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Six Sigma and Educational Quality Management

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ABSTRACT

The six sigma methods' barriers, features, and weaknesses will allow the organization to support its strategic directions and increase the need for coaching supervision and training. It creates appropriate opportunities for the implementation of six Sigma for educational strategies. This article reflects the evolutionary review of the advantages and challenges of the six-sigma project and recognizes the influential elements of the successful approach in educational institutions. This paper aims to investigate the role of Six Sigma in the academic quality ofan organization and its success.

KEYWORDS: *Six Sigma, Educational Strategies, Management, Organisational Culture*

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INTRODUCTION

Six Sigma has been gaining momentum in the industry; however, academics have conducted little research on the emerging phenomenon. The six-sigma method is a project-driven management approach to improve the organization's products, services, and processes by continually reducing defects in the organization. It is a business strategy that focuses on enhancing customer requirements understanding, business systems, productivity, a financial performance. Educational Institutions require an innovative supporting tool that helps in improving the quality of processes about the essential functions, notably teaching, research, and service. The administrative functions and supporting movements in an institution help coordinate and improve the effectiveness of the Academic Delivery Process (Brewer et al., 2002).

Six Sigma is a disciplined, project-oriented, statistically based approach for reducing variability, removing defects, and eliminating waste from products, processes, and transactions; six Sigma has been characterized as the latest administration to repackage old quality management principles and practices (Clifford, 2001). It is a continuous modern quality improvement philosophy that has provided well-documented improvements for the products and profits in many business organizations. The fundamental goal of six Sigma is to reduce defect levels in the outcome of a working procedure, a defect being anything that causes customer dissatisfaction. Maximizing customer satisfaction leads to improved bottom-line performance and a globally competitive position. (Brewer et al., 2002).

Six Sigma makes an organization more ambidextrous by providing a switching structure (Daft, 2001) that allows it to act more organically with new improvement ideas and operate more mechanistically when implementing them. The accomplishment of Six Sigma within an organization has significant momentum that can only lead to fundamental organizational cultural transformation.

Literature Review

Background

Six Sigma is a concept created by Motorola Inc. in the USA in about 1985. Bill Smith, a Motorola engineer, established the Six Sigma program in 1986 for improving quality and reducing defects in their products. In the meantime, Motorola faced the threat of Japanese competition in the electronics industry and needed to make drastic improvements in its

quality levels (Adams, 1998). Six Sigma was a way for Motorola to express its quality goal of 3.4 DPMO, where a defect opportunity is a process failure that is critical to the customer). Motorola set this goal so that process variability is ±6 S.D. from the mean (Adams, 1998). Later it assumed that the process was subject to the disturbance that could cause the process means to shift by as much as 1.5 S.D. off the target. When factoring a shift of 1.5 S.D. in the process mean then results in a 3.4 DPMO (Anderson, 1989). The goal was far beyond normal quality levels and required aggressive improvement efforts. For example, three-sigma results in a 66 810 DPMO or 93% process yield, while six Sigma is only 3.4 DPMO and 99.99966% process yield level. The appropriate level will depend on the strategic importance of the process and the cost of the improvement relative to the benefit. However, to achieve five or six Sigma will require much more effort and more statistical tools. The action and difficulty increase exponentially as the process sigma increases. The return on investment for the improvement effort and the strategic importance of the process will not be carefully defined in either the practitioner or academic literature (Antony and Banuelas, 2002).

From the goal-setting perspective, six Sigma advocates establishing goals based on customer requirements, not on internal considerations. The customer requirements are undoubtedly not unique to six Sigma, but it is essential from a goal theory perspective. Six Sigma also uses exceptional metrics measures (Antony and Banuelas, 2002). Six Sigma aims to decrease variability in key product quality characteristics around specified target values to the level at which failure or defects are improbable. Six Sigma uses structured methods, whether the task is process improvement or new product design. In the case of process improvement, the form is patterned after the plan, do, check, and act (PDCA) cycle (Antony and Banuelas, 2002). Six Sigma has been defined as the central tenets of goal theory, which forms a basis for understanding six Sigma.

Definition of Six-Sigma

Six Sigma included a Greek symbol in their plan to achieve high-quality processes, products, and services. Six Sigma is a quality objective that specifies the variability required of a revolution in terms of the product's specifications so that product quality and reliability meet and exceed today's demanding customer requirements (Varsha, Snehal, and Manikrao, 2006).

Understanding Six Sigma strategies and techniques

Six Sigma is a systematic, data-driven approach using the define, measure, analysis, improve and control (DMAIC) process and utilizing design for the Six Sigma method (DFSS). DMAIC is a generalization of Walter Shewhart's plan-do-check-act cycle, which delivers a roadmap to assist people to figure out how to integrate the various tools into an overall approach to quality improvement (Douglas and William, 2008). The DMAIC framework utilizes control charts, designed experiments, process capability analysis, measurement systems capability studies, and other essential statistical tools. The DMAIC structure encourages creative thinking about the problem and its solution within the definition of the original product, process, or service. When the process is operating so poorly that it is necessary to abandon the initial process and start over, or if it is determined that a new product or service is required, the improved step of DMAIC becomes a process design or re-design (Douglas and William, 2008). The fundamental principle of six Sigma is to take an organization to an improved level of sigma capability through the rigorous application of statistical tools and techniques (Mader, 2002). Six Sigma is more comprehensive than prior quality initiatives such as Total Quality Management (TQM) and Continuous Quality Improvement (CQI) (Blakeslee, 1999). The six-sigma method customer concerns and uses project management tools and methodology.

Six Sigma and Educational Quality Management

The education system, through radical changes, lasteda few years. Today's higher education has become a commercial enterprise and is treated as a marketable commodity. Education itself is a multimillion-dollar industry and essential to the development of a country. Many institutions and universities worldwide are preparing to market their educational products and services. The competition day by day from various institutions and universities is mounting up. Quality education will be of foremost importance in all further higher education (Brewer et al., 2002). Lean s a powerful methodology for reducing waste and non-value-adding activities in business processes and solves visible problems economically (Antony, 2014). The combination of Lean and Six Sigma that the nature of the problem can determine whether the company needs to start with lean first or six Sigma first. (Antony, 2014).

Education systems are deemed to be of higher quality when students demonstrate higher levels of achievement. Improving quality involves having multiple goals, many of which go beyond students' learning. Most observes recognizes that education systems have numerouspurposes, with the transmission of cognitive knowledge such as developing relevant employment skills and attitudes that facilitate civic engagement. (Fuller, 1994). The number of internationally reliable education indicators in OECD countries has jumped from 36 in 1992 to 51 in 1994 and now cover a wide range of measurement, including private expenditures, salaries, student, and public attitudes about education, learning achievements, and labor market outcomes included on that (Javad Mehrabi, 2012).

Much higher education institutions have lean-to improve process efficacy, such as St Andrews University, Cardiff University, Central Connecticut State University, MIT, and more (Antony, 2014). Lean Six Sigma implementation has appeared in a few higher education institutes so far, but it is applicable in the manufacturing sector and the same way as any other industry, including academic and non-academic processes (Simons, 2013). The benefits gained in higher education increase student satisfaction, provide higher education problem-solving templates, change the institutions' culture, identify, reduce hidden costs, tackle process efficacy problems, and establish measurement. (Antony, 2014).

The quality of education and overall performance is not satisfactory in most institutions due to student failures in university examinations, fewer employability opportunities, and other factors. To improve the quality of education activities, six Sigma must monitor the institution to improve higher education (Ramasubramanian. P, 2012). When an organization wants to introduce Six Sigma, it offers higher education institutions a powerful mechanism to examine the efficacy of their offering to improve them. The manufacturing sectors benefit by adapting quality concepts like TQM, Six Sigma, Kaizen, and 5S. Six Sigma is deployed on the existing work processes on an institution campus, and the next task is to determine the outcomes of the current work process (Ramasubramanian. P, 2012).Successful Lean Six Sigma implementation is critical for higher education to understand its readiness level before starting any deployment. The group of decision-makers is wider in Higher education than in commercial organizations, making stakeholder management, communication, and change management essential to completing projects.

Conclusion

Six Sigma implementation has been growing corporate interest exploding last few years. It is becoming the primary driving force for many technology-driven, project-driven organizations. Six Sigma provides opportunities to practitioners to better implement using six sigma projects. It allows them to support their organization's strategic direction and increases the need for coaching, mentoring, and training. Practicing six sigma principles and practices is more likely to succeed by continuously refining the organizational culture. The use of statistical methods is a critical component of this metric-driven approach. It is a process that brings additional benefits and helps institutions adopt best practices for service delivery through a quality process that ensures success. This paper summarized how six Sigma might be used to manage all the existing work processes in an institution in the best possible way. And role in quality management since many aspects are based on the current scenario in an educational institution.

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