

Is Six Sigma a Management Fad or Fact?

**Professor Jiju Antony
Director of the Centre for Research in Six Sigma and Process
Improvement (CRISSPI)
Strategy, Operations and Leadership Group
Caledonian Business School
Glasgow, Scotland**

Introduction

Six Sigma as a powerful management strategy has evolved from being exclusively about the original goal of a target of less than 4 failures or defects or errors per million opportunities, to encompass a broad range of approaches for incorporating quality into products and services from the early design and development stages and throughout their lifetimes. The organisations that have adopted Six Sigma claim that it focuses on increasing the wealth of the shareholders by improving bottom-line results and achieving high quality products and services. Many organisations world-wide (manufacturing companies, service oriented companies, small and medium sized enterprises, etc.) have implemented Six Sigma and achieved remarkable improvements in their market share, customer satisfaction, product reliability, service quality etc. with impressive financial savings ¹.

There are four aspects of the Six Sigma strategy that are not accentuated in other quality management and improvement methodologies of the past. Firstly, Six Sigma places a clear focus on achieving bottom-line results in monetary terms. No Six Sigma project is approved unless the project's Return-on-

Investment (ROI) is clearly identified and understood by the team. The bottom-line impact of a project depends heavily on the type of project (Black Belt, Green Belt or White Belt). Secondly, Six Sigma has been very successful in integrating the human (teamwork, culture change, motivation, customer focus, etc.) and process (process control, process monitoring, process analysis, process improvement, etc.) aspects of improvement. The third key characteristic of Six Sigma is that it integrates both statistical and non-statistical tools of quality improvement in a sequential manner within a powerful problem-solving framework (Define-Measure-Analyse-Improve-Control). The fourth characteristic of Six Sigma is that it creates a powerful team infrastructure (Project champions, Master Black Belts, Black Belts, Green Belts and Yellow Belts) for implementation of projects.

Three Generations of Six Sigma

There have been three recognisable generations of Six Sigma. The first generation of Six Sigma lasted for a period of 8 years (1987-1994) and the focus was on reduction of defects. Motorola was a great example of a successful first generation company. The second generation of Six Sigma spanned the period from 1994 to 2000 and the focus was on cost reduction. General Electric, DuPont and Honeywell are good examples of successful second generation companies. The focus of third generation is on creating value to customers and the enterprise itself. The first companies to embrace third generation of Six Sigma are foreign. Examples of third generation of Six Sigma companies include Posco, Samsung, etc.

The third generation of Six Sigma introduces the concept of the White Belt Six Sigma practitioner. The primary difference between a White Belt and the higher ranked belts of previous generations is that the problems a White Belt addresses are more localised (departmental problems rather than inter-departmental problems). The White Belt training involves 40 hours of instruction in problem solving methodology and the tools and techniques to be used in the methodology². This type of Belt system is ideal for Small and Medium Sized Enterprises (SMEs).

The third generation of Six Sigma aggressively addresses service and commercial business processes and transactional systems quality. This includes service delivery times, customer waiting time to receive services, inventory service levels, etc. Moreover, we will see consideration of logistics and the supply chain issues as part of third generation of Six Sigma. We also witness more and more applications of Six Sigma to prevent defects or failures at the source, i.e., design stage. This is referred to as the Design for Six Sigma (DFSS).

Is Six Sigma a Management Fad or Fact?

I have been recently quite often asked by a number of senior managers in organisations – “Is Six Sigma another management fad or fact?” I have decided to form a panel of experts in Six Sigma and discussed this topic. The people who have participated in this panel discussion include the leading academics in the field, Six Sigma pioneers and practitioners from over 5 countries. The panelists who have participated in this study will debate whether Six Sigma is another management fad or fact.

Dr Ronald D Snee – Principal of Tunnell Consulting, USA

Six Sigma has been successful in too many organisations today for it to be a fad. Of course it could be fad in an organisation if the leaders of the organisation treat it as a fad – “something we do because it is popular and others are doing it”. Six Sigma is not, however, a fad in most of the organisations I am aware of; certainly it is not a fad in those organisations that do the deployment properly. To quote a Honeywell manager: “Six Sigma works if you follow the process. If it is not working, you are not simply following the process”. As all improvement methods that have come before it, Six Sigma will last as long as it improves financial performance better than all competing approaches.

Mr Ron Basu - Director of Performance Excellence Limited, UK

“Today, depending on whom you listen to, Six sigma is either a revolution slashing trillions of dollars from corporate inefficiency, or it is the most maddening management fad yet devised to keep front-line workers too busy collecting data to do their jobs” (USA Today, 21 July 1998). It has been nearly 8 years since the above statement was made. During this time the Six Sigma revolution has created a huge impact on operational excellence, yet conflicting views are still prevalent. Six Sigma is a fact only when both its philosophy and process are successfully deployed.

Professor T N Goh – Head of Industrial and Systems Engineering, National University of Singapore, Singapore

Six Sigma could indeed be a fad if it is presented as a panacea for all business ills. Unfortunately it has been presented as such by some over

enthusiastic believers or bluntly put self-serving charlatans in the consulting industry. On the other hand, if Six Sigma is appreciated as a rigorous approach to quality improvement with a clear roadmap, then it does have plenty of positive aspects that will stand the test of time.

Professor Rick L. Edgeman – University of Idaho, USA

Six Sigma is a management fact. Driving this is that Six Sigma offers a very solid approach to problem definition, illumination, derivation of solutions, deployment thereof and subsequent performance monitoring.....both for improvement settings and prevention at the source. Of course, like most approaches, even Six Sigma will fail if it is inappropriately applied. Six Sigma's notorious financial bottom-line orientation plays well with business, yet it is sufficiently flexible to address multiple bottom-lines at once.

Professor S.K. Neogy, Head, SQC and OR unit, India

A considerable amount of time has been passed after the evolution of Six Sigma. It is the right time to talk about the success, failures of Six Sigma and the questions like whether Six Sigma is another management fad following the grand tradition of TQM, Company-Wide-Quality-Control and Quality Circles. Assuming everything has a life cycle, it is interesting to know whether Six Sigma will remain a generic framework for quality and productivity improvement. Many TQM efforts have not yielded the expected results; there is no dispute on that. I feel that TQM has not failed because of its philosophy but due to lack of proper implementation framework. I believe that this will not happen for Six Sigma which is a top-down management driven approach with

long term commitment to achieve quality goals and it is heavily backed up by statistical tools for problem solving.

Professor Sung Park, Seoul National University, Korea

I believe Six Sigma is a management fact. Since Six Sigma was introduced into Korea in 1996, it has been adopted by many companies such as Samsung and LG, and it has been quite successful in these companies. Currently it is the most well known management strategy in Korea.

Mr Lynne Hare, Kraft Foods, Research, USA

Six Sigma is mostly fact with a little fad stirred in for good measure. The fact part of Six Sigma is based on years of careful development and demonstration of successful applications of statistical thinking and methods to real problems. Their solutions have lead positively and immensely to the financial bottom-line as has been demonstrated repeatedly by, among other measures, greater stock market success on the parts of corporations that embrace these methods.

Six Sigma did not spring up over night. Instead it was established on thinking and technologies that matured on the basis of need over 8 to 10 decades. As its contributions are great and undeniable, it is here to stay in one form or another, just as statistical process control and the design of experiments are unlikely to go away.

The fad part is small, but may be in the name Six Sigma which does not come close to capturing its full power of worth. Neither do titles such as green belt or black belt.

Mr Larry Smith, Senior Vice President of Design & Innovation, Juran Institute, USA

The key elements of Six Sigma have been around for a long time: quality/statistical thinking and training with appropriate software, a standardised problem solving methodology, a tie to a reward and recognition system and management support. Six Sigma has provided a nice way to integrate these into one program, so Six Sigma will remain until a better integration medium comes along. However the key elements will not change.

Roger Hoerl, GE Global Research, General Electric, USA

In reality, Six Sigma is probably a mix of both. The suggestion that Six Sigma is a management fad that has lasted for nearly 20 years in some world class corporations seems to be an oxymoron. Six Sigma has clearly added significant bottom-line value to organisations that have implemented it seriously. Conversely, it must be admitted that many organisations have blindly jumped on the Six Sigma bandwagon without carefully considering the level of commitment required. Such companies have either failed or had minimal success. For these organisations, Six Sigma was simply a fad, the flavour of the month. These companies have now moved on to other fads. So in summary, we could say that Six Sigma is like a scientific diet plan, if you actually follow it, it works. However if you try it half-heartedly, expecting

miracle results without any hard work or sacrifice on your part, you will probably be disappointed.

Final comments from the author – In my opinion as the *Director of the Centre for Research in Six Sigma and Process Improvement (CRISSPI)*, Six Sigma will be around as long as it continues to yield measurable bottom-line results in organisations. Although the number of applications of Six Sigma in manufacturing companies has gone down a lot, Six Sigma in other areas such as finance, healthcare, IT, banking etc. has gone up significantly in recent years. I also think the applications of Six Sigma in countries such as Thailand, China, Malaysia and India will continue to grow in the next few years. It is also important to see the engagement of academic institutions in Six Sigma education for its long-term survival. This is not yet happening and therefore there seems to be a huge need to make this happen in the European Business and Engineering schools. CRISSPI has successfully organised two International Conferences on Six Sigma and one International Workshop on Design for Six Sigma (DFSS) to bridge this gap in the knowledge and expertise required by the academic fraternity in Six Sigma. CRISSPI is currently offering a number of short courses and user-group meetings to assist Small and Medium Sized Enterprises (SMEs) with the introduction and development of Six Sigma initiatives in Scotland.

References

1. Harry, M. and Schroeder, R. (2000), *Six Sigma: The Breakthrough Management Strategy Revolutionising the World's Top Corporations*, Currency Publishers, NY, USA

2. Harry, M. and Crawford, D. (2005), Six Sigma – The next generation, Machine Design, February, Vol.77, No.4, pp. 126-131.