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6 σ Myths Demystified

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Abstract

Six Sigma is total quality management turbocharged. If implemented properly, Six Sigma is a proven approach to achieving major cost reductions, huge increases in quality, radically reduced cycle times, and big increases in customer satisfaction and revenue.
Debates on its emergence as a strategic initiative have created critics who consider it as an old wine in a new bottle. Is Six Sigma a management fad? .What is the main differences between Six Sigma and other quality methods? Some common myths and realities of Six Sigma business strategy are presented the this paper for those who would like to know whether Six Sigma is just a management fad or fact.

Introduction

Everyone interested in business processes seems to know that Six Sigma was invented at Motorola and that Motorola became the first winner of the Malcolm Baldrige Quality Award in 1988. The origin of Six Sigma has been the subject of countless articles. However, Six-Sigma process improvement methodology has been accepted as the pioneering process improvement framework. Industry leaders like Raytheon, Motorola, GE and Honeywell (formerly, Allied Signal) have laid out specific blue prints for process improvement using this framework. Since Bill Smith's concept had its birth at Motorola and was passed down to Bob Galvin, a lot of water has flown under the bridges. The original **D**efine, **M**easure, **A**nalyze, **I**mprove and **C**ontrol (**DMAIC**) scheme has undergone a critical review by the practitioners and implementers including addition of **R** (**R**eporting) to the tail end of the framework.

Corporations have relied, invested and reportedly ploughed back a lot of dividends from the implementation of this approach. In the current times of economic recession and slowdown in demand, every corporation looks at any possible issue of cost cutting and wise deployment of scarcely available funds. So it is worthwhile to deliberate on Six Sigma with intent, rather than an impulse?

In addition and due to the world of globalisation and growing cut-throat market environment, the quality, skills and knowledge give competitive advantage to any organization. The global market is very competitive, and to survive, organizations need to produce products and services of high quality to achieve customer satisfaction and loyalty to stimulate top-line business growth. In an attempt to manage this change, industry leaders embraced Six Sigma business strategy as a framework and solution for pursuing continuous improvement in process, customer satisfaction and also organizational profit. This approach to reducing defects has made substantial impact on many organizations, resulting in enhancement of performance and a vast improvement in business profits, employee morale, quality of products and customer satisfaction.

Six Sigma is a well-established approach that seeks to identify and eliminate defects, mistakes or failures in business processes or systems by focusing on those process performance characteristics that are of critical importance to customers. Ever since its conception at Motorola in mid 1980's, Six Sigma program has grown in leaps and bounds worldwide. At the time of its conception, it was envisioned to be a quality improvement program that sought to deliver a near-perfect (3.4 defects per million opportunities) quality to Motorola through the use of the DMAIC (define-measure-analyse-improve-control) improvement strategy coupled with the deployment of a structured set of quality tools.

With more than two decades of successful implementation of Six Sigma methodologies at major corporations, the success and benefits possible with Six Sigma are well documented. Although Six Sigma initiatives have grown in popularity due to its highly publicized reports of success, the strategy is not the "magic potion" that some insist, i.e. Six Sigma still has its limitations. News keeps cropping up about the efficacy of the Six Sigma business strategy from its critics, as a management fad – a fashion that sweeps the world with great excitement for a brief period of time, usually less than a year, and then disappears. A fad is often characterized as being an initiative that is adopted widely by companies and often falls from grace when the hope for benefits fail to materialize.

Debates on its emergence as a strategic initiative have created critics who consider it as an old wine in a new bottle. In the last few decades, there existed many programs that have alleged to be the answer to industry's process management problems. These include zero defects, management by objectives, quality circles, total quality management (TQM) and business process reengineering (BPR). While these initiatives enjoyed some success, in the long run most of them were considered as a passing fad by the management and staff of different corporations.

Companies around the world are facing today the harsh realities of a competitive environment and do not have time to wait and bring about evolutionary changes in their organisation. Instead, they are instituting revolutionary changes meant to have impact within a very short time frame. Six Sigma can prove to be a powerful strategy for companies to compete globally on the basis of the quality of product and service rendered to its customers. On the other hand, there are companies that may put their Six Sigma initiatives to a halt if it takes a long time to realize tangible bottom-line benefits. Thus for them Six Sigma is not their business solution and is just a fad, like many other business improvement initiatives.
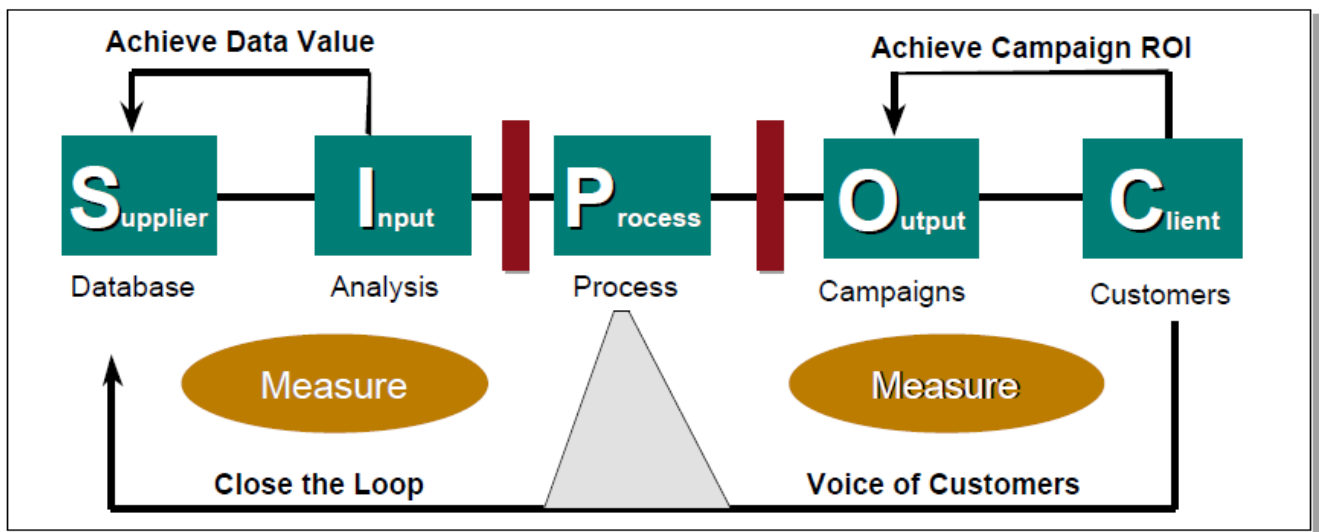
Overview of various process improvement methodologies

Six Sigma and process steps (DMAICR)

Various steps of Six Sigma framework are outlined below:
(1) Define (D). Selection of appropriate projects, development of project plans and identification of the relevant process. The Supplier-Input-Process-Output-Customer (SIPOC) mapping exercise can

be used effectively to describe the process.

(2) Measure (M). Measurement of process variables through data quality checks, repeatability and reproducibility (R&R) studies, and addressing process stability.

(3) Analyze (A). Usage of graphical techniques to analyze the process behavior.

(4) Improve (I). Improvement of the existing process through experimentation and simulation techniques.

(5) Control (C). Development of the control plan for process improvement.

(6) Reporting (R). Reporting of the benefits of the re-engineered process.

Deming cycle and process steps

Different steps of the Deming cycle are outlined as below:

(1) Plan. Plan the process (equivalent to D of Six Sigma).
(2) Do. Act on the process (equivalent to M-A-I of Six Sigma).
(3) Check. Measure the results by finding out the deficiencies (equivalent to C of Six Sigma).
(4) Act. Act on the gap between the intended goals and achieved results (equivalent to R of Six Sigma).

TQM and its implementation steps

Emphasis on customer satisfaction, broad application of quality concepts, and participation of all employees has given rise to a new title – TQM. TQM is an approach to improving the competitiveness, effectiveness and flexibility of a whole organization. It is essentially a way of

planning, organizing and understanding each activity. The philosophy of TQM, in the words of Bates (1993), recognizes that customer satisfaction; business objective, safety and environmental considerations are mutually dependent and applicable in any organization.

Ten points that guide implementation of TQM are:

(1) The organization needs long-term commitment to constant improvement
(2) Adopt the philosophy of "zero defects/errors" to change the culture to the "right first time".
(3) Train to people to understand the customer-supplier relationships.
(4) Do not buy products or services on price alone-look at total cost.
(5) Recognize that improvement of the systems needs to be managed.
(6) Adopt modern methods of supervision and training – eliminate fear.
(7) Eliminate barriers between departments by managing the process-improve communications and teamwork.
(8) Eliminate the following:
   - arbitrary goals without methods;
   - all standards based only on numbers;
   - barriers to pride of workmanship; and
   - fiction – get facts by using the correct tools.
(9) Constantly educate and retrain-develop the experts in the business.
(10) Develop a systematic approach to manage the implementation of TQM.

Baldrige framework and TQM assessment
The Baldrige framework (Figure 1) administered by NIST and instituted by Federal government has four basic elements, namely: Driver, System, Measures of progress and Goal. Senior executive leadership is the Driver element that creates the values, goals and systems and guides the sustained pursuit of quality and performance objectives
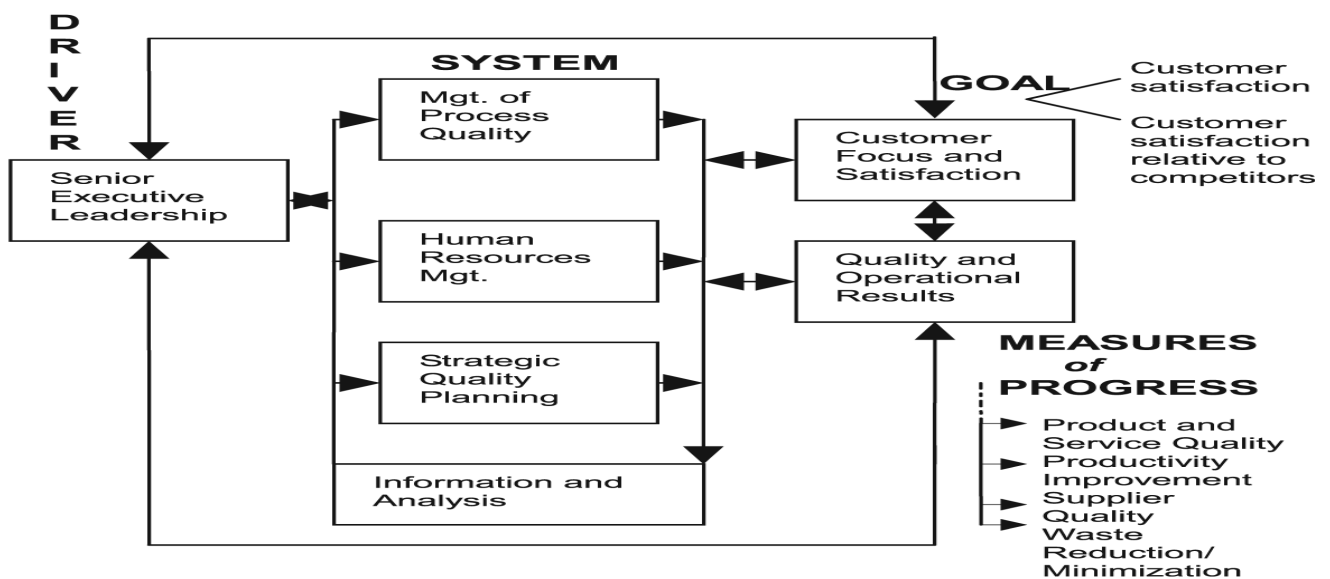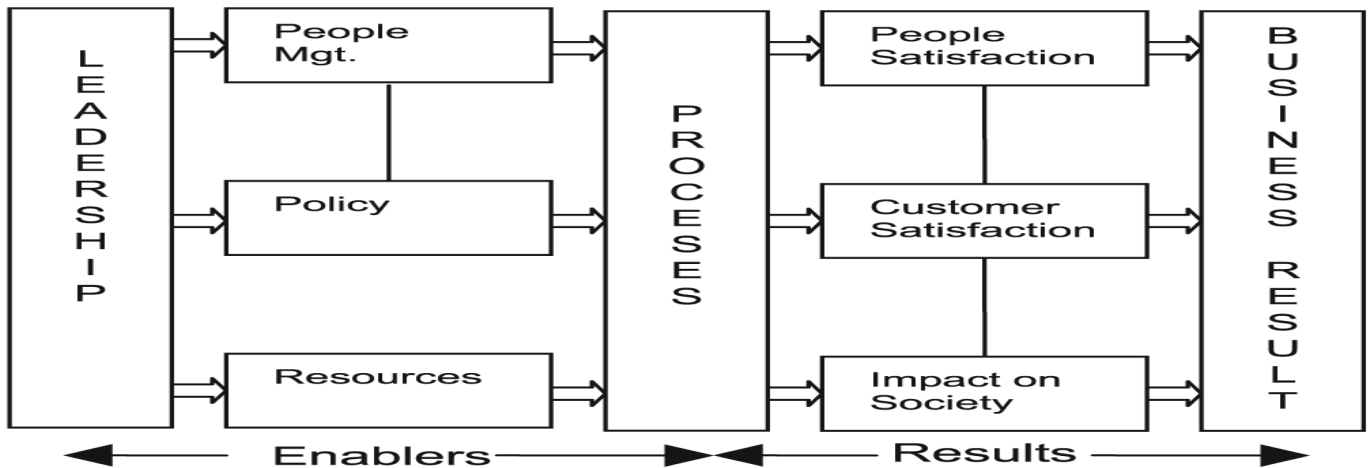

Figure 1.Baldrige TQM assessment framework

EFQM framework and TQM assessment

The EFQM (Figure 2) recognizes that processes are the means by which a company organization harnesses and releases the talent of the people to produce the results. Customer Satisfaction, employee satisfaction and impact on society are achieved through leadership driving policy and strategy, people management, resources and processes which lead ultimately to excellence in business results.

SE and Six Sigma

SE is a structured and systematic approach. It aims at finding and removing the cause of variation like any other quality improvement initiative. Process is characterized and measurement systems are emphasized during the implementation phase. The framework uses a progressive search technique using families of variation.
Clues are generated using observational data. Process data and engineering process knowledge leverage on the available information.SE steps are:
(1) Define the problem.
(2) Quantify and measure the problem.
(3) Determine problem history.
(4) Generate clues.
(5) Formal design of experiments (verify cause).
(6) Turn the problem on and off.
(7) Establish realistic specifications and tolerances.
(8) Freeze the process improvements (positrol).
(9) Certify the process (process certification).
(10) Hold the gains with statistical process control (SPC (precontrol)).

If we look at the above ten steps of SE, we can understand that step 1 obviously relate to D of Six Sigma framework. Steps 2, 3 and 4 correspond to the Measure phase of the DMAIC framework. Steps 5, 6 and 7 are analogous to the Analyze phase; 8, 9 relate to Improve; and 9 and 10 correspond to the Control and reporting phases of Six Sigma.

SE differs from Six Sigma in the following ways:
- smaller steps in methodology;
- smaller team size for problem solving;
- lesser application of DOE;
- proprietor usage (service marks); and
- Both SE and Six Sigma advocate application of more or less same tools.

Six Sigma: some myths and realities

There is a persistent confusion and misinterpretation of what "Six Sigma" is about. Is Six Sigma dead, or at least vanishing in popularity? Is it just a "fad", which can be ignored like most other fads or should companies begin to understand the common realities of Six Sigma. When Six Sigma was introduced to many organisations, the initial reactions varied from a lot of enthusiasm to an absolute skepticism, with the latter mood reflected in comments such as:

Six Sigma is the flavor of the month.

Senapati (2004) perceives Six Sigma as a fad with the same tools as employed in many other quality initiatives offered, e.g. total quality management. Authors strongly claim that modern industry has been plagued with an overdose of sick (Six) Sigma, a concept in a new clothing bearing resemblance to statistical process control. Dalgleish (2003) views Six Sigma as another repackaged quality trend that will come and go and is of no help to his company. The author considers Six Sigma as an expensive distraction that requires paying a consultant to walk into an organisation and teach a selected number of people "the newest best way" of problem solving.

Six Sigma is all about statistics.

There is another common perception that Six Sigma focuses on only training in various statistical tools and techniques and almost ignores the human factor. This myth derives from the name itself, where sigma represents the standard deviation. The statistical terminology "sigma" provides an impression of Six Sigma being a statistics and measurement program.

Six Sigma is only for manufacturing companies.

Six Sigma originated in Motorola in mid 1980's and was promoted by manufacturing giants like General Electric (GE) and Allied Signal, giving an impression that it can be deployed only in

manufacturing companies. The most common reason service-oriented organisations stay away from Six Sigma is that they see it as a manufacturing solution.

Six Sigma works only in large organisations.

As Six Sigma originated in Motorola and popularised by GE and Allied Signal, it is believed that its application is restricted to large organisations only because of their endless resources and large teams. Small companies might have a more difficult time effectively implementing Six Sigma. Although Six Sigma has been implemented with success in many large corporations, there is still less documented evidence of its implementation in smaller organisations.

Six Sigma is same as total quality management (TQM).

Reed (2000) contends that there is nothing at all new about Six Sigma and that it "has been around for many years, just called something else". She goes on to say that Six Sigma "could be called problem solving, team building, SPC, plan, act, do, check, whatever you want . . ." Six Sigma does employ some of the same tried-and-true tools and techniques of TQM. Many companies make the mistake of setting up Six Sigma as a quality initiative, putting it in the same category as TQM. "Show me where Six Sigma involves anything new", is a common phrase often said by TQM proponents. Six Sigma has often been referred to as TQM on steroids.

Six Sigma requires strong infrastructure and massive training.

Deploying Six Sigma in an organisation requires new skills, and this primarily means training the Black Belts and Green Belts who will guide and manage the improvement projects and programs. Employees in the small businesses and public sectors are of the opinion that Six Sigma demands massive training costs and additional effort (Six Sigma SPC, 2005; Smith, 2005).

Six Sigma is not cost-effective.

This is another common myth prevalent in the industrial world. It is presumed that deploying Six Sigma requires massive investment with small profit or return on investment (ROI). Critics are of the opinion that there are huge risks in heavy investment in this business strategy as it takes a long haul before reaping any tangible benefits.

Myths demystified

Six Sigma is the flavour of the month.

The Chambers Dictionary (2003) defines fad as "a hobby or interest intensely pursued at first, but soon passed over for another". While there is no standard definition of what constitutes a management fad, Hesseling (1984) defined fad *as a new popular finding that bursts onto the scene and fades away after a short period of time.*
A fad is not simply good or bad. It is rather a matter of how it is put to use. A fad can survive and become a "fit" only when the idea from the original fad becomes incorporated into the day-to-day fabric of the organization and affects its overall management system and the work ethics of every employee (Hesseling, 1984).

The concept of Six Sigma seems to have survived for nearly two decades despite the fact that many reports have classified it as a "management fad". Stories of success and dramatic improvement in business profitability of many organizations reflect the efficacy of this management strategy and can be considered as a classic example of "fit" rather than "fad". The difference in impact of Six Sigma business strategy is the degree of discipline in the sequencing and use of tools, upper management active involvement, linkage to strategy, and measurement of results tied to the bottom line.

Since its inception in late 1980s, the popularity of Six Sigma has grown by leaps and bounds. As quoted by a leading quality expert: "Six Sigma has been very successful-perhaps the most successful business improvement strategy of the last 50 years" (Montgomery, 2005). Companies embracing Six Sigma have witnessed a cultural transformation that affects every aspect and level of organisations-from shop floor employees to middle managers to top level management, and thus transforming companies, people and processes. Six Sigma can only become a real fit with the normal way of managing a business when the key persons within the organizations are highly motivated for this to happen.

Six Sigma is all about statistics.

Six Sigma utilizes statistics as one of its tools to analyse, interpret and present data. Organisations require not just statistics to achieve Six Sigma quality level but more importantly requires changes in organizational culture and commitment from top management permeating the entire organization. Six Sigma is more about changing the mindset of people, making a shift from a traditional approach of problem solving (i.e. fire fighting) to a proactive approach, based on facts and the correct analysis of business data for decision-making purposes. The tools and techniques of Six Sigma are used for collecting, analysing, and interpreting data to drive decisions.

Computer software is available to analyse the data, which can be done by one or two members in the Six Sigma team, thus speeding up the improvement process. Engineers and managers do not need to be experts in statistical methodology. They need to be wise in terms of when the use of statistical methodologies can provide more efficient, effective information on sources of variation in product or process (Sanders and Hild, 2000).

Six Sigma is not just about statistics. The Six Sigma drive for defect reduction, process improvement and customer satisfaction are based on the "statistical thinking" paradigm, a philosophy of action and learning based on process, variation and data. Statistical thinking provides practitioners with the means to view processes holistically.

Next, a focus on variation leads to the establishment of systems to measure and analyse variation, and the subsequent focus on data leads to continuous improvement and holding the gains once attained. Statistical thinking, therefore, is fundamental to the methodology because Six Sigma is action-oriented, focuses on processes used to serve customers, and defect reduction through variation reduction and improvement goals.

Six Sigma is only for manufacturing companies.

The relevance of Six Sigma extends beyond manufacturing to services, government and public sector, healthcare and non-profit organizations
Motorola developed Six Sigma and implemented it first in manufacturing. From 1990 onwards, they started implementing it to their non-manufacturing areas of the company. It was reported at the European Quality Forum in Berlin that Motorola managed to save $5.4 billion in non-manufacturing processes from 1990 to 1995.

Improving non-manufacturing processes (or non-primary service processes for service companies) is one of the weakest areas in the quality system of nearly every company.
In terms of expanding the horizons of Six Sigma, the two application areas that seem to be rising to the top of the heap are healthcare and financial services . The popularity of Six Sigma as a means of improving the quality of service and customer satisfaction is growing exponentially in the last couple of years in the European service industry. Six Sigma offers a disciplined approach to improve service effectiveness (i.e. meeting the desirable attributes of a service) and service efficiency (i.e. time and costs).

The objective of a Six Sigma strategy in service processes is to understand how defects occur and then to devise process improvements to reduce the occurrence of such defects, which improve the overall customer experience and thereby enhance customer satisfaction.

GE Capital, the financial division of GE, was one of the first financial institutions applying this methodology in order to increase their profitability and customer satisfaction . After this, various financial institutions and banks have followed such as Bank of America, Citicorp, American Express, UBS, Lloyds TSB, HSBC, Zurich Financial, and Bank One . The first health-care organization to implement Six Sigma fully into its culture was Commonwealth Health Corp. CHC has realized improvements in excess of $1.2 million, improved radiology throughput by 33 per cent and decreased cost per radiology procedure by 21.5 per cent.

Following CHC, many health-care organizations embraced the Six Sigma challenge within their processes, examples include Mount Carmel Medical Centre (Columbus Ohio), Charleston Area

Medical Centre (WV), Palomar Pomerado Health (San Diego, California), the University of Michigan Medical Center, and Wellmark Blue Cross Blue Shield (CA).

Experts agree that the most common reason service-oriented organisations stay away from Six Sigma is that they see it as a manufacturing solution. One of the major hurdles service-oriented organisations must overcome is the notion that, because their company is human-driven, there are no defects to measure. This is wrong, say the experts (Antony et al., 2007a,b). It is quite a common view among many people engaged in service organisations that Six Sigma requires complicated statistical tools and techniques. The truth is that Six Sigma is not about a collection of statistical tools and techniques. In fact, service organisations do not simply need many of the tools and techniques of the Six Sigma toolbox. The majority of the process and quality related problems in service organisations can be readily tackled using the simple problem-solving tools of Six Sigma such as process mapping, cause and effect analysis, Pareto analysis, control charts and so on.

Six Sigma works only in large organisations.

It is a myth that Six Sigma works only in large companies. GE treated its business as many small business units integrated together. Six Sigma is about problem solving, and problems are everywhere. It does not matter what type or size of business this problem solving methodology is applied to. You might be a wholesaler, a retailer, a manufacturer, or a service organisation. No matter whether it is a 300 employee company or a ten employee family business, Six Sigma will work as long as you follow the process effectively (Brue, 2006).

Six Sigma has evolved into a business strategy in many large organisations and its importance in small and medium sized enterprises (SMEs) is growing everyday because of the growing significance of supply chain issues. A recent study has revealed that strong leadership and undying commitment from top-level management are critical to the success of Six Sigma.

This study clearly indicates that there are significant differences in the performance of Six Sigma against non-Six Sigma SMEs. Taking into consideration of the problem complexity and resources limitation, the SMEs do not require an extensive role system where Master Black Belts, Black Belts are involved in projects as are applied to large organizations. It is highly advisable to develop a White Belt system for SMEs instead of heavily investing in Black Belt system.

The expected savings from a white belt project can be around £5,000 per project. It is suggested that, a company of size 100 should plan for about ten to 15 white belts, trained for a week on basic Six Sigma methodology. Snee and Hoerl (2003) argue that there is nothing inherent in Six Sigma that makes it more suitable for large companies. They also suggest that the greatest barrier to implementation in small companies to date has been the way the major Six Sigma training providers have structured their offerings. More recently, as more and more sets of deployment guides and training materials have become available, the pricing structures have begun to change. Further, excellent on-line self-paced Six Sigma training from authoritative sources at reasonable costs is becoming widely available.

This is a very good way for smaller organizations to start a six sigma training activity. It is also possible for SMEs to obtain good external resources through collaboration with local universities. No doubt deploying Six Sigma will cost organization some money and time, but it will be worth expending time, money and effort to achieve real measurable financial results. Organizations face myriad of problems in their day-to-day functions. Six Sigma can be applied where there is a problem, irrespective of type or size of business. Six Sigma can act as a catalyst for changing SMEs in the quest for business excellence by mobilising their intellectual capital, provided there is total commitment.

Six Sigma is the same as TQM.

It is often said by engineers and managers in small and big companies that there is nothing really new in Six Sigma compared to other quality initiatives witnessed in the past (Antony, 2004a,b). Companies that have embraced Six Sigma within their working culture previously made improvements through the use of TQM or Crosby's Zero Defects or Quality Circles (Walters, 2005).

However, these programs obviously did not address all of their needs. Otherwise these same organisations would not be spending additional time and money to implement Six Sigma.

The CEO of 3M, Chris Galvin, believes Six Sigma has changed their way of doing business:
Six Sigma is not a program or an initiative. It is our game plan. It will challenge all of us, as a company and in collaboration with our customers, to be the very best. Motorola was open to sharing the risk, which allowed us to develop an outstanding partnership (McShea et al., 2004).

There are three aspects of the Six Sigma strategy that are not emphasised in total quality management (TQM):

- First of all, Six Sigma is result-oriented and therefore places a clear focus on bottom-line business impact in hard dollar savings. No Six Sigma project will be approved unless the team determines the savings generated from it.
- Second, Six Sigma methodology DMAIC links the tools and techniques in a sequential manner.
- Finally, Six Sigma creates a powerful infrastructure for training of Champions, Master Black Belts, Black Belts, Green Belts and Yellow Belts.

In the quest for business excellence, Six Sigma should be viewed more as a holistic business strategy than as a quality program. While many organisations have embraced numerous quality improvement programs, most fail to deliver the result that Six Sigma consistently identifies as tangible and quantifiable increase in shareholder value.

Six Sigma provides us with a common language as it reduces things to a common denominator – 3.4 DPMO and sigma capability level, thus providing the ability to benchmark ourselves against like

production, processes, and practices. Six Sigma has changed the outlook and practices of everyone in the organization by permeating into departments, functional groups, and all levels of management.

Six Sigma requires strong infrastructure and massive training.

Deploying Six Sigma in an organisation requires new skills, and this primarily means training the Black Belts and Green Belts who will guide and manage the improvement projects and programs. Real benefit and return on investment in Six Sigma is conditional and should be deployed from the top down. The leaders of the company must first understand the basics of Six Sigma and develop a company-specific deployment strategy before building a Six Sigma infrastructure and beginning Black Belt and Green Belt training.

Understanding of Six Sigma should include not only its value as a quality improvement methodology but also as a management and leadership strategy and methodology supported with a variety of tools/techniques. The measure of success for an investment in Six Sigma should be based on the successful completion of projects that give significant business value and the results obtained from those projects.

A company can start with Six Sigma deployment by identifying a manageable number of critical projects that are top priority for the organisation and can be successfully completed within few months (two-five months). This will involve fewer resources and can win top management commitment and faith in the initiative. One should focus on type of business, complexity of processes, availability of resources and develop an organizational infrastructure required for the company. It is not necessary that for large organisation having 1,000 employees, there should be 100 Black Belts or 300 Green Belts. The rule of thumb is that the mature Six Sigma organization will develop about 1 per cent of its work force as full-time Black Belts, although it is not uncommon to start with about 0.5 per cent. In this way, the deployment is effectively scaled based on the number of employees. Company culture, organizational structure and facility location may also influence the number of Black Belts. For example, Black Belts may be selected so that the needs of each facility, or each segment of the business, are adequately met.

Six Sigma demands massive training costs and additional effort has become another misconception among many employees in the service sector. It is true that Six Sigma requires some investment at the outset for training the most talented people in the organisation and converting them into the so called "change agents". However, the benefits obtained from Six Sigma implementation outweigh the investment costs.

Since SMEs face constraint in training and deploying Black Belt to full time projects, it is advisable for SMEs to collaborate or develop some sort of consortium with local universities and get their best people trained up as Yellow Belts and White Belts to tackle their day-to-day problems. Academic institutions should help SMEs to meet their customer or stakeholder needs and assist them in creating value for their key customers. This will ensure development of stable, long-term and cost-effective relationship between the organization and academic institution. The training should focus

on how to select the right projects and how to form the right teams so that the company's limited resources are effectively utilized.

Six Sigma is not cost effective.

Six Sigma is a powerful "weapon" for delivering business improvement and many businesses are naturally drawn by the continual reports of its ability to help companies generate huge cost savings, customer satisfaction and improved profitability (Lee-Mortimer, 2006). Six Sigma has been launched all over the world and many companies have testified to its pivotal role in their success (Hutchins, 2000). Six Sigma business management strategy has been exploited by many world class organisations such as GE, Motorola, Honeywell, Bombardier, ABB, Sony, to name a few from the long list and resulted in billions of dollar of bottom-line savings.

The reason of Six Sigma's popularity in the business world is because many corporations have seen how Six Sigma generated substantial return on investment in its implementation. It is reported that the savings achieved by Motorola reached $1 billion in 1998 and $16 billion in 2005 (Ingle and Roe, 2002; Brett and Queen, 2005). Dow Chemicals, which implemented Six Sigma on a corporate-wide basis in 2000, achieved its target of $1.5 billion in cumulative EBIT (earnings before interest and taxes) gains by the end of 2002. Volvo Cars in Sweden have generated over 55 million euro to the bottom line from Six Sigma program.

Concluding remarks

Organisations that implement Six Sigma have benefited from it in three major ways:
1. Reduced defect rate;
2. Reduced operational costs; and
3. Increased value for both customers and shareholders

Six Sigma has been part of business lexicon and has maintained momentum for more than a decade it is now more than hype; it is a recognized methodology for solving process and quality related problems in modern organizations. The interest in it is still very strong with lot of air left in its sail and no signs of letting off. This may be attributed to the fact that over the past decade Six Sigma has shown great flexibility and bottom-line benefits in its application beyond its root in manufacturing.

Six Sigma like other business initiatives can become fad in the eyes of the management team if not implemented correctly. A review of literature on the critical success factors (CSFs) of Six Sigma explicitly states that commitment and support from top management is most important for its successful deployment as well as sustaining the improvement achieved from its implementation .

The answer to the question "Is Six Sigma a passing fad?" is clearly no. Six Sigma is neither a fad nor just another quality initiative. It is a "way of life". It is a business strategy based on objective decision making and problem solving, relying on meaningful and real data to create actionable goals, analyzing root cause(s) of defects, and thus suggesting the ways to eliminate the gap between existing performance and the desired level of performance. Becoming a Six Sigma organization means embracing the fundamentals of statistical thinking.

The right Six Sigma training and information will help people to understand that Six Sigma is significantly different from other quality improvement initiatives of the past. Six Sigma is about using common sense to make things easier rather than making things more difficult. However, what will eventually determine whether Six Sigma is viewed by businesses as just a passing management fad or not, largely depends on the leadership and success of its execution. Management is responsible for the success of Six Sigma teams, they have to provide the environment that is conducive for the employee to succeed, i.e. make the time and resources available (Nest, 2003). Successful Six Sigma program are built on a solid organizational foundation. The organizational system and structure need to be clearly identified and communicated to the entire organization to successfully implement Six Sigma. Setting up a successful Six Sigma organization requires careful planning and training of employees. Employee roles and responsibilities must be established and clearly communicated to all.

While Six Sigma methodology is experiencing widespread adoption among a variety of business and industry, there is an inherent drawback of its misapplication if adequately trained personnel, with the proper foundational background, are not available. Under this contextual setting, academia has a critical role to play. Six Sigma lacks theoretical under-pinning and hence academics need to take up the responsibility to bridge the gap in the theory and practice of Six Sigma.

Six Sigma has similarities to quality programs of the past because it contains many of the same ideas and philosophies that have been taught for years, but it is vastly different in scope and complexity because it teaches practical method of achieving these ideas and philosophies. Six Sigma not only tell us what to do, but more importantly how to do it.

Findings – Six Sigma is neither a fad nor just another quality initiative. It relies on factual data coupled with hard work and is a disciplined and structured problem-solving methodology.

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