### Abstract

The paper focuses on Lean Six Sigma defining its methodology, advantages, and disadvantages. It covers the benefits and costs of the Six Sigma program outlining how they should be tracked. Various functional areas that can be included in the program are examined. The difference between Lean Six Sigma at 3M and traditional TQM programs are presented through detailed explanations. The skeptic opinions about the original Six Sigma program at 3M are explained based on the personal points of view. Finally, yet importantly, the role of Six Sigma is covered through showing its potential influence in the innovative culture at 3M. The main method of answering those questions is providing examples and backing them with scholarly approved clarifications and definitions. The paper can significantly contribute to the readers’ comprehension of a Lean Six Sigma program and its role in the innovative world.

### Supply Chain Management

Lean Six Sigma is a famous method relying on a team effort to develop performance through regularly eliminating waste and decreasing variation. Lean manufacturing\lean enterprise, and Six Sigma are included in this method aiming to remove eight kinds of waste: defects, over-production, waiting, non-utilized talent, transportation, inventory, motion, and extra-processing (Ref-A1B2C3). With such an enormous scope, Lean Six Sigma definitely has its benefits and costs. The program can be understood better by examining various functional areas in the organization, including the role of senior and middle management in the initiative. The comparison between traditional TQM programs and Lean Six Sigma in 3M and the points made by the skeptics reveal the impact of the program on the culture of innovation at 3M.

Lean Six Sigma program is beneficial for the organizations and the customers since they receive services with solved problems. First, the program can increase the organization’s profit through increasing capacity and manufacturing faster. By reducing the workload for each unit, the program supplies more significant quantities of goods and services to more clients. Moreover, the process streamlined rise the production speed meanwhile preserving the quality. Another benefit of Lean Six Sigma is that it improves efficiency and effectiveness. It creates accessible and comprehensive processes fastening the business growth. It also ensures resources that are more available by reallocating valuable ones. The effectiveness is increased through identifying the customers’ needs and concerns. The customers’ requirements best identify what should be improved or most valued (Ref-DJ49KL).

It is evident that such a method will also have its particular needs and costs; however, one of the program's benefits is that it also reduces the organization’s costs. In order to make the manufacturing process cheaper and more affordable, the program removes the practices that are not mandatory. Furthermore, the program is not based on expensive inspect-and-rework cycles. It reduces the amount of money needed in the organization by solving the problems concerning product and service issues at the root (Ref-J7X2B9).

Various functional areas in the organization should be included in the Lean Six Sigma (LSS) initiative to ensure its successful implementation. This practice is only possible when the whole team improves cross-functional group work across the entire organization. To do that, employee morale should be increased, the quality of service should be developed by reducing variability in the process. Moreover, the management decisions should rely on data and facts, not stereotypes or emotions (Ref-DJ49F2).

On terms of facilitating LSS implementation, middle managers are sometimes referred to as “knowledge engineers” who should use their information to combine senior management and front-line workers. According to an empirical survey, middle managers find the following as the six critical success factors (CSFs) in successfully implementing LSS; senior management commitment, support, and enthusiasm linking LSS to business strategy linking LSS to the customer understanding the tools and techniques, project selection and prioritization, training and education (Ref-D4E5F6). These factors are very reasonable since they outline the most critical aspects that can influence LSS success in any organization.

People mostly believe that skepticism is warranted when implementing LSS because changes are always followed with fear and suspicions, and not all organizations can implement LSS effectively as it also contains some risks. Nevertheless, I disagree with the points made by skeptics about the original Six Sigma program at 3M, which states that LSS is going to bring only disaster to the company. In my opinion, 3M may have received some positive modifications through reducing their company waste. LSS processes and methodologies have been trained to more than 55,000 3M employees. They have initiated and completed more than 45,000 LSS projects. The LSS vision of 3M is “Achieving Breakthrough Performance for our Customers, Employees, and Shareholders” (Ref-A1B2C3). Such statistics and approaches leave no place for skepticism proving that LSS is firmly rooted in the company’s working cultures and partly guarantees its success.

It should not be neglected that 3M has always been about innovations, and it is one of the leading companies in its field. However, LSS can end the innovative culture at 3M because it is very prudent about costs and risks. Innovation is all about coming up with highly novel ideas and executing non-standard practices. LSS can be very beneficial and useful when considering the manufacture, distribution, and marketing of 3M. It can also promote the smooth implementation of other procedural tasks. Therefore, LSS is very suitable for the company’s structure and procedures. Despite that, LSS is not enough at 3M since they need more contemporary creativity and innovative approaches (Ref-J7Y2B9).

Six Sigma is very precious about calculations and measurements, while TQM projects alone will not evaluate the financial gains and targets of 3M. Six Sigma always highlights the importance of quality improvements, while TQM projects cannot continue developing after certain levels. The reason for this is that their approaches are different. TQM associates quality with internal requirements, while Six Sigma finds reducing the defects the best way to ensure quality and long for perfection. Another important aspect is that Six Sigma projects demand high professionalism; therefore, so many pieces of training were held at 3M. On the other hand, TQM projects do not give so much importance to the skills of the professionals (Ref-A1B2C3).

To sum up, Lean Six Sigma is beneficial as it increases profit, facilitates organization’s effectiveness and efficiency meanwhile reducing the costs. The implementation of LSS can bring positive changes and development to each company if senior management, middle management and other employees cooperate expertly. LSS also lets different functional areas collaborate as an entire unit. In spite of all the skeptic considerations, LSS is successful and appropriate for 3M as it greatly reduces the company’s waste. Importantly, Six Sigma is different from TQM projects as it emphasizes calculations, quality, and professionalism. However, LSS does not provide much space for innovation; therefore, 3M may need other approaches too that will allow more innovative and modern solutions.