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Six Sigma as a Source of Service Delivery Improvement Methodology for the Malaysian Hotel Sector

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ABSTRACT: This paper is presented as to examine the significance of Six Sigma methodology approach in the Malaysian Hotel Industry. It was known that there are many strategies that had been developed over the years to improve service delivery in the Hospitality Industry. The industry by norm is known to use human to deliver services. Therefore, seeking the best method to increase employee job performance is vital. From the review of the literature it was found that there are several hospitality establishments used Six Sigma to enhance their service delivery efficiency. In Six Sigma, 6σ symbolizes a specific number, which is 3.4 defects per million opportunities (DPMO), where opportunity is understood as any possible source of error in product, process, or service. There are three principles that builds Six Sigma methodology and they are: a) teamwork, b) statistical control process (SPC) and c) shared vision. Despite of that, however, this paper will only focus on a single element of the approach that is shared vision.

Keywords: Six Sigma, Teamwork, Statistical Process Control Shared Vision, Hospitality, Job Performance

1.0 Introduction

Tourism is an important industry that contributes at least 9 per cent of the world's GDP, employs over 255 million people worldwide and represents 8 % of the global workforce (World Travel & Tourism Council, 2012). The industry makes a significant contribution to the economic development of many countries, with some countries reliant on tourism as a catalyst for growth and development. This is the case in Malaysia where the tourism industry has been hosting large numbers of tourists arriving for business or vacation purposes as well as transient passengers' en-route to other destinations. In 2013, the hospitality and tourism sector contributed MYR 65.44 billion (US\$ 20 billion) towards Malaysia's Gross Domestic Product (GDP) and it was ranked second, after the manufacturing sector, in terms of overall economic contribution (Tourism Malaysia, 2013). Intense competition has been a feature of the tourism industry for some time and this has led to the development of sophisticated business operation strategies. However, the hotel sector has traditionally been slow to adopt these innovations (Renaghan, 1995; Fyall & Spyriadis, 2003). O'Mahony (2006) notes, for example, that instead of improving service and developing distinctive products that satisfy the needs of their customers, hotels tend to concentrate on improving revenue through increased sales, generally by lowering prices. The review of the literature found that the Six Sigma methodology has been widely used in manufacturing businesses (Guitierrez, et al. 2009). However, there are number of service organizations that have embraced the product improvement methodology (Pearlman &

Chacko, 2012). Kivela and Kagi (2008) stated that Six Sigma is a product improvement approach that is also well accepted by service oriented businesses. Although the methodology is designed specifically to improve productivity, the concept gained serious interest from service organizations as a method to improve the quality of services. This was due to the effectiveness of the methodology in improving products and services as well as work systems (John & Tyas, 1996; Oh & Jeong, 1996; Qu, 1997; Kivela & Chu, 2001; Pearlman & Chacko, 2012).

2.0 Literature Review

Six Sigma was developed and named by Dr. Mikel Harry a Senior Engineer from the Motorola Corporation, in 1975. He designed the approach after his search for ways to reduce defects and improve production (Pearlman & Chacko, 2012). The purpose of the methodology is to improve employee performance, work processes, productivity and the quality of the product and, at the same time, reduce the cost of production (Bhote & Bhote, 1991). The main reason for the development of the Six Sigma framework was the continuous improvement in the manufacturing of complex devices involving large numbers of parts with a high probability of defects (Guitierrez, et al. 2009). Linderman, et al. (2003) offered the following definition of Six Sigma:

"Six Sigma is an organized and systematic method for strategic process improvement and new product and service development that relies on statistical methods and the scientific method to make dramatic reductions in customer defined defects rates (p.195)"

In Six Sigma, 6σ symbolizes a specific number, which is 3.4 defects per million opportunities (DPMO), where opportunity is understood as any possible source of error in product, process, or service (Breyfogle, 2003). This philosophy proposed continuous improvement in the firm as a means of increasing the efficiency of job processes (free from defects) (Pande, et al. 2002). Therefore, by implementing Six Sigma, firms are able to decrease their defect rates in work processes, improve the quality of products, satisfy customers, reduce costs, improve efficiency, and increase productivity (Breyfogle, 2003; Pande, et al. 2002).

2.1 The Dimensions of Six Sigma (σ)

Teamwork is one of the major pillars in the Six Sigma methodology (Lowenthal, 2002; Pande, et al. 2002; Breyfogle, 2003; Llorens & Molina, 2006). The continuous improvement proposed in this philosophy was developed through different tasks assigned to teams of workers. The success of an improvement program depends on cross-functional teams (Pande, et al. 2002; Shamji, 2005). Teamwork was a key factor in Six Sigma's success because team members are the main carriers of the philosophy (Thawani, 2004). In Six Sigma, roles such as 'Champions', 'Master Black Belts', 'Black Belts' and 'Green Belts', etc, are explicitly established. According to Pande, et al. (2002), (supported by Gitlow (2005) people that work in the organization can be categorized into; a) Champions (Executive Committee) - obtain resources and eliminate barriers, b) Master Black Belts (Top management) - have important abilities and deep knowledge of Six Sigma methodology, c) Black Belt (full time agent) – improvement projects, and d) Green Belt (Employee) - belong to the improvement program but this group of employees only has part time contribution to a task. These groups of employees in the organization have different task and roles. Thus, teamwork is seen to be pivotal to Six Sigma implementation. On the other hand, Six Sigma team members are trained to improve employees' abilities, teamwork, statistical methods and tools (Gitlow, 2005; Lee & Choi, 2006; Ravichandran, 2006). Six Sigma offers a solid statistical methodology for experimentation and research (de Mast, 2006). In fact, the definition given by Linderman, et al. (2003) indicates that the initiatives for improvement were grounded in powerful statistical methods. Hence, another distinctive aspect of the Six Sigma approach is its strong statistical foundation (Eckes, 2001; Mc Adam & Laferty, 2004). Pearce and Ensley (2004, p.260) defined Shared Vision as '... a common mental model of the future state of the team ...'. This definition repre-

sents a capacity for sharing the future image of what is desired by firm members, developing common commitment to this future image and establishing some principles for pursuing it (Senge, 1992). According to Harrington (1999), shared vision was among the most important ideas concerning leadership in the twentieth century. Employees' ability to share a future image toward which they can direct their efforts enables the achievement of a series of significant advantages for the organization. Through Shared Vision, the relationship between professional improvement, lifelong learning and long term commitment can be stimulated (Senge, 1992). These factors have significant implications for organizational performance.

2.2 The Application of Six Sigma to Service Industry and Hospitality Sector

In general, the majority of studies on quality management and improvement programs originate in, and are designed to improve, product quality in the manufacturing sector (Sureshchandar, et al. 2001). However, scholars and specialists have posited that some principles could also be implemented successfully in the service sector (Kivela & Kagi, 2008; Pearlman & Chacko, 2012).

3.0 Methodology

In Part A, the demographic profiles of respondents will be presented (gender/designation). In Part B, six questions were adapted to assess Shared Vision and, again, a 7 point Likert type scale was used and the questions relating to Shared Vision were taken from the work of Gutierrez, et al. (2009). The Klang Valley was identified as the most appropriate geographical sampling area because the region includes the main Central Business District (CBD) of Kuala Lumpur, the capital city of Malaysia, as well as the surrounding cities Putra Jaya and Selangor. The region is also recognized as the most popular choice for business, transitory and vacation tourists with more than 10.7 million tourist visits or 41.2% of overall international tourists in Malaysia (Tourism Malaysia, 2012). There are approximately 40-50 four and five star hotels in this region. Hence, the Klang Valley was seen to be the most appropriate geographic area for this research. Four and Five star international hotels were chosen as the target population because these establishments are recognized as having well defined management systems, organizational structures and large, well-staffed departments. The raw data underwent three different types of analyses and these were: i) principal component analysis (PCA), ii) reliability and validity testing and iii) the Cronbach Alpha value to assess consistency.

Those methods had the capacity to identify the most important questions (or variables) of each dimension and to explain the variation between variables. 400 questionnaires were distributed to four and five star hotels with 312 usable responses collected, which represents a 78% response rate.

4.0 Findings and Discussions

By conducting cross tabulations between department and gender it was found that the front office department represents 50.3% of respondents and the food and beverage department represents 39.1% of the total respondents in the sample. In addition, there were respondents that represented departments directly related to the front office or the food and beverage department. This group of respondents constituted 10.6% of the total respondents. Overall, it was found that female respondents represented the highest percentage of respondents (60.9%) of the overall sample.

Departments		Gender		
		Male	Female	
Front Office	Count	77	80	157
	%	24.7%	25.6%	50.3%
Food & Beverage	Count	37	85	122
	%	11.9%	27.2%	39.1%
Others	Count	8	25	33
	%	2.6%	8.0%	10.6%
	Count	122	190	312
	Total	39.1%	60.9%	100.0%

Table 1: Respondent Distribution by Departments

However, as the hotel industry workforce, in this study in particular, is dominated by female employees. The distribution of respondents by department is presented in Table 1.

5.0 Designation

The analysis of data found that employees from the front office department constituted 38.6% of the total respondents, with front desk assistants or receptionists constituting the highest percentage of these respondents.

Designation	Gender			
		Male	Female	
Front Office Department				
Front Office Supervisor	Count	3	1	4
	%	1.0%	.3%	1.3%
Assistant Front Office Supervisor	Count	8	16	24
	%	2.6%	5.1%	7.7%
Receptionist/Front Desk Assistant	Count	13	29	42
	%	4.2%	9.3%	13.5%
Telephone Operator	Count	5	8	13
	%	1.6%	2.6%	4.2%
Bell Captain	Count	10	0	10
	%	3.2%	.0%	3.2%
Bellman	Count	18	0	18
	%	5.8%	.0%	5.8%
Porter	Count	4	0	4
	%	1.3%	.0%	1.3%
Doorman	Count	5	0	5
	%	1.6%	.0%	1.6%
Total		21.3%	17.3%	38.6%

Food & Beverage Department				
Food & Beverage Supervisor	Count	13	12	25
	%	4.2%	3.8%	8.0%
Assistant Food & Beverage Supervisor	Count	5	14	19
	%	1.6%	4.5%	6.1%
Captain	Count	3	4	7
	%	1.0%	1.3%	2.2%
Waiter/ess	Count	11	20	31
	%	3.5%	6.4%	9.9%
Bartender	Count	14	0	14
	%	4.5%	.0%	4.5%
Banquet Waiter/ess	Count	0	29	29
	%	.0%	9.3%	9.3%
Total		14.8%	25.3	40.1%
Others				
	Count	10	57	67
	%	3.2%	18.3%	21.5%
Total		3.2%	18.3%	21.5%
Grand Total		122	190	312
		39.1%	60.9%	100.0%

Table 2: Respondents Designation

Respondents in the food and beverage department represented a total of 40.1% of the sample and waiters and waitresses from the coffee house represented (9.9%), bartenders represented (4.5%), and banquetting staff represented (9.3%) of these respondents.

6.0 Shared Vision

The Kaiser-Meyer-Olkin value of 0.79 exceeded the recommended value of 0.6 (Hair, et al. 2004) and Bartlett's Test of Sphericity is statistically significant. This showed that there is a high degree of interrelationship among the questions within the dimension of shared vision. The unrotated factor solution extracted one factor with an Eigenvalue greater than one.

Table 3: Result of the unrotated factor extraction from the 6 questions (variables) representing Shared Vision (SV)

Factor	Eigenvalues	Percentage of Variance	Cumulative Percentage
1	3.837	63.9	63.9

Kaiser-Meyer-Olkin Measure of Sampling Adequacy = 0.79:
Bartlett's Test of Sphericity = 1136.664, Significance = 0.00

According to Table 3, this factor accounted for 63.9 % of percentage variance. In this test only one factor was generated from the analysis. Hence six questions were reduced into one factor. The pattern loadings, factor structure and factor interpretation are shown in Table 4. The dimensions were defined by the variables with significant factor loadings of 0.6 and above. Reliability tests on each of the factors indicate a Cronbach Alpha coefficient above 0.88. This means that the 6 questions can be accepted.

Table 4: Result of Varimax rotated factor matrix for Shared Vision (SV)

No	Factor One	LD
1.	In the organization, there is clear vision guiding the strategic goals and missions	0.69
2.	The leadership of the company shares a common vision of the organization's future with me	0.86
3.	Our department shares the same ambitions and vision as other departments	0.83
4.	People in our department are enthusiastic about pursuing goals and missions of the whole organization	0.85
5.	I think the shared vision in the organization is appropriate	0.80
6.	I agree with management on what is important for our organization	0.73
Reliability Cronbach's Alpha = 0.88		

LD: Factor Loading

In shared vision respondents reported that there is a clear vision guiding the strategic goals and mission in their organization (0.69). They also asserted that the leadership of the company shares a common vision of the organization's future with hotel employees (0.86). Furthermore, different departments shared the same ambition and vision as other departments (0.83). It was also revealed that these hotel employees were enthusiastic about pursuing the goals and mission of the whole organization (0.85), and they reported that the shared vision in their organization was appropriate (0.80). Finally, they agreed with management on what was important for their organization (0.73). The evaluation of results found that the factor loading of "shared vision" was 0.6, which is above the recommended value (Hair, et al. 2004).

Thus, it can be concluded that shared vision plays a significant role in improving hotel employees' performance. Shared Vision was found to be significant to employee performance as a means of achieving personal and organizational goals and therefore, it can be suggested that Shared Vision is a significant dimension contributing to high employee performance. This is in line with several researchers' contention that an organization should clearly explain to employees the reason for the organizations existence (Gutierrez et al. 2009; Kivela and Kagi, 2008; Pearlman and Chacko, 2012; Pearce and Ensley, 2004; Lahap et al, 2013). They added that employees should also be informed of the reason why they do the job and the implications of doing the job. Therefore, it can be suggested that shared vision in this study is well-understood by hotel employee in this sample. Moreover, top management knows the importance of shared vision towards their employee. This study enriches the body of knowledge towards the field of service improvement methodology.

7.0 Conclusion

Despite of the success of this study, few limitation were also faced. Time, money and sample selection constraint were the main concern in this research. The duration of 5 months of data collection limits the researcher to get more respondents. The sample selection was also found to be a barrier to this research. Therefore, Klang Valley was chosen in this study. This study was done and acts as a pilot study to assist towards bigger sample such as, the Northern and Southern part of Peninsula Malaysia as well as Sabah and Sarawak. To sum up, bigger sampling and ample time will be allocated towards future study. Overall, this study had successfully achieved its main objective that was to examine the significance of Six Sigma methodology for the Malaysian hotel Industry.

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