Intelligent consistency- Ethical practices of Lean Six Sigma in quality service provision in the hospitality industry

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Abstract

In all organizations there needs to be a steady commitment to doing the best job possible and making the best decisions. Six Sigma requires that the hotel guest be prioritized as the first step to effectively restore an issue of defective service that has been created by a service provider. Six Sigma then is a process of reducing defects by analyzing the methods and business processes of hotels, which are defective in terms of efficacy, and then crafting high quality ideal products and services. Where there are defective processes and services, strategies for change and improvement should be introduced and endorsed, so as to meet and exceed customer needs towards excellence. Quality issues in hospitality can *inter-alia* arise from poorly trained or un-committed employees, defective equipment, ineffective management within a department, or the organization as a whole. Ethical issues can arise when Six Sigma is implemented and managed. Desired progress cannot be attained unless significant changes are made to the way in which quality improvement is conducted in hotels in an ethical manner.

Keywords: Ethical practices, quality, Six Sigma, customer service, consistent service

Introduction

A thematic review approach was utilised in this study to describe particular areas of the literature. The purpose of the outcomes was to create greater awareness as to the usage of Six Sigma and Lean in the hospitality industry and to disseminate key steps for an improvement in quality and ethical actions based on these approaches which should be used in tandem. An in-depth examination of relevant principles and a narrative review was conducted to elucidate on different primary studies from which conclusions were drawn on Six Sigma and Lean. A holistic interpretation is presented contributed to by existing [1]theories and models on the methodologies so as to promote ethical quality driven business practices in the industry in question.

Quality problems have plagued hospitality enterprises for a long time, and a litany of reasons appeared in the past to explain their existence. Generally, hotel managers for example, were

in denial about poor service and quality. However, hospitality sector enterprises have a moral obligation to develop systems which are sound when it comes serving customers since service quality is the very essence of a hotel as it accommodates guests from far and wide and each has specific needs, wants and expectations (Wilkins et al., 2007). In order to know how well a system in a hotel is performing, one needs to measure its performance based on comprehensive data which is analysed. Without careful measurement, it is virtually impossible to choose options for needed improvement and also impossible to know whether and changes that are introduced have led to any noticeable improvement. There is thus a necessity for performance measurement before and after any changes are made. It is equally essential for hotel managers to have excellent service quality understanding and be able to meet and exceed guest needs and wants. Every hospitality sector business requires an effective professional code of ethics that is stringently applied and observed by all employees. Hotels that pay attention to delivering reliable, superior levels of service excellence to guests in an ethical ambience, consistently outperform others in terms of operating profit margins, guest satisfaction levels and also employee satisfaction levels (Zeithaml, 2000).

By identifying and meeting the expectations of guests and by delivering consistently high-quality service to customers, a hospitality enterprise can attain and a vital strategic competitive advantage and promote its sustainability. However, there must be within all employees a firm commitment to doing the best they can for the guests on an ongoing basis and an intent to make the best possible decisions. Continuous quality improvement, service excellence and increasing operational efficiency are strategic objectives that should be viewed as necessities by hotels. Processes I hotels have characteristics that are defineable, measurable, capable of analysis, improvement, and control. By considering the processes and applying an ethical modus operandi to businesses and then conforming to the espoused ethics based on the vision and mission for the business, and what is the right way to conduct business, a hospitality enterprise sets itself up for success. For example, every hotel striving for success is ethical in orientation and includes use of Six Sigma. This method is very useful for strategic process improvement and serves the purpose of improving operational standardization and quality outputs. It is also very useful in reducing discrepancies in service provision and waste limitation. Eradicating losses from the value chain of activities is a critical aspect. The focus must be on the guests who must be engaged throughout their stay in a hotel. In addition, employees must be ethical in actions and empowered to provide the needed service quality with other members of their service team.

Defining Six Sigma and Lean

Six Sigma was first presented by Motorola in 1986 after it was crafted by an engineer named Bill Smith (Tennant, 2001). It was then fine-tuned by General Electric in the 1995 (Keller, 2010). The term Six Sigma has its roots in statistics, when in the early 19th Century, Carl Frederic Gauss familiarized the world with the concept of the Normal Distribution, also known at the Gaussian distribution, the most common bell curve in statistics. It is also called the normal curve or the bell-shaped curve (Bruno, 2003). Six Sigma is then a continuous improvement method concentrating on decreasing variations. Six sigma (σ) represents the standard deviations which are to the left and the right of the mean (average) in a bell-shaped graph.

Six Sigma strategies pursue the notion of improving the quality of outputs of a process by identifying and removing the causes of any defects after considering data, thus diminishing variability in processes in business and manufacturing. The method basically drives towards

six standard deviations between the mean and the nearest specification limit in processes of manufacture to transaction and thus from product to service (De Feo & Barnard, 2005). Bruce (2002) has defined Six Sigma as: "managing and helping to identify what is not unknown, emphasising what should be known, and taking the appropriate action to reduce the errors that cost time, money opportunities and customers". More recently, Birkinshaw and Mark (2015) posit that it is a: "data driven approach for eliminating defects in any process". Sherman and Luton describe it as "a powerful process improvement method that relies on a disciplined, data-driven, analytical approach to solving problems". Pande et al. (2002), express the opinion that Six Sigma is a reference to a specific goal of reducing defects to virtually zero. Six Sigma is about process improvement, with benchmarking and prioritizing which process improvements will yield the greatest results and add value to the effort (Silva, n.d.). Using Six Sigma, a hotel can determine precisely how many problems, defects, flaws, inaccuracies, etc., are taking place and then deliver a systematic methodology to eliminate them (Silva, n.d.). When management has limited exposure to Six Sigma this is challenging as it is imperative to get their buy-in to eliminate threats.

Six Sigma seeks to detect and correct the sources of errors in processes, and in so doing over the short term, produce long-term lower defect levels and thus reduce the rate to Six Sigma level, namely 3.4 defects per million opportunities (DPMO). Thus, a Six Sigma process has a 99.99966% defect-free rate. Six Sigma's understood goal is to improve all processes, but not essentially to the 3.4 DPMO level. Each business using Six Sigma needs to ascertain the suitable sigma level for each of their most significant processes and strive toward them. It remains the task of hospitality managers to define areas in the operations that require improvement. These approaches started in manufacturing organisations and gained popularity in service organisations, including hotels and lodging. Over time, organisations began to use the approaches in an integrated fashion and called it Lean Six Sigma which is described. Lean and Six Sigma are thus well-established quality improvement tools and when the two are coalesced this creates an interactive consequence, thus enhancing their effectiveness.

Six Sigma then strives for quality that is almost perfect by using a set of quality management methods, that promote quality excellence. Its approach is primarily empirical, and statistical methods are used. The approach creates a distinct infrastructure of employees who are experts in the methodology. Every Six Sigma project conducted in an organization follows a definite sequence of steps and has precise value targets (George, 2003). In a hotel this could be reducing process cycle time for example, in room cleaning turnaround time, food production and general service delivery. It could also include efforts to 'go green' and reduce pollution and carbon footprints and the general related costs. The objective is thus to increase customer satisfaction levels, and the triple-bottom-line. The principal means to achieve good Six-Sigma quality levels is to pro-actively eradicate the reasons of process related problems manifesting prior to them becoming huge shortcomings in a hotel operation. The emphasis of Six-Sigma is thus on seeking out prospects in processes with negative consequences that lead to defective quality.

Six Sigma accentuates that the less there is deviation from the mean the better. Crosby (1989) defined quality as conformance to necessities so that improving quality efforts means reducing variance from a desired standard. For it to be effective it requires that prominence be given to organizational infrastructure, deployment plans, analytical tools, and quality improvement, and effective controls being in place (Vijaya Sunder, 2013).

Features that set Six Sigma apart from previous quality-improvement initiatives include:

•A clear focus on achieving measurable and quantifiable financial returns from any Six Sigma project.

•An increased emphasis on strong and passionate management leadership and support.

•A clear commitment to making decisions on the basis of verifiable data and statistical methods, rather than assumptions and guesswork.

Both Six Sigma and Lean should not be viewed as a deep-seated breakthrough notion, but rather be seen as a natural consequence of ongoing initiatives striving to enhance quality improvement. By reducing human effort, space, material, time, and also capital, eliminating waste, decreasing production time, and improving process efficiency, lean production cuts down costs significantly. Lean production then, maximizes value for guests in hospitality operations but significantly without affecting quality as such. The idea of Lean originated with Toyota Motor Corporation of Japan where it was established as a tool for improvement of goods and services. It serves as a framework which optimizes the flow of products and services through what are termed value streams. The value streams flow horizontally across assets, technologies, and functions to the customers. This allows a business to be able to respond far more quickly to consumer demands. Management can then ensure the greatest value for customers while maximizing the resources used. Its strengths lie in its efficiency and it requires engaging front-line employees to develop standardized resolutions to common problems that may arise, and most importantly, its focus is on the customer.

General inefficiency of employees, wasting of resources and lack of effective quality in the hospitality sector are all preventable factors. They are however hugely responsible for the increasing costs of hospitality operations. Service industries such as hospitality need to contemplate business process improvement initiatives like Six Sigma and Lean so as to be able to offer highly distinctive, dependable and high value customer experiences which meet and exceed customer needs and wants. This will also allow hotels for example, to gain a strategic and competitive advantage as guests see before them the difference, advantages and benefits of conducting business with a hotel. The levels of inefficiency and the absence of quality can be carefully measured, managed and transformed via the introduction of continuous improvement processes and suitable technologies (De Koning and De Mast, 2006).

There are some issues concerning the parallel implementation of Six Sigma and Lean or whether they should be totally integrated. Lean thinking and Six Sigma have conventionally been pragmatic when applied to manufacturing. Both Six Sigma and Lean are very challenging in the hospitality sector when compared to the manufacturing sector because of the of the issues of intangibility, perishability, heterogeneity, simultaneity of production and consumption of the processes in the hospitality sector (Reisinger, 2001; Reid and Bojanic, 2009). Six Sigma is an ideal quality assurance tool for the hospitality industry as it focuses on prioritizing, recording and efficiently completing processes. Some hotels are using Six Sigma as a means to effectively improve their service provision to guests. However to organize this management theory and integrate it effectively requires training and certification.

Considering the unique features of the services sector, the application of Six Sigma is somewhat of a challenge when compared to the manufacturing sector but there are a range of frameworks for implementing the Six Sigma practices. Implementing Six Sigma in hospitality business will tend to make processes far more efficient and effective and this will generally lead to desired increased customer satisfaction, and enhanced product and service quality (Callan, 1994). Before the end of the 1990s, roughly two-thirds of the Fortune 500

organizations had commenced implementing Six Sigma initiatives with the primary aim of reducing costs and improving quality (De Feo & Barnard, 2005).

Tan and Chakraborty, (2009) assert that Six Sigma is: "a powerful business strategy which can offer hospitality organisations an extremely powerful competitive advantage in terms of reducing operational costs, defect rate in core processes and deliver high quality service which would result in superior customer satisfaction". Six Sigma has also been defined as: a "business improvement strategy used to improve business profitability, reduce costs of poor quality and improve effectiveness and efficiency of operations so as to lead to or even exceed customer needs and expectations" (Antony & Banuelas, 2003); "methodology to reduce variation and produce the same results over a long period of time" (Lowenthal, 2002);

The *gemba* or workplace is the place and the systems used by employees to create value and Six Sigma supports efforts to identify, diminish and eradicate process deficiencies which lead to improved employee morale and greater job satisfaction (Callan, 1994). Value as such is not the price or cost of something, but essentially the worth that a guest places in the services and products they are provided with in a hospitality establishment, be it a hotel, motel, guest house or bed and breakfast operation. Value does not exist through random acts but needs to be decisively constructed by employees and suppliers for guests. It is thus a multifaceted social process involving time, value and ethical employees. Hotels, for example, continuously have frequent priorities to deal with. When it comes to implementing the Six Sigma quality improvement strategy in the hospitality industry, certain guidelines need to be followed so as to evaluate the importance of each individual task and assign these tasks accordingly (Proudlove et al., 2008).

Six Sigma offers structured, analytical and rational approaches to problem-solving, and also a sturdy organizational framework. Six Sigma tends to be problem-focused, and accepts that process variation is wasteful because it produces defects and leads to the added costs of poor quality. Lean thinking, on the other hand focuses on process flow and lead times. Non-value adding initiatives are considered to be wasteful (Chiarini, 2012).

Tjahjono et al., (2010) concluded from their literature review that there are four possible streams of thought regarding Six Sigma: a set of statistical tools, an operational philosophy of management, a business culture and a scientific analytical methodology. In addition, they concluded that irrespective of the streams, the fundamental goals of Six Sigma are still: improving efficiency, profitability and process capability. Six Sigma (and also Lean, to an extent) prioritize the guest and efficaciously mend a problematic issue. In the hospitality industry, the 'customer' is most often the paying guest, but also the employees at all levels in the organizational matrix, and all the other stakeholders from the micro and macro environments. The issues requiring attention are similar to those in hospitals (Sedlack, 2010). Who ultimately stands to benefit from any changes that are made depends on the quality issues at hand, but ultimately the main benefactor would be the guest. Six Sigma in a hotel and in hospitality in general should thus focuses on improving quality by eliminating defects and process variations, and by increasing predictability and promoting consistency. It also concentrates on the products, processes and services that the guest values most (Silva, n.d.).

Lean Thinking

The term 'Lean thinking' was created by Womack and Jones (1998) and the notion of Lean Methodology, Lean Management, or just 'Lean' is a cohesive system of principles, practices, tools, and techniques that aim to reduce the resources that are used to supply goods and also

services to consumers. Presently, Lean Management and Six Sigma are the most commonly recognised continuous improvement initiatives available to organisations (Alsmadi and Khan, 2010) which face similar challenges. Six Sigma is a progressive step in continuous improvement initiatives that combine the best fundamentals of prior quality initiatives (Folaron, 2003). Lean focuses on waste reduction, as measured by eliminating or drastically reducing unnecessary motion, transportation, inventory, processing, production and defects (Silva, n.d.).

There are numerous definitions of what Lean service is. Jones (2006) looks at what does not create value and what does from a guest's vantage point. He detects all the steps that are required to design, order and produce the service along the value stream flow, and also considers negative aspects that do not add value at all. It is important to ensure that activities that create value are easy to implement without undue disruptions. What the guests want and desire in a hotel must be the top priority of management, and a continuous striving for excellence and unceasingly improving services is non-negotiable. Womack and Jones (2005) view Lean services as those in which processes work in sync to provide quality service to guests. Leite and Vieira (2015) state that lean services are both fast and agile when it comes to service delivery. What is critical is value-added processes that are flowing effectively in a customer-driven arrangement. Sánchez and Pérez (2004) note that flexible information systems and continual quality improvement are core aspects for business success in quality initiatives

Lean Six Sigma is then a blend of Lean thinking and Six Sigma and It is a method to drive process improvement that is currently popular in many businesses, but especially in manufacturing (Radnor and Boaden, 2008). We should bear in mind that not all problems which arise may be suitable for Six Sigma and Lean as they work best with intricate problems in which numerous repetitive variables may be involved (McClusky, 2000). Pande and Holpp (2002) recognize three distinctive characteristics of Six Sigma as the equal stress on the customer, returns on investment and varying how management operates. Lean should include multi-functional teams (Ahlstrom's, 2004). Lean Six Sigma combines the speed presented by Lean, with the management of improvement projects and the Six Sigma DMAIC and Six Sigma ability to diminish disparities (Chiarini, 2012). The combination of Lean and Six Sigma has numerous benefits for hotels such as engaging the frontline staff in marketing or the front office, committed managers, a strong guest focus, teamwork and also interdepartmental cooperation. It leads to cost saving process improvements and limits blunders and reduces waste through a structured approach. Process flow is enhanced, and its use generally aids in improving outcomes and guest satisfaction.

Lean Six Sigma Framework

Lean and Six Sigma are important approaches and very powerful when combined. There is a proposed framework recommended by Ramphal (….) which ensures implementation in a holistic manner. The suggested phases included in the framework are, initiation, data management, improvement and freezing for the service industry. In the initiation phase the project charter is developed and the problem and process metrics are identifies. In the data management phase, measurement tools for the critical data are developed and collected so as to develop mathematical relationships between the inputs and outputs of the process. In the improvement phase the mathematical model is optimized by means of various operations research and statistical technical. This optimization should eliminate defects. In the freezing phase all optimized parameters are set and prevention means set up to prevent reoccurance of the problem.

Six Sigma certifications

The key objective of the Six Sigma is the implementation of a measurement-based approach that focuses on process enhancement and discrepancy reduction through the application of Six Sigma improvement projects. This is achieved through the application of two Six Sigma sub-methodologies which are termed Six Sigma DMAIC and DMADV. The DMAIC process (define, measure, analyze, improve, control) is an improvement system for prevailing processes which reside below desired specifications and in which there must be some incremental improvement (Anbari, 2002). Each of the five DMAIC stages comprises detailed strategies to guide team leaders through the execution of the desired quality improvement plan (De Koning and DeMast, 2006). The define stage of DMAIC ensures that the problem and / or process selected, is linked to organisational urgencies and has management backing (Shankar, 2009). It is all about defining the project and preparing for its ultimate execution. The project selected needs to yield a significant improvement in quality and customer satisfaction, and an improvement in the bottom-line (Bruce, 2005), and ideally the triple-bottom-line. As such, it is important to identify the vital factors that need to be measured, analysed, and controlled to achieve the anticipated results. The project should be selected using a number of items including inter-alia, strategic criteria, auditing reports, cost of quality, failure reports, customer complaints, competitor tracking and other collected data pertaining to the problem. An additional scrutiny can be conducted using a Pareto chart or table and value stream map (VSM) by conducting a supplier, input, process, output and customer (SIPOC) analyses. Essentially then, Lean Six Sigma is used to improve production of goods and service related processes and it highpoints the use of the five problem-solving steps, DMAIC as discussed above.

Figure 1. Steps in the implementation of Lean Six Sigma (LSS)
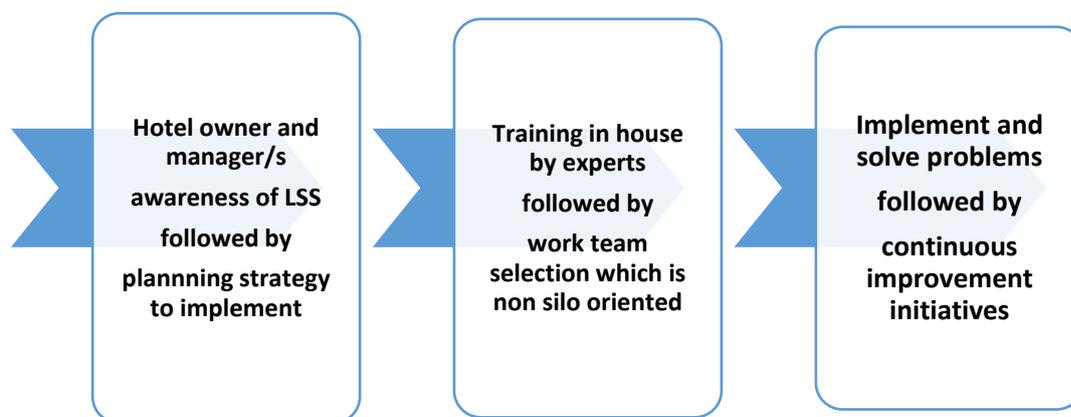
The DMADV process (define, measure, analyze, design, verify) is an improvement system which is utilised to develop new processes or products which are at Six Sigma quality levels. This is also usable if a current process necessitates extra incremental improvement initiatives. Six Sigma processes are effected by Six Sigma Green Belts and Six Sigma Black Belts, and are overseen by experts who are termed Six Sigma Master Black Belts (Hoerl, 2001) who have the highest level of the certifications in Six Sigma. A certified black belt practitioner is expected to explain Six Sigma philosophies and principles, including using various systems and tools, and demonstrate leadership and team dynamics. A certified green belt operates under the supervision of a Six Sigma Black Belt, analyses and solves quality problems and is involved as a team member in a Six Sigma project. The

certified yellow belt have an operational role in the project and have very awareness related trained in Six Sigma.

The Black Belts train the lower certified Green and Yellow Belt members and require them to observe a code of ethics. Six Sigma experts can be endorsed as black belt or green belt, depending on whether or not they are team leaders (Harry and Schroeder, 2000). To obtain certification, they need to demonstrate a fair knowledge of statistical enhancement tools and related dedicated software. To obtain the most benefits from Lean Six Sigma, it is advisable to utilize and integrate individuals who are well trained and have achieved certification as a Lean Six Sigma Black Belt. The Black Belts go through demanding training in a range of areas such as planning, development, project team management, measurement systems analysis, organizational leadership and communication strategy before they achieve their certification, on different levels. The Master Black Belt certification is awarded to candidates who achieve the uppermost degree of training and qualification. Many companies have recognized annual savings from Lean Six Sigma initiatives ranging from $2,000 to $250,000 per improvement by identifying existing standards related to problem areas, and by then suggesting practical methods of improvement and empowering each employee to take ownership the improvements (General Electric Company, 2002). A company culture filters from the top echelon and managers must adopt a continual improvement culture in order to encourage ethical practice throughout a business. After all providing service quality excellence is the ethical thing to do when guests are paying for a service. When a hotel has hospitality trained professionals who are certified in Six Sigma, a continuous improvement culture can be adopted and maintained.

The Ethics of Six Sigma and Lean for the hospitality industry

Certification holders should conduct themselves ethically by being honest and impartial in serving the public, their employers, customers, and clients. They should also strive to increase the competence and prestige of Lean Six Sigma and use their knowledge and skill for the enhancement of human welfare. They are also called upon to continue their professional development throughout their careers and provide opportunities for the professional and ethical development of others. They should act in a professional manner in dealings with each employer, customer or client and act as a faithful trustee and avoid conflict of interest and the appearance of conflicts of interest (Lean & Six Sigma World Organization, n.d.). Many hotels desire a reduction in guest-perceived risk. When guests buy services in a hotel it is different to purchasing consumer goods. Customers tend to experience a perceived bigger risk when they buying hospitality services (Zeithaml, 1981; Mhlanga & Tichaawa, 2016; Ntimane & Tichaawa, 2017). Six Sigma as a quantitative method, is able to drive improved efficiency in any hospitality organization thus resulting in satisfied guests. In recent times, various studies have highlighted the increasing need for hotels conduct their business in a more ethical and responsible way and to foster a positive ethical climate in their operations, and Six Sigma would assist in this regard. The dealings of hotels are influenced by different ethical standards in the country in which they operate. Applying Six Sigma would provide the desired consistency in service quality and impact positively on ethics.

The code of ethics for Six Sigma certified employees should require that a hotel's employees should have a firm commitment to the guests and to service quality excellence. Thus, hotel employees must be highly professional and treat guests with the utmost respect. Whatever issues may arise must be dealt with in a manner demonstrating confidence, the highest integrity, competence and reliability (Pyzdek, 2003). All people in a hotel's value stream, for example, guests, employees, suppliers and professional bodies such as chef's associations must be treated transparently and with fairness. Employees must be imbued with a passion to do what is right all the time and ethical practice should be part and parcel of the DNA of a

hotel. Grönroos (2007) asserts that consumers want reliable, ethically arrived at and responsive service. There should be win-win solutions for all the participants in the supply chain and thus value in all that is undertaken. Value is evident in what worth a guest places on a product or service and not in its price. Any hospitality business should aim at creating value which is ultimately the result of human actions (Womack & Jones, 2005). Where there are glaring defects such as service variations, these must be demarcated, and then carefully analysed and measured. Once effective solutions are crafted the standard deviation can be measured and if there is less variability, it is then evident that guests will be happier.

Pande and Holpp (2002) posit that some hotels employ Six Sigma as a strategy for business transformation because it allows them to make organisation-wide process improvements. Service-focused companies have reduced waste in their internal processes and improved their customer relations metrics considerably by using the basic ideas in Six Sigma (Sehwall & DeYong, 2003). A critical component is an assurance of fiscal integrity as ethical employees should always disclose if any aspect which they recommend will impact their personal finances. All interests or stakes in a new idea should be disclosed. It is also critical to have a strong sense of commitment towards guests irrespective of race, creed, religion and so forth. All Six Sigma employees are called upon to uphold high ethical standards and to always act with the greatest integrity. For example, they need to make the guests feel good about the business they do with a hotel and the time spent in work activities must time well spent as time is finite resource. Service quality and quality in general, should be the utmost goal for any hotel manager and Six Sigma is the ideal framework to assist in enhancing quality and also increasing customer satisfaction as a whole.

Starwood Hotels in the USA believes that Six Sigma "enables associates to develop innovative customer focused solutions" and then applies the acknowledged innovations across their organization so as to improve the quality and consistency of experiences for guests (Starwood Hotels and Resorts Worldwide, Inc., 2001: 1). One could argue that it is an ethical workplace that standardizes processes to make life easier for employees and boost efficiency. Employees also require training stressing problem-solving skills and space for innovative and imaginative thinking to manifest (Liker and Meier, 2007). This pays off though as Starwood Hotels is one of the most profitable hotel operators worldwide with a net income margin in 2006 of around 17%, higher then key competitors Hilton and Marriott (Starwood Hotels and Resorts Worldwide, Inc., 2007).

"Since the program was launched in 2001, 150 employees have been trained as "black belts" (managers who work full time on Six Sigma projects) and more than 2,700 as "green belts" (managers who have a portion of the service time allocated to Six Sigma projects). Based mostly at the hotels, black belts oversee the projects while green belts formulate the details and the key to their success. According to the vice president of Six Sigma, Six Sigma specialists, instead of acting like "suits" imposing their will from the corporate office, operate more like partners who help local hotels meet their own objectives since almost 100% of the creative concepts come from in-house staff." (Pearlman & Chacko, 2012).

Six Sigma and Lean Challenges

Six Sigma is commenced only after a lean commitment has been applied, and it is a data driven approach to resolve multifaceted business problems. A major challenge is that some managers believe that Six Sigma will be a quick-fix (Rajesha, 2018) which is certainly not the case. Any Six Sigma and Lean programme is doomed to fail if it is not sustained as workplace cultural improvement strategy. The Master Black Belts are well trained and proficient in analyzing processes in workflows and discovering weak areas that must be moderated or eradicated so as to attain maximum efficiency in terms of resource apportionment.

Nonetheless, the buy-in of all employees is critical to success (Ahlstrom, 2004). Six Sigma and Lean thus requires the effective ongoing participation of all involved in the process (Bowen and Youngdahl, 1998).

Relevant data collection and clearly defining a project can be daunting in hotel contexts and thus off putting when it comes to implementing Lean Six Sigma. Pande and Holpp (2002) discuss three tactics to implementing Lean Six Sigma, including a business transformational approach, a strategic improvement approach and a carefully crafted problem-solving approach. However, what distinguishes quality hotels is the manner in which they deal with problems posed in the implementation process and beyond. By accepting Six Sigma and Lean, an hotel is required to be totally committed to an ethos of continuous improvement and the needed workflow optimization. Kokkranikal, Antony, Kosgi and Losekoot (2012) determined in a study that managers are more resistant to change than operational employees due to the fact that the latter could more easily identify with the benefits that accrue. It is imperative to try to convince employees of the benefits that will arise due to Six Sigma and Lean implementation (Rangarajan, 2013). The efficacious implementation Six Sigma and Lean will result in augmented efficiency, higher quality and improved customer service from a hotel which is prepared to make the needed commitment.

A major barrier to Lean hospitality service is the fragmented nature of hotel departments where employees work in professional and functional silos so that there are various groups working as opposed to the required team approach. The key to success is the inculcating of a team culture where all employees involved in the process are empowered to take ownership in every aspect of the operation. Ownership in total, is important and not only when it relates directly to an employee's daily duty. We are not suggesting that there are no problems related to these methodologies (Bansod, 2012). There is also the issue of teaching employees a new 'language' when introducing Six Sigma and Lean (Lean Enterprise Institute, 2003). For example, Japanese words such as Kaizen (continuous improvement), Muda (waste), Kanban (production signal), and Heijunka (production levelling) all require learning.

Kokkranikal et al. (2012), have delineated some challenges as a result of their study on Six Sigma. The challenges include the lack of high quality trustworthy data, a lack of suitable methods for data analysis, a lack of time, a lack of clarity regarding projects, a lack of team agreement on difficulties faced, and the usual common resistance to change. In this regard most businesses tend to associate process excellence with the eradication of all problems, but any process will ultimately have some or other problem area manifesting at some point. A major issue is a lack of ownership of current or new proposed processes. Managerial doubt on the efficacy of a method and the compartmentalization of employees in their functional and professional silos is also not helpful.

Additionally problematic is a weak link between strategy and improvement programmes that should be undertaken. A further problem faced often is that some team members in a hotel become demotivated due to the notion that work on a Six Sigma project or programme, is in their view, an additional workload which is over and above their usual standard work. They thus tend to switch off and become unenthusiastic. They may decide to intentionally miss meetings or interrupt events. Such negativity may impede a project. In hotels the absence of good data may ultimately be a stumbling block (Antony, 2004). When the relevant data is available this will result in mistaken conclusions and incorrect actions being taken (Rajesha, 2018). Pande, Neuman and Cavanagh (2002) ascertained that senior management frequently refuse to learn about Six Sigma and many of them do not comprehend who their key guests are and thus speculate when determining where exactly improvement is desirable.

It is evident from the literature that Lean and Six Sigma processes can be advantageous in improving many departments in a hotel such as for example, the food and beverage department. The process of value stream mapping can effectively analyze virtually all processes in a hotel.(Lancaster, 2011). Where there is antipathy towards Lean and Six sigma this could derive from ignorance on its merits (Shankar, 2009), or a realization that the culture of the organization and the resource costs associated with training and setting up infrastructure are large. Consequently, Lean and Six Sigma application may be more effective in guest-houses and motels. Larger hospitality businesses could implement it incrementally and this approach this approach would enable the business to continuously improve the process of implementation as it proceeds (Lancaster, 2011).

Conclusions

The myriad of problems in hotels relating to quality reminds managers that they have far more to learn about how the industry should work. When they embrace problematic issues and solve them, they improve the employee skills and efficiency and use time optimally. They are thus in a better position to deliver real value for guests on a consistent basis. Where they see waste they are able to find lean solutions and enhance the value stream. There are fundamental requirements that are required for hotels to succeed with Lean Six Sigma. Firstly, there should be an identified need to do so by a convinced senior management group. Secondly, hotels must be prepared to invest in suitable, qualified resources for the initiative to succeed, including *inter alia* employees, technologies, time and materials. Thirdly, employees must consistently work within a team approach and be empowered to conduct required initiatives without the need to request approval from others. Fourthly, improvements likely to yield a sustainable benefit should consistently be the key focus. Lastly, there is a need for constant feedback if improvements are to be effective in the long run and if there is to be increased efficiency on a range of levels. Lean Six Sigma is a very dynamic process and it requires consistent highly objectively reviewing for the prospects to improve Salah et al., 2010). Lean Six Sigma operations are highly agile and flexible in times of change. They are more able to adapt to unanticipated changes in the business environment. Lean hotel operations save money due to reduced wasting of resources, but more importantly, there is far greater customer satisfaction and greater guest returns which result in higher profitability.

Lean Six Sigma has been proven to lead to improved service and quality, and these create value for guests. Where a black belt cannot be engaged, a suitably trained Lean Six Sigma trained General Manager or even departmental manager can implement the project. The process improvement from Lean Six Sigma increases productivity, and boosts employee attitudes and results in greater workplace satisfaction. Lean Six Sigma is a well- established model for refining processes in hospitality businesses. Effective communication is however required for successful employee buy-in and ideally every department in a hotel should have its own Six Sigma coordinators who manage the processes and get correct support from Six Sigma black belts. However, Lean does not require certified black and green belts but Lean specialists are viewed as team leaders who facilitate Lean tools application for the rest of the employees. Given good levels of motivation and structure, hoteliers will commit themselves to required change if the decisions are kept under their control. First and foremost however, is to convince them of the value of Lean Six Sigma and to ask them if they have made an estimate of the cost of poor quality and low employee performance levels. Secondly, has adequate attention been dedicated to changing the organizational culture that exists in their hotel and is

it compatible with continuous excellence? Further it is suggested that a trained and certified ethics officer be part of the team to ensure compliance to the organisations business code of ethics.

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