

APPLICATION OF SIX-SIGMA TECHNIQUES TO HUMAN CAPITAL MANAGEMENT IN HOTELS#

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ABSTRACT

Background: Six-Sigma is a quality improvement strategy that provides a clear roadmap for organizations to deliver nearly perfect products and services. In an increasingly knowledge intensive and global economy, superior management of human capital- the skills, talents and knowledge of an organisation's employees is arguably the only sustainable source of competitive advantage for an organisation. **Objective:** To assess the effectiveness of Six-Sigma and examine its impacts on various performance measures in hotels, seeking for what values and benefits it brings to improve the overall performance of human capital. **Methodology:** The survey was circulated to a panel of prominent academics and Hotel professionals in the field of quality management to capture their feedback as a part of a pilot survey. The respondents were asked to rank the 10 key drivers needed for the successful deployment of Six-Sigma on a scale of 1-5 **Results:** Only 31% of these hotels were actively involved in a documented Six-Sigma project. Four hotels are planning to implement Six-Sigma in the near future. The results of the study also revealed that the most commonly used Six-Sigma metrics is the number of customers' complaints. This metric is followed by defect rate and process capability. Human Capital Performance scores give an indication that hotels implementing Six-Sigma have achieved more benefits as compared to other hotels implementing other quality management programs. **Conclusion:** Six Sigma need to well propagate among hospitality sector so that its benefits can help improve customer satisfaction.

Key Words: Six-Sigma; Strategic HRM; Human Capital; Intangible; Analytic; Alignment

INTRODUCTION

In present strong competitive environment, the hotel industry needs to continuously ramp up its operations by improving the quality of products and service and devise competitive strategies to reduce operation costs and increase capacity. In order to improve their operations and enhance their performance, hotels across the world are actively engaged in a wide variety of quality improvement initiatives such as Total Quality Management (TQM) and Six-Sigma. Currently, Six-Sigma replaced TQM to become one of the most successful process improvement systems. Six-Sigma originated at

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Motorola Inc. in the early 1980s with the aim of eliminating product defects, reducing quality costs and enhancing customer satisfaction.

The principle components of the Six-Sigma as a quality improvement framework include a close understanding of customers' needs, the use of performance measures, an attentiveness on enhancing business processes, and ultimately the generation of tangible business results.

Six-Sigma is a process improvement methodology that allows companies to drastically improve their bottom line by designing and monitoring everyday business activities in ways that eliminate the causes of defects or mistakes in business processes by focusing on the outputs that are important to the customer satisfaction. To put it simply, it is a systematic approach to achieving continuous process improvements.

After initial success in manufacturing organizations, Six-Sigma has gradually gained traction in service organizations. Several studies have shown successful cases of Six-Sigma application in service organizations such as financial services, hospitals, food industry, education, supply chain management and hotels and airlines. The statement that service sector is fundamentally different in nature from manufacturing and that these differences contribute to the increased complexity of service quality is well accepted. A key argument here is that service organizations have unique set of processes and metrics. As such, service organizations are not compelled to emulate the manufacturing model for Six-Sigma management system because they function differently for the reason that the main core of it is based on customer requirements and swift responses from the customers. When service is provided, the customer immediately conveys satisfaction or dissatisfaction. Moreover, the intangible nature of services and products makes the understanding of work process more difficult and the measurement of volatility makes data collection more difficult. Thus, in a service process, the aim of Six-Sigma approach is to recognize and pinpoint how defects occur and then plan process improvements by reducing defects which will improve the overall customer experience as well as improve customer satisfaction.

Six-Sigma has been successfully introduced into many service organizations, including hotels and lodging. For instance, Starwood Hotels and Resorts, one of the leading hotel chains, was one of the first hotels in the world that endeavoured to espouse Six Sigma philosophy. In 2001, Starwood adopted Six-Sigma to develop innovative solutions that focus on the customer and to transfer these solutions throughout the global organization. Recently, Starwood has successfully executed hundreds of Six-Sigma projects in areas involving productivity, customer interactions and evaluations, menu redesign, green room program, workplace safety, e-mail marketing and sales. When Six-Sigma was initiated at Starwood Hotels and Resorts, the company incurred \$17 million in training costs. At the same time, the company reaped tangible of more \$17 million. Since then, programs developed under Six-Sigma have

delivered more than \$100 million in profits to Starwood’s bottom line. Another Six-Sigma project at the Westin Turn Berry Resort resulted in an 11.95% increase in incremental spending by customers and an increase in room revenue of more than 19%. A Six-Sigma project improved reservation systems and helped maximize the use of massage therapists and treatment rooms, increasing spa-related revenues from \$145 per booking to \$225 per booking.

The successful implementation of Six- Sigma lies in its well defined framework involving methodology applying different tools and techniques at different stages of the methodology. Tools and techniques are practical methods, skills, means or mechanisms that can be applied to particular tasks which foster positive change and improvements. Examples of business strategies, tools, techniques, a summarized in Table-1.

Table 1: Six-Sigma Business Strategies, Principles, Tools and Techniques

Six-Sigma Business Strategies and Principles	Six-Sigma Tools and Techniques
Project Management	Statistical process control
Data-based decision making	Process capability analysis
Knowledge discovery	Measurement system analysis
Process control planning	Design of experiments
Data collection tools and techniques	Robust design
Variability reduction	Quality function deployment
Belt system (Master, Black, Green, Yellow)	Failure mode and effects analysis
DMAIC process	Regression analysis
Change management tools	Analysis of means and variances root cause analysis and process mapping

The effective implementation of Six-Sigma is known to be dependent on several key elements or factors that can be identified as being critical to the successful implementation of Six-Sigma. Undoubtedly, every organization’s development of a Six-Sigma model is unique; however, there are factors common to every success story. Literature has identified several key components which are considered critical for effective implementation. These include top management commitment, organization infrastructure, incorporating Six Sigma into business’s strategic plans, and organizational readiness to apply the underlying concepts of Six-Sigma. Among the factors that were listed as key ingredients for successful implementation of Six-Sigma is education and training of workforce.

Many authors have discussed the implementation of the right combination of tools (ranging from simple tools like Histogram, Pareto charts, etc. to more complex ones like simulation, design of experiments and reliability analysis) as the most important key component to the successful implementation of Six-Sigma. The same authors listed linking Six-Sigma to customers as critical to successful implementation of Six-Sigma. A more recent study also supported this finding. Other authors listed organizational infrastructure and resources as one of the key ingredients of Six-Sigma success.

Although hotels around the world have an increased interest in Six-Sigma implementation and many hotels have reported considerable financial and non-financial benefits as a result of Six-Sigma implementation, the literature is limited and the research of the relationship between Six-Sigma implementation and its performance improvement outcomes is a rarely examined subject in the hospitality context. Accordingly, research is needed to better understand the impact that Six-Sigma has on hotels performance improvement. In addition, only a few articles were found that dealt with the relationships between the vital components or practices for the successful application of Six-Sigma and performance. Therefore, this study attempts to assess the effectiveness of Six-Sigma and examine its impacts on various performance measures in hotels, seeking for what values and benefits it brings to improve the overall performance of human capital. By applying a few basic analytic techniques from Six-Sigma. Intangible soft processes of HR are possible to measure through HR Six-Sigma, which pulls the HR function closer to strategic alignment with organisation goals.

METHODOLOGY

Methodology of this research is explorative in nature to find out how various organization are pioneering in six sigma process. Hotels were studied to identify how Six Sigma is initiated and implementing for organizational excellence. A draft survey was developed based on a comprehensive review of existing literature. Five point Likert scales was used to measure the responses of items. The survey was circulated to a panel of prominent academics and Hotel professionals in the field of quality management to capture their feedback as a part of a pilot survey. Their suggestions were incorporated and the wording of the questions was improved in order to make it more comprehensive.

The final survey comprised of three sections, each collecting a certain type of information. The first section included questions on the biographic and demographic information of the respondents. There were also some questions about the general profiles of the investigated hotels. The second section of the survey asked the respondents to identify if the hotels were implementing Six-Sigma currently or plan to use it in the next 24 months (This included the key Six-Sigma metrics, tools and techniques in place). If so, the respondents were asked to rank the 10 key drivers needed for the successful deployment of Six-Sigma on a scale of 1-5 (where 1 = least important and 5 most important). The third section of the survey asked the respondents to deliberate statements regarding the performance dimensions related to financial, operational, and competitiveness performance. The respondents were asked to indicate the impacts that Six-Sigma based on their performance on a Likert scale of 1 to 5 (where 1= no benefit and 5 = excellent benefits).

RESULTS AND DISCUSSION

The first section of the survey asked the respondents to identify their biographical information. Of the respondents, 33% were quality managers. The other positions of the respondents were operation managers (29%), general managers (22%), and other middle level managers (16%). Most of the

respondents (91%) were male; of which 51% of the respondents were in age range of 31-40 years, followed by the age groups of 41-50 and 21-30 which accounted for 38 percent and 11 percent respectively. All respondents held university degrees and approximately two third respondents (66%) had received a formal education and training in hotel management. This indicates that the academic qualifications of respondents were relevant to their jobs. All the surveyed respondents had many years of work experience, with 53 percent having worked in the hotel industry for at least ten years. There were also six questions about the general profiles of the surveyed hotels including type of hotel, operation years, and average occupancy rate for the last year, the hotel capitalization, the hotel annual gross revenue, and the number of employees. These variables may also be termed as control variables, used in the later part of analysis to moderate the impact of Six-Sigma within the sample.

All the surveyed hotels were applying one or more formal quality management systems including TQM and ISO 9001. However, only 31% of these hotels were actively involved in a documented Six-Sigma project. Four hotels were planning to implement Six-Sigma in the near future. Although the roots of Six-Sigma as a quality strategy can be traced back to the beginning of the 1990s, the majority of hotels implemented Six-Sigma in the last three years. A notable proportion (85.7percent) of these hotels have less than three years' experience with the Six-Sigma approach, 14.4 percent of these hotels had involved with the Six-Sigma project for three to five years.

It is obvious from the results that those hotels implementing Six-Sigma are aware of the fact that Six-Sigma is one of the most effective strategies to enhance product/service quality, improve internal processes and develop overall operational excellence. Moreover, the hotels which responded to the survey and were not engaged in implementing Six-Sigma. As the majority of the hotels were discouraged to implement Six-Sigma because they have quality systems in place and they perceive such systems to be adequate (57%). This was followed by other reasons such as lack of knowledge of the system, not sure if relevant, and no perceived benefits. The survey also asked the respondents to identify the areas/processes where in which Six-Sigma implementation took place. The results have made clear that hotels extensively applied Six-Sigma initiatives in all functional areas (the whole hotel).

Table 2 presents the key metrics commonly used by the hotels employing Six-Sigma. A metric is a specification or attribute against which the outputs of a process are compared. The results of the study revealed that the most commonly used Six-Sigma metrics is the number of customers' complaints. This metric is followed by defect rate and process capability. The least commonly used metrics were process yield and through put yield. In fact, these two metrics (process yield and throughput yield) are of the fundamental metrics of Six-Sigma.

Table 2: The Key Used Six-Sigma Metrics

Six-Sigma Metrics	Mean	SD
Number of customers complains	3.64	1.524
Time to respond to customer's complaints	2.06	1.562
Defect rate	3.26	1.515
Process yield	1.09	.540
Process capability	3.23	1.577
Process cycle efficiency	2.09	1.319
Throughput yield	1.15	0.533

Human Capital Performance measures of hotels that not implementing Six-Sigma was also recorded with respect to the variables mentioned. In the comparison, it is clear that Six-Sigma hotels obtained significantly higher mean performance levels of employees than Non-Six-Sigma hotels in all dimensions. These scores give an indication that hotels implementing Six-Sigma have achieved more benefits as compared to other hotels implementing other quality management programs. Therefore, it seems advisable for these hotels to be actively involved in a formal Six-Sigma project in order to improve their overall performance. The areas that have experienced the greatest benefits are gaining sustainable competitive advantage, better service/product quality, reduction of operational and quality costs, and reduction of customers complains. Six-Sigma projects, however, seem to have asymptotic implications on return on assets, return on investment and market share when compared to other quality programs being applied by other hotels.

CONCLUSION

Six-Sigma is a systematic quality approach, use of which leads to increase in profitability through improvement in all operations. This study presents the results of a Six-Sigma survey carried out in the hotel industry to explore the impacts of implementing Six-Sigma approach on upscale hotels, seeking for what values and benefits it brings to improve the overall performance of the hotels and employees .Therefore, this study attempted to assess the effectiveness of Six-Sigma and examine its impacts on various performance measures in hotels, seeking for what values and benefits it brings to improve the overall performance of human capital.

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