

Six Sigma Implementation in the Saudi Organisations

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(This is only extended abstract not full paper)

Abstract

Six Sigma has become widely recognised as the most effective tool available to improve business performance and profitability. The aim of this paper is to evaluate the current status of Six Sigma implementation in Saudi organisations by exploring five questions. First, the reasons that encourages Saudi organisations to implement Six Sigma projects. Second, the major problems commonly found during the implementation of Six Sigma projects. Third, the critical success factors which impact on the effective implementation of Six Sigma? Fourth, the benefits that is achieved through implementation of Six Sigma projects. Finally, the organisations' satisfaction from the implementation of the Six Sigma in the Saudi organisations. Conclusions are drawn and recommendations are made. The implications of these findings are discussed for the implementation of Six Sigma projects in different sectors and different company sizes in Saudi Arabia.

Keywords:

Six Sigma, Saudi Arabia, Quality Management Systems, Customer Satisfaction, Continuous Improvement

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Introduction

The rapid economic development and increasing competition in Saudi Arabia has forced its organisations to implement modern quality management. Six Sigma is a quality philosophy, a business strategy, a quality measurement tool and a systematic process improvement methodology. Six Sigma leads to a breakthrough in profitability through quantum gains in product/service quality, customer satisfaction and productivity, by reducing the number of defects to as low as 3.4 defects per million opportunities. Comparing with other quality management techniques, the concept of Six Sigma is relatively new in the Saudi Arabia, Where Six Sigma has been relatively recently implemented in Saudi organisations, and there has been anecdotal evidence of operational efficiency and cost savings and overall quality improvement. The top management commitment, training and education, communication, rewards and recognition came out to be the most important critical success factors for implementing Six Sigma programme. The findings suggest that the implementation of Six Sigma in Saudi Arabia is not an easy task due to cultural issues such as, inability to change working style and the lack of communication; as well as for not having appropriate reward system. On the other hand, many organisations have accused benefits from the successful implementation of Six Sigma including cost savings, operational efficiency and overall quality improvement and increased customer satisfaction.

Objectives and Significance of Study

The current literature reveals that lack of any Six Sigma study related to Saudi organisations. Therefore, there is a need to undertake a systematic study to understand the extent of Six Sigma implementation in Saudi organisations. This exploratory study aims to verify the existing status of Six Sigma implementation of in that country. Therefore, it is important to provide some guidelines for organisations interested in or currently implementing Six Sigma. In addition, being the first empirical study of its kind in Saudi Arabia, it will also provide guidelines for further research in this field and useful information for Saudi organisations willing to implement Six Sigma and help them to avoid the risks presented during the Six Sigma process. Finally, the findings of this study will provide researchers and practitioners with a baseline for further study.

Study Design and Methodology

This study is an empirical investigation on status of the implementation of Six Sigma in Saudi Arabia. To achieve the study objectives, a methodological triangulation approach combining quantitative (questionnaires) and qualitative (interviews) methods is used through field-work. First, the researchers distributed a questionnaire survey and then conducted semi-structured interviews with Six Sigma organisations' top management and qualified Six Sigma persons to collect data from nineteen Saudi organisations which have already implemented or are in the process of implementing Six Sigma projects in Saudi Arabia in order to obtain knowledge of their experience regarding that project implementation. The study sample includes both manufacturing and service organisations and represents large and small-to-medium enterprises (SMEs). The unit of analysis is the Six Sigma organisation top management and Six Sigma qualified and certificated persons in the organisations. This is because the researchers are measuring the depth of individual perception of Six Sigma.

A quantitative survey was developed to collect data from 97 respondents while 27 respondents were chosen to be interviewed. The data collected were subjected to validity and confidence tests. The reliability of the instrument items was evaluated by using the inter-item correlation coefficient (alpha); all values were more than 0.785, considered as much satisfied. On the other hand, the content validity of the study instrument was evaluated by asking experts in Six Sigma to assess its content.

Study Findings

The results of the questionnaires and the interviews of this study revealed that:

- **Reasons for Six Sigma implementation**

Table 1: Reasons for Six Sigma implementation programme

S. no.	Reasons for Six Sigma implementation programme	Mean
R1	Improving customer satisfaction	4.74
R2	Improving business & financial performance	4.60
R3	Gaining competitive advantage	4.42
R4	Planning strategically with new business strategy	4.51
R5	Measuring the pre-defined goals	4.66
R6	Empowering & encouraging the decision making role and creativeness and team-work	4.59
R7	Changing management organisation culture	4.67
R8	Defining full layout of processes	4.56
R9	Producing product/service on time and within budget	4.76
R10	Improving effectiveness of employees in their performance	4.56
R11	Reducing capital spending	4.63
R12	Improving organisation efficiency	4.57
R13	Improving & increasing earnings and profitability	4.47
R14	Continuous improvement	4.58
R15	Maintaining, improving and increasing market share	4.60

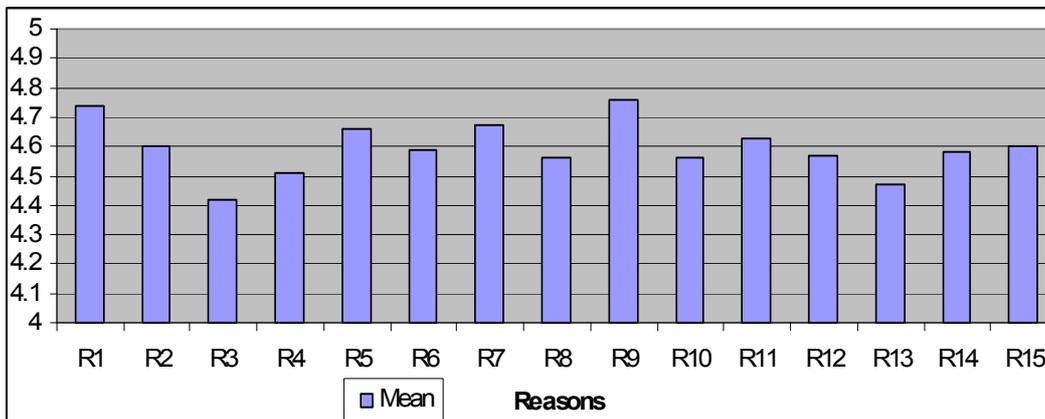


Figure 1: Means of reasons for Six Sigma implementation programme

▪ **Problems to Six Sigma implementation**

Table 2: Problems to Six Sigma implementation

S. no.	Problems to Six Sigma implementation programme	Mean
P1	Lack of management commitment	4.82
P2	Lack of communication	4.74
P3	Measurement problems	4.78
P4	Lack of budget and rewarding systems	4.69
P5	Poor data collection & analysis	4.80
P6	Insufficient training	4.69
P7	Organisational resistance	4.82
P8	Lack of statistical knowledge	4.75
P9	Poor project management	4.80
P10	Lack of team culture	4.68
P11	Lack of resources	4.70
P12	Long time needed for training	4.63
P13	Selecting suitable projects	4.61

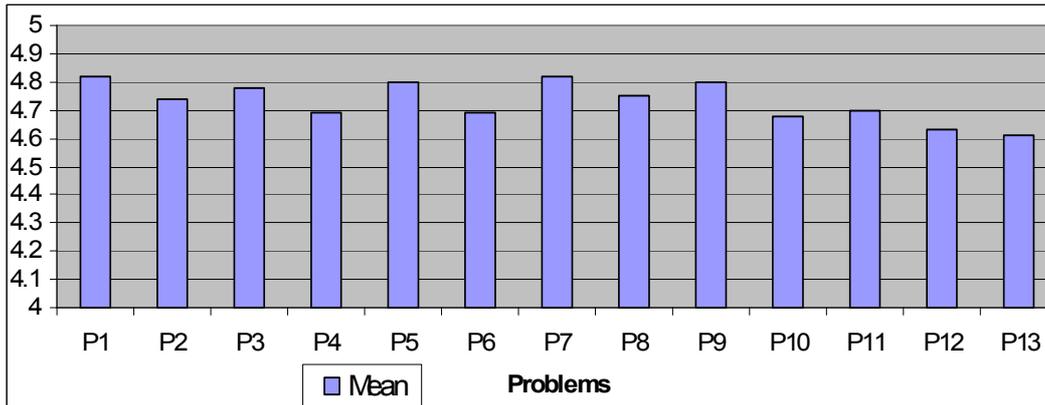


Table 2: Problems to Six Sigma implementation

▪ **Critical factors for successful implementation of Six Sigma programme**

Table 3: Critical factors for successful implementation of Six Sigma programme

S. no.	Critical success factors for implementation of Six Sigma programme	Mean
C1	Continued and strong top management involvement, visible support and organisational commitment	4.90
C2	Suitable and effective formation of organisational infrastructure (project members)	4.88
C3	Encouraging, accepting, creating and readiness for organisational culture change	4.80
C4	Continuous training and education system	4.78
C5	Understanding and effective use of Six Sigma methodologies, techniques and tools	4.90
C6	Team working	4.88
C7	Effective communication and safe environment	4.81
C8	Continuous reinforcement, rewards and recognition system	4.78
C9	Project management skills	4.70
C10	Project prioritisation, selection, evaluation, tracking and reviews	4.84
C11	Linking Six Sigma to corporate business strategy	4.80
C12	Linking Six Sigma to customer expectations, needs and satisfaction	4.74
C13	Linking Six Sigma to information technology (IT) infrastructure	4.81
C14	Linking Six Sigma to human resources (employee involvement, empowerment and innovation)	4.76
C15	Linking Six Sigma to supplier relationship management	4.75
C16	Integration of Six Sigma with financial accountability	4.79
C17	Integration of Six Sigma with existing initiatives and performance measures and metrics	4.84
C18	Competitive benchmarking system	4.90
C19	Use of external consultants	4.80

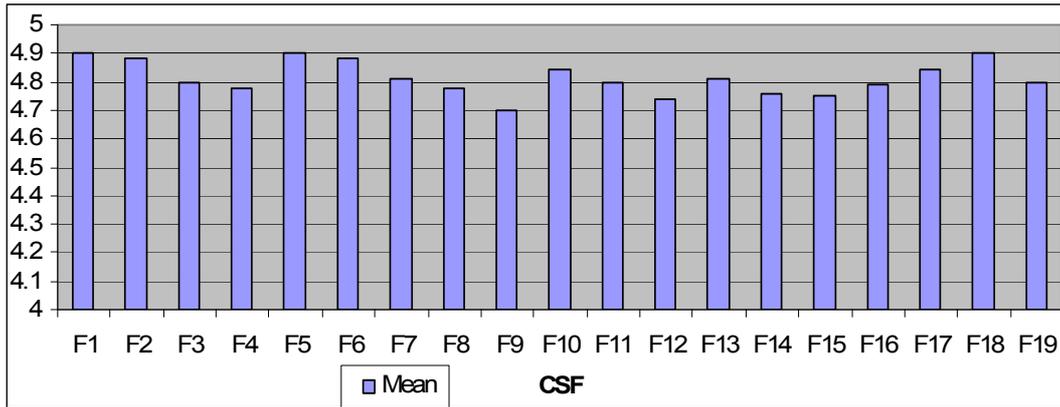


Figure 3: Means of critical factors for successful implementation of Six Sigma programme

▪ **Organisational benefits Saudi organisations achieved from Six Sigma**

Table 4: Organisational benefits Saudi organisations achieved from Six Sigma

S. no.	Organisational benefits Saudi organisations achieved from Six Sigma programme	Mean
B1	Improved customer satisfaction by increased better understanding of customer needs, expectations and requirements	4.84
B2	Reduced operational costs, overhead production costs and capital spending	4.53
B3	Increased earnings, profitability and market share	4.47
B4	Improved quality performance, setting a performance goal for everyone and developing robust products and processes in the organisation	4.45
B5	Reduced defect/errors rate, waste chain reduction and process cycle times	4.81
B6	Achieved faster and on-time delivery	4.51
B7	Improved effective management decisions and efficient and reliable internal operations	4.78
B8	Improved positive strategic and changes to corporate culture with the attitude of continuous improvement of process performance from reactive to proactive	4.69
B9	Reduced non-value added and variability of operations process performance	4.66
B10	Improved communications, education, knowledge, cross-functional teamwork and productive workforce across the organisation	4.48
B11	Improved employee efficiency, awareness, problem solving skills and job satisfaction	4.58
B12	Effective utilisation of resources	4.37
B13	Better data security, collection and analysis	4.36

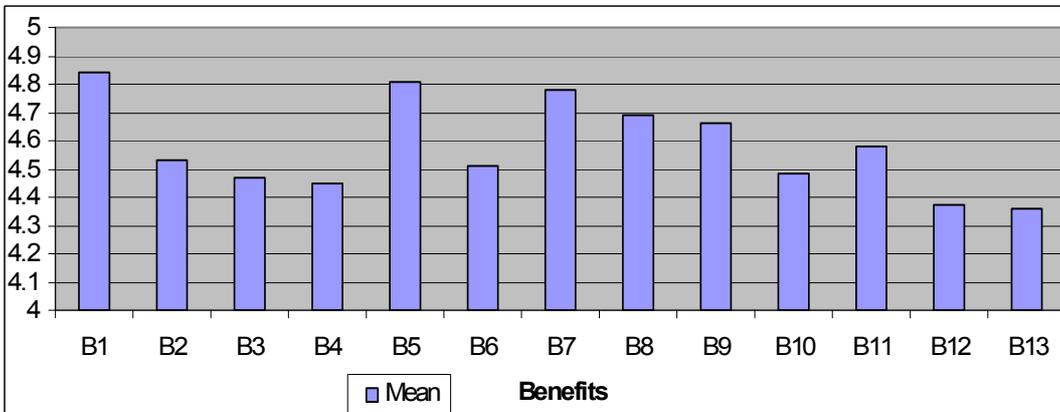


Figure 4: Means of organisational benefits Saudi organisations achieved from Six Sigma

▪ **Organisations' satisfaction from implementation of Six Sigma in Saudi organisations**

The findings reveal that, there is unanimously satisfaction from organisations' on the benefits of implementation of Six Sigma in Saudi organisations.

Conclusions

This paper presents the results of the study of the implementation of Six Sigma in Saudi Arabia. The study concludes that, Six Sigma is appropriately implemented in the Saudi organisations and tangible benefits could be obtained. Furthermore, it makes recommendations on development of a strategy for Six Sigma implementation in Saudi organisations but highlights that innovation and improvement culture must be developed and promoted throughout the organisation to ensure long-term benefit and success. It has taken into consideration that Saudi Arabia is still a beginner and in its infancy in implementing Six Sigma quality processes.

The critical success factors (CSFs) of Six Sigma like top management commitment, training and education, communication, rewards and recognition, which are the most important CSFs to take into consideration before implementing any Six Sigma programme. The findings of this study illustrate that it is not easy to implement Six Sigma in Saudi Arabia, because of the culture, inability to change working style and the lack of communication or reward system. On the other hand, many organisations have good opportunities to implement the Six Sigma project. These opportunities include experience taken from previous quality initiatives and the successful implementation of Six Sigma in some projects.

Surely, most of the Saudi organisations have to move forward towards Six Sigma in the near future if they want to excel and compete with the giants who are ready to come to the Middle East. I am quite confident about the future of Six Sigma in the Saudi organisations. They should also move forward to convince the management about this process improvement tool.

Six Sigma implementation is neither easy nor fast; it could involve rapid change, significant resources, considerable time commitment and a massive training programme. Moreover there could be lots of projects and changes happening simultaneously; this is a very important point that should be considered for Six Sigma implementation in a fast growing organisation such as in the Saudi Arabia, where there are many major activities going on at the same time. Therefore, the approach to Six Sigma implementation must be focused and should not require significant time and resource commitment at the initial stages.

Recommendations

There are several recommendations to the senior management of Saudi organisations when implementing Six Sigma in order to sustain the energy of employees working on the project. They should note that focused training in cross-cultural skills make a significant difference in team performance. Nevertheless, it must be noted that a Six Sigma culture cannot be effectively created in an organisation without a sincere commitment of both management and employees.

In order to implement Six Sigma successfully, one must understand the philosophy, principles, measurements and methodologies as process requirements. Next, the organisation must conclude that, it have opportunity, as it exists in organisation, and then decide if it is willing to invest the time, people and effort to realise the desired gains. The organisation's executive management team must look after the Six Sigma implementation processes and must not waiver in their commitment and communication efforts regarding them.

Top management must be part of Six Sigma and it should contribute towards its implementation through visible commitment and support, leadership and championship, resource provision and communication and consultation. It should support the Six Sigma initiative by personally spending time in all Six Sigma training, speaking and answering questions raising by employees, dropping in on Six Sigma reviews, making site visits to observe at first-hand the degree to which Six Sigma is ingrained in the culture and monitoring Six

Sigma project progress. There is no such a thing as a standard Six Sigma implementation plan; every organisation has its own situations and requirements. Therefore, Six Sigma implementation strategy in Saudi organisations must be developed based on the organisation's strategic plan and specific requirements. It must also be highlighted that organisations at the initial stages must start small and then transform into a full-scale implementation as and when required. Top management commitment for Six Sigma is first and foremost. The CEO of the organisation or business unit should genuinely accept Six Sigma as the management strategy. Top executives must be part of Six Sigma and they should contribute towards the implementation through visible commitment and financial and moral support. Effective communication and consultation are needed. Initiatives require spending time in Six Sigma training, speaking with staff and monitoring Six Sigma project progress. Then organise a Six Sigma team and set up the long-term Six Sigma vision for the organisation. Choose the area in which Six Sigma will be first introduced. Strengthen the infrastructure for Six Sigma, evaluate the organisation's Six Sigma performance from the customers' viewpoint and benchmark the best organisation in the world.

Limitations of Study

No study can be done without its limitation. Time and money constraints, as well as the effort involved were as in many researches an inevitable limitation. The study concentrated on Saudi Arabia only. Since the framework used was generic and did not take into considerations geographical or cultural issues into account, therefore, so the findings cannot be generalised with caution.

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