shipping and order delivery in manufacturing, author describe people and marketing place, finding, winning, keeping customers, orders delivery as the sales and marketing process stages. To improve upon sales and marketing through Six Sigma way author propose following sequence of steps,

- Define the part of sales process and how they fit together
- Measure the sales process as production process
- Distinguish important form unimportant

- Improve the demand plan, sales forecasting and operation planning.

Authors demonstrate integration of Six Sigma to sales and marketing process through empirical case study. In case study they explain how Six Sigma efforts were integrated sales and marketing function to achieve breakthrough in revenue growth of US based company, Technical Resume Group (TRG).

5.2 Six Sigma Marketing: The proposed DMAIC methodology

Like in any Six Sigma project, we often articulate the performance evaluation through initial sigma level or capability analysis and set goals accordingly for each process for further improvement. A balanced scorecard is then prepared to visualize and monitor the improvement and manage the resources to market and sales. A scorecard must track the right information to be useful to a data-driven marketing leader. Taking the time to determine the critical marketing risk accrual requirements defines the appropriate information to design into and track in a scorecard. The requirements may vary based on the tools, tasks, and deliverables. Through a scorecard a marketing professional can address the issues like brand equity, customer equity/loyalty, target markets, and ROI etc.

Below, we discuss the phase wise tools and deliverables for a better marketing process. Six Sigma propose different frame work to manage projects. DMAIC frame work is used when project focus is on improving existing process and DMADV (Define-Measure- Analyze-Design-Verify) frame work is used when project focus is on designing new process. Examining each toll gate of DMAIC or DMDV frame work, managing budgeting and scheduling, managing team dynamics and resolving conflict is the major constituent of project management (Pyzdek and Keller, 2009). SSM also make use of these structured approach for enhancing efficiency and productivity of the processes (see also Muralidharan and Raval, 2017).

Define

This phase involves the defining and clarifying customer requirements (both internal and external). Those requirements are then get translated and parsed into supplier (or technical)

specifications. Here each specification becomes a deliverable and gets assigned to the person accountable for producing the deliverable. The necessary activities to complete that deliverable get defined; the appropriate support tools are identified. Finally, all these steps are summarized in a project plan according to the agreed-on methodology, and it moves to marketing professionals for their comments and approvals.

Marketing creates predictable streams of revenue growth by enabling the organization to profitably identify and secure new customers, and to keep and grow the value of these customers. Key ingredient in this step is for marketing to establish goals and deliverables designed to achieve these outcomes. To fully realize these outcomes, the various marketing functions will need to be integrated to create a comprehensive and integrated workflow process. This integrated workflow process will then need to be mapped. Integrating this work flow through different metrics is the unique feature of SSM. Once these elements are completed, new metrics that tie marketing to the business outcomes must be defined and standardized across the marketing organization for the purpose of providing insight into performance and facilitating strategic decisions. This phase contribute SSM based on

- Identification of the market opportunity and clear positioning of company
- Identification project that is in best interest of all stake holders
- Clearly defined project objectives with possible advantage attached with attaining it
- Examination of processes that can best address project objectives
- Identification of appropriate KPI that affects process performance significantly

Among the tools used for defining the problem project charter and SIPOC are most frequently used. The SIPOC diagram with reference to case study presented in chapter 7 is shown in Figure 5.1. Project charter also include the depiction of problem, goal specification and improvement required. The SMART goal for SSM can be viewed as follows:

- S:Simple
- M:Measurable
- A: Achievable
- R:Realistic
- T:Tangible

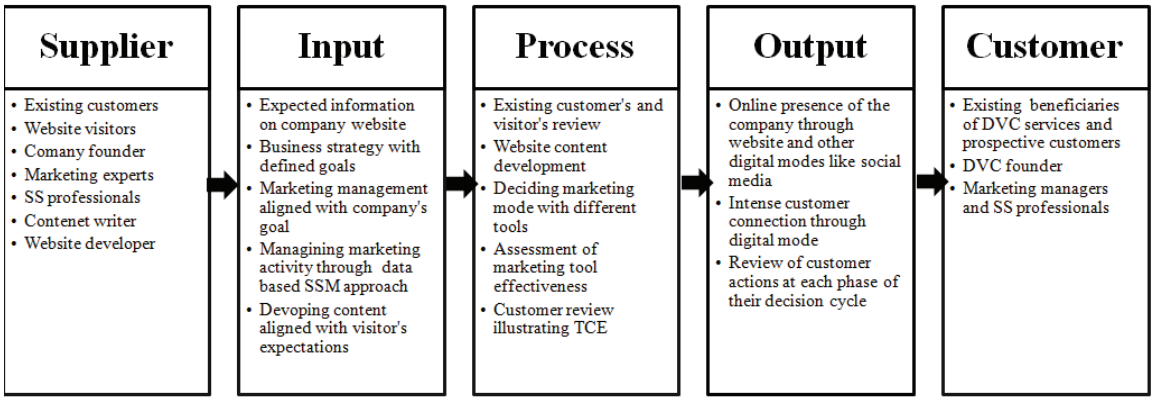

Fig 5.1. *SIPOC with reference to DVC case study*

Measure

A reliable data is essential for SSM. Through which performance can be measured and improvements can be made. The first step in measuring and improving performance is to determine what data exists, where that data is, what data is needed, and how to obtain the data. Customer purchase activity, marketing program results and conversion rates, actual costs for programs and people, lead quality data and lead cost, win/loss ratios defections that occur in the buying process etc. are the core information's that help professional to make decisions. The more it is quantified, the better the decision be.

Investments contribute to the company's ability to achieve its goals and generate profitable revenue. The marketing metrics are contingent upon knowing the business outcomes. It is imperative that the business outcomes be clarified and specified before the marketing metrics are established. Business outcomes may be related to the specific number of customers to be acquired and at what cost, the specific rate of customer acquisition, the specific lifetime value of a customer, customer loyalty, and specifically how quickly customers adopt new products. By knowing the business outcomes, marketing professionals knows what objectives it needs to achieve and within what parameters. Marketing can now establish the metrics, the performance targets and processes, and measure its performance. Tying marketing metrics to business outcomes forces marketing to transform from a transactional function to a strategic contributor. *Measure* phase facilitates,

- Operational definition of KPI identified in *Define* phase

- Criteria about how, where and when to collect data
- Optimum utilization of proactive and reactive data
- Examine baseline performance of process based on measurements

Three of the significant marketing quality parameters need special attention are critical-to-quality (CTQ), critical-to-cost (CTC), and critical-to-process (CTP). A Six Sigma strategy guarantees to incorporate the customer requirements through these critical parameters and enable the metric for quality assessment performance evaluation. The process measurements also facilitate better planning, organizing, evaluating and controlling the business processes both qualitatively and quantitatively. With the available measurements, the SSM professionals should establish a baseline performance, which may be the stepping stone for further improvement and progress.

Analyze

The SSM professionals must frequently use seven quality tools (Histogram, Pareto chart, Gantt-Chart, Cause and effect diagram, Failure mode effect analysis, Affinity diagram and Control chart) to have an up to date assessment of their marketing processes. Even a normality plot or Box-plot technique for quantitative measurement is a powerful tool for assessing whether the process is under statistical control or not. Performance improvement results from deriving insight through the analysis of the data helps the professionals to validate gaps in requirements versus current metrics with vital causes. By analyzing the data and understanding what it means, facilitates, the marketing people to determine the degree of impact it is having on the organization, and redesign processes that will improve performance. Further, analysis helps to

- Prioritize root causes and identify the most contributing one
- Establish a proper process model in terms of deterministic or probability model
- Suggest possible relationships and associations between control variables
- Identify the most contributing input/output variables through statistical analysis
- Test the significance of various input/output variables
- Conduct a revised root cause analysis to identify the vital causes
- Judge the current performance with the customer requirements.

Application of statistical methods and adoption of tools and techniques will enable and empower managers/administrators for better utilization of resources, enhanced productivity and quality control in manufacturing, automobiles or services sector equally. Besides engineering knowledge and management skills, the analysis skill is also necessary for any Six Sigma Marketing project (Muralidharan, 2015). Knowledge of statistical methods alone does not work many times. One should also have the supporting tools to substantiate the causes and effects, which is fulfilled through some of the effective management tools: brainstorming, process mapping, failure modes and effect analysis, etc. Analysis leads right into the improve step.

Improve

The main purpose of applying Six Sigma to marketing is to determine how to improve productivity, performance and processes. Data analysis should result in valuable insights that generate possibilities for improvement. These possibilities for improvement can include enhancements in tools, systems, processes, and skills. Even though change is disruptive, developing new ways to approach the market enables the marketing organization to play a more strategic role. Hence improve phase involves developing solutions targeted at confirmed causes. The objective also extends to verify that the confirmed causes are statistically and practically significant and to optimize the process or product/service with the improvements.

From a micro level, the SSM professionals are capable for suggesting an improvement implementation plan, develop potential improvements or solutions for root causes, develop evaluation criteria, and prioritize solution options for each root cause identified through the improve phase. Further it facilitates to

- Examine solutions with a short-term and long-term approach
- Weigh the costs and benefits of "quick-hit" versus more difficult solution options
- Select and implement the improved process and metric
- Measure results and conduct a designed experiment as per the marketing requirements
- Validate solutions for improvement using statistical analysis
- Evaluate whether improvements meet targets

- Evaluate for marketing risk

It is often found that, marketing data involves lot of error variations (noise variation). Hence improving such data by removing the presence of noise variation is a challenge for any improvement. Marketing professionals should work on stabilizing the noise variation using the available statistical techniques. Even professionals can use simulation techniques to create marketing models to understand the characteristics of a process.

The Improve check sheets finally leads to the following:

- Prepare a list of innovative ideas for potential solutions
- Use the narrowing and screening techniques to further develop and quality potential solutions
- Create a solution statement for at least two possible proposed improvements
- Make a final choice of solution based on success criteria
- Verify the present solution with the anticipated one
- Develop a plan for piloting and testing the solution, including an action plan, results assessment, schedule etc.
- Consider potential problems and unintended consequences of the solution and develop preventive and contingent actions to address them.

Control

Marketing prides itself on its creativity, viability, and feasibility. But the time has come for marketing to document its processes and best practices and to apply these consistently in order to optimize marketing opportunities. The phases discussed so far, enabled us to identify a viable model and help us to quantify the nature of the relationship between the important variables of the process output. The statistical process-control technique can now be employed with considerable effectiveness for monitoring and surveillance of the process.

Applying Six Sigma to marketing will increase marketing's ability to deliver on

- market requirements as per customer's perception
- improve the efficiency and effectiveness of the marketing planning process
- successfully manage marketing operations

- provide transparency into marketing processes
- improve the collaboration between marketing and other groups within the business.

We use control chart (both variable and attribute) to track performance over time, evaluate progress after process changes/improvements and focus attention on detecting and monitoring process variation over time. The use of statistical process control also ascertains the repeatability and reproducibility of metrics in an operational environment. It facilitates communications plan of the improvements and operational changes to the customers and stakeholders, prepare implementation and risk management plan, consolidate cost-benefit and change management plan, and establish tracking procedures in an operational environment. Besides setting up control plans for tolerances, controls, measures, and standard operating procedures, it also validates in-control process and benefits for process capability, measurement system analysis (MSA) and Gage R&R, and documentation.

5.3 Six Sigma Marketing and productivity improvement

To make Marketing process meaningful, one must play with management by facts. Six Sigma Marketing is therefore strategic in identifying the problem, tactical in understanding the customer requirements and operational in implementing the strategy. Managing with Six Sigma may not be as exciting for some people as traditional management practices. Managing data, facts, measurement, analysis and experiments minimizes the politics, power struggles, personality clashes, and drama of organizational life. It works better, but mere improved performance does not appeal to some people. Others fear the transparency that data and facts bring to the table. Submitting to the rule of data demands maturity of mind, respect for reality, and dedication to standards.

Working systematically on all the three: strategic, operational and tactical phases help marketing managers to take maximum advantage in systematically improving the processes. Following benefits can be realized by effectively managing these three phases of marketing management,

- Strategic part of marketing plays significant role in devising foundation of organization existence. What is the core value based on which organization position itself in the market, what is the value dimension based on which company intends to compete in market and how to address those value dimensions in cost

effective ways are some of the organizational issues. These are the major deliverable of strategic marketing. Managing these components of strategic marketing through fact based Six Sigma approach creates strong base of long term market success of organization.

- Once deciding upon strategic part it is important to device structure through which these strategic objectives can be achieved. Hence, operational part of marketing focus upon devising structure based on which strategic objectives can be addressed. Defining different processes, scrutinizing processes through which best strategic goals can be realized, deciding process goals, developing measurement plan these all are different components of operational part of marketing. Productivity of operational part can very well be optimized through Six Sigma causal structure and measurement based approach.
- To manage operations effectively it is important to have objective assessment of process performance and defining job roles accordingly. Hence, tactical level of marketing deals with collecting accurate process measurements, realizing process performance through those measurements. Current performance level of the process, lacunas in process performance, possible improvement subscription can be very well managed through Six Sigma matrix structure. Productivity of tactic part can be improved through aimed Six Sigma approach.

Muralidharan and Raval (2017) also addresses the issue of productivity in SSM as a matter of strategic in identifying the problem, tactical in understanding the customer requirements and operational in implementing the strategy. Managing with Six Sigma may not be as exciting for some people as traditional management practices. However, managing data, facts, measurement, analysis and experiments minimizes the politics, power struggles, personality clashes, and drama of organizational life. It works better, but mere improved performance does not appeal to some people. Others fear the transparency that data and facts bring to the table. Submitting to the rule of data demands maturity of mind, respect for reality, and dedication to standards.