



RESEARCH ARTICLE

COMPARATIVE INVESTIGATION OF SIX SIGMA AND LEAN MANAGEMENT FOR BEST PRACTICES IN MANUFACTURING SECTOR

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ABSTRACT

To wipe out numerous misinterpretations with respect to Six Sigma and Lean management by portraying every framework and the key ideas and processes that underlie their execution. This discourse is trailed by a depiction of what Lean organizations can pick up from Six Sigma and what Six Sigma organizations can pick up from Lean management. Comparative investigation of Six Sigma and Lean management utilizing accessible writing, basic examination, and information and expert experience of the authors. The joint execution of the projects will bring about a Lean Six Sigma (LSS) organization, defeating the restrictions of every system when actualized in seclusion. An intensive examination of the two projects gives some possible reasons why the projects alone may neglect to accomplish outright perfection. A LSS organization would gain the qualities of both Lean management and Six Sigma. A LSS organization would integrate three essential fundamentals of Lean management, and the LSS organization would integrate three essential precepts of Six Sigma. Suggestions are made with respect to ideas and techniques that would constitute a Lean, Six Sigma organization. Figures compress the way of enhancements that may happen in organizations that practice Lean management or Six Sigma, and the relating upgrades that a coordinated system could offer.

Key words: Quality programmes, Just in time, Total quality management, Manufacturing systems.

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INTRODUCTION

In the course of the most recent three decades, American industrial organizations have grasped a wide assortment of management programs that they trust will enhance competitiveness. At present, two of the most prominent projects are Six Sigma and lean management. Six Sigma was established by Motorola Company and accordingly received by numerous US organizations, including GE and Allied Signal. Lean management began at Toyota in Japan and has been actualized by numerous significant US firms, including Danaher Corporation and Harley-Davidson. Six Sigma and lean management have various roots. The key issue driving the advancement of Six Sigma was the requirement for quality change when manufacturing complex products having countless, which regularly brought about a correspondingly high probability of damaged last products. The main thrust behind the advancement of lean management was the disposal of waste, particularly in Japan, a nation with couple of common assets. Both Six Sigma and lean management have advanced into exhaustive management frameworks. For every case, their successful usage includes social changes in organizations, new ways to deal with production and to overhauling customers, and a high level of preparing and training of workers, from upper management to the shop floor.

In that capacity, both frameworks have come to include basic elements, for example, an accentuation on consumer loyalty, high caliber, and exhaustive employee training and empowerment. With unique roots however comparable objectives, Six Sigma and lean management are both successful all alone. Nonetheless, a few organizations that have grasped either Six Sigma or lean management may find that they in the end achieve a state of unavoidable losses. That is, after re-designing their working and supporting frameworks for development by taking care of significant issues and determining key wasteful aspects, further enhancements are not effortlessly produced. These organizations have started to search somewhere else for wellsprings of upper hand. Actually, lean organizations are looking at Six Sigma and Six Sigma organizations are investigating lean management. The term lean Sigma has as of late been utilized to depict a management framework that joins the two frameworks (Sheridan, 2000). In this paper, the term lean, Six Sigma (LSS) organization will be utilized to depict a substance that integrates the two frameworks. The purpose behind this paper is to dispose of numerous confusions with respect to Six Sigma and lean management by portraying every framework and the key ideas and processes that underlie their execution. Since these confusions may have a tendency to debilitate the training vital for defenders of one framework to end up taught into the key components of the other framework, the misinterpretations will be tended to one-by-one. This discourse will be trailed by

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a depiction of what lean organizations can pick up from Six Sigma and what Six Sigma organizations can pick up from lean management. At long last, a few recommendations will be made with respect to ideas and strategies that would constitute a lean, Six Sigma organization.

Review of Six Sigma

The foundations of Six Sigma can be followed to two essential sources: total quality management (TQM) and the Six-Sigma statistical metric beginning at Motorola Organization. Today, Six Sigma is a wide long-term decision-making business strategy as opposed to a barely engaged quality management program. From TQM, Six Sigma protected the idea that everybody in an organization is in charge of the quality of goods and services produced by the organization. Different segments of Six Sigma that can be followed to TQM integrate the emphasis on consumer loyalty when settling on management decisions, and a noteworthy investment in education and training in statistics, root cause analysis, and other problem solving methodologies. With TQM, quality was the primary need. The fundamental devices of TQM integrated the seven tools of quality: control graphs, histograms, check sheets, scatter plots, cause-and-effect diagrams, flowcharts, and Pareto charts; and the seven management tools of quality: affinity diagrams, interrelationship digraphs, tree graphs, matrix diagrams, prioritization matrices, process decision program diagrams, and activity network diagrams (Sower et al., 1999).

The six-sigma metric was created at Motorola in 1987 in light of sub-standard product quality followed much of the time to choices made by specialists when planning segment parts. Customarily, outline engineers utilized the "three-sigma" guideline while assessing regardless of whether an adequate extent of manufactured components would be relied upon to meet tolerances. At the point when a segment's tolerances were predictable with a spread of six standard deviation units of process variety, around 99.7 percent of the parts for a centered process would be relied upon to comply with resistances. That is, just 0.3 percent of parts would be nonconforming to tolerances, which means around 3,000 non-adjusting parts per million (NCPMP). At Motorola, as products turned out to be more mind boggling, blemished products were turning out to be more typical while in the meantime customers were demanding higher quality. For instance, a pager or PDA included many parts. Every segment regularly integrated various critical quality attributes. It was not exceptional for a product to integrate a huge number of chances for deformities (OFDs) in every product sold (Harry and Schroeder, 2000). Conventional three-sigma quality for each OFD was no more adequate. For instance, consider a product that contains 1,000 OFDs. On the off chance that, for each OFD, three-sigma quality levels are accomplished, just around 5 percent of the products would be defect free. The figuring used to get this probability requires raising the part adjusting (0.997) to the power of 1,000, and depends on the binomial probability distribution (Devore, 2000). The formula used to decide the probability of imperfection free products gives just a surmised rule to two reasons. Since three-sigma is the base outline standard, it would be normal that numerous products would surpass the three-sigma standard. Then again, the 0.997 conformance probability accept a centered process and it would be normal that numerous processes would not be centered each time a segment is delivered. The estimation

does, notwithstanding, successfully represent the test inborn in creating deformity free products. Accepting 1,000 OFDs, just 37 percent of products will be free of deformities if the quality level at each OFD arrived at the midpoint of 99.9 percent, and 90 percent of products will be free of imperfections if the quality level at each OFD found the middle value of 99.99 percent. Other industries face comparative difficulties in accomplishing prevalent quality. Notwithstanding the customer hardware industry, different products with a substantial number of OFDs integrate cars, motors, airframes, and PCs. Numerous ventures where products are less intricate additionally confront comparative difficulties. Makers of restorative gadgets and different products where absconds in the field may bring about mischief must accomplish verging on immaculate quality. Organizations that manufacturing less mind boggling products however offer them in vast volumes additionally should be centered around accomplishing predominant quality.

At Motorola, when concentrating on the relationship between segment quality and last product quality it was found that, from parcel to-part, a process tended to move a most extreme of 1.5 sigma units (McFadden, 1993). This idea is demonstrates a centered process and processes moved 1.5 sigma units in both bearings. Sigma level is the institutionalized process variety, OFD quality is the NCPMP if the process moves an entire 1.5 sigma units, and the probabilities give the extent of conclusive products that will be free of deformities. For instance, if the organization sets an objective for conclusive product nature of 99.7 percent and products integrate around 1,000 OFDs, then the 3.4 NCPMP comparing to the Six-Sigma metric would turned into the standard against which all choices were made. In late 1999, Ford Motor Company turned into the first major carmaker to embrace a Six Sigma methodology. At Ford, every car has roughly 20,000 OFDs. Consequently, if Ford somehow managed to achieve Six Sigma quality, around one car in each 15 created would contain a deformity (Truby, 2000). Today, Six Sigma is a mix of the Six-Sigma statistical metric and TQM, with extra advancements that improve the system's viability while extending its core interest. The fundamental segments of Six Sigma held from TQM integrate an attention on the customer, acknowledgment that quality is the duty of all representatives, and the accentuation on employee training. The Six-Sigma metric is likewise utilized, however in an extended manner. With Six Sigma, the estimation of an organization's yield integrates quality, as well as accessibility, unwavering quality, conveyance execution, and reseller's exchange management. Execution inside each of the parts of the customer's worth condition ought to be predominant. Consequently, the Six-Sigma metric is connected in a wide manner, taking a stab at close immaculate execution at the most minimal level of action. What's more, Six Sigma programs for the most part make a structure under which preparing of workers is formalized and bolstered to guarantee its adequacy. All workers required in exercises that effect consumer loyalty would be prepared in basic problem solving skills. Other employees are given propelled preparing and required to go about as guides to others in backing of quality improvement projects.

Review of lean management

The idea of lean management can be followed to the Toyota production system (TPS), a manufacturing philosophy

spearheaded by the Japanese engineers Taiichi Ohno and Shigeo Shingo (Inman, 1999). It is notable, be that as it may, that Henry Ford accomplished high throughput and low inventories, and practiced short-cycle manufacturing as right on time as the late 1910s. Ohno extraordinarily respected and examined Ford as a result of his achievements and the general diminishment of waste at early Ford assembly plants (Hopp and Spearman, 2001). The TPS is additionally credited with being the origination of in the just-in-time (JIT) production strategies, a key component of lean production, and hence the TPS remains a model of magnificence for supporters of lean management. By differentiation, the customary US production framework depended on the "batch-and-queue" concept. High production volumes, expansive batch sizes, and long non-esteem included queue times between operations portray batch-and-queue production. Batch-and-queue techniques created from economy of scale standards, which verifiably expected that setup and changeover punishments make little batch sizes uneconomical. These strategies regularly result in lower quality since imperfections are normally not found until consequent operations or in the completed product.

Lean management underscores little bunch sizes and, at last, single-piece stream (i.e. exchange batch size $\frac{1}{4}$ 1). The term power is utilized to suggest that nothing is made until it is required by the downstream customer, and the utilization of a make-to-order (MTO) approach at whatever point conceivable. In a few enterprises, for example, the PC business, MTO production has turned into the true plan of action. The Dell "direct sales model", for instance, rapidly changes over customer orders into completed PCs prepared for shipment (Sheridan, 1999). The underlying "draw" on the Dell production line is the phone or electronic demand from the customer. The direct sales model additionally permits Dell to alter every unit to the customer's specifications. The lean production objective of dispensing with waste (*muda* in Japanese), so that all exercises along the worth stream make quality, is known as perfection. Endeavors concentrated on the decrease of waste are sought after through persistent change or *kaizen* events, and in addition radical change exercises, or *kaikaku*. Both *kaizen* and *kaikaku* decrease *muda*, in spite of the fact that the term *kaikaku* is for the most part held for the underlying reevaluating of a process. Subsequently, perfection is the objective and the voyage to perfection is ceaseless (Womack and Jones, 1996).

Another component of lean management is the decrease of variability at each open door, including demand variability, manufacturing variability, and supplier variability. Manufacturing variability integrates not just variety of product quality attributes (e.g. length, width, weight), additionally variety present in undertaking times (e.g. downtime, absenteeism, administrator aptitude levels). Lean management endeavors to lessen task time variety by setting up standardized work procedures. Supplier variability integrates instabilities in quality and delivery times. The lessening in supplier variability is frequently accomplished through partnerships and different types of supplier-producer cooperation. Lean production practices will frequently lessen lead times so radically that it gets to be possible to practice MTO production, and still give on-time deliveries. Notwithstanding when a make-to-stock (MTS) methodology is required (e.g. a high-volume consumer products company filling substantial supply and distribution channels), lessening lead times enhances replenishment times, consequently

bringing down inventories all through the supply system, and making the inventory network more respondent to demand vulnerabilities. It ought to be specified that individual processes do exist for which batch-and-queue frameworks are still as of now essential. This is regularly the environment when performing operations, for example, chrome plating, where substantial groups are set in plating tanks. In wrench manufacturing, for instance, steel forgings may move in a solitary piece course through a U-molded machining cell, however then collect into a huge group toward the end of the cell before being moved to a chrome plating station. Actually, not very many lean producers have immaculate single-piece-flow frameworks all through their whole operation. Lean management additionally applies to circuitous and overhead exercises.

Any arrangement or methodology having an objective of improving the execution of a solitary bit of an organization dangers abusing lean management rules. For instance, a purchasing manager who is given a reward for cutting expenses of segment parts may give up quality to accomplish his or her objective. Accounting systems that measure effectiveness of yield for individuals or departments may empower the era of products when no interest exists. Quality management practices in lean production stress the idea of zero quality control (ZQC). A ZQC framework integrates mistake proofing (*poka-yoke*), source assessment (administrators checking their own work), automated 100 percent investigation, ceasing operations in a split second when a mix-up is made, and guaranteeing setup quality (Shingo, 1986). Ordinarily, assessments are performed rapidly utilizing go-no go gages as opposed to additional tedious variable measurement methods. Quality practices in batch and-queue for the most part underline acceptance sampling performed by committed investigators, product quality reviews, and statistical process control (SPC). Subsequently, for identical process quality levels, low quality in a batch-and-queue framework would bring about high outer disappointment costs, while low quality in a lean production framework would bring about high interior disappointment costs.

Confusions with respect to lean management and Six Sigma

It is clear that lean management and Six Sigma were gotten from two unique perspectives. Lean production was gotten from the need to build product flow velocity through the disposal of all non-esteem included exercises. Six Sigma created from the need to guarantee last product quality by concentrating on getting high conformance at the OFD level. All together for defenders of one project to gain from the other system, some basic misinterpretations ought to be dispersed. The key misguided judgments are portrayed beneath.

Key misguided judgments with respect to lean management

The most widely recognized misinterpretation of lean management is lean implies cutbacks. While this misguided judgment might be because of the expression "Lean" (particularly with regards to "Lean and mean"), it is a mis-translation of the term. In lean management, if a worker were performing non-esteem included exercises inside their occupation, management and the employee would cooperate to locate a superior approach to play out the employment to

dispense with the non-esteem added activities. Laying-off the worker would be counterproductive since an educated individual would never again be accessible and the rest of the employees would be hesitant to take part in future waste elimination projects. Subsequently, cutbacks can't happen with regards to lean management, unless it turns into a flat out need and each push to re-assign or re-train the worker comes up short (Emiliani, 2001). Another misguided judgment is that lean just works in Japan, as a result of their special society. This perspective is unverified. Indeed, lean management is not an all inclusive framework in Japan and the absolute most fruitful lean management executions have been inside non-Japanese organizations (Emiliani, 2003). The wellspring of the misguided judgment might be the conviction that Japanese laborers are by nature more economical than their worldwide partners. Regardless of the possibility that this announcement were valid, taking out waste and being thrifty regularly struggle, for example, when a specialist outlines an inferior part to spare cash. Another key misguided judgment is that lean is for manufacturing as it were. Indeed, even in an manufacturing environment, lean management sees every progression in the process as an management step, where customer worth is included with insignificant waste.

Inside this structure, preparing claims in the insurance industry, evaluating loan applications at a bank and treating patients in a clinic all include performing exercises synonymous with the lean management perspective. In any business where customers exist and exercises happen to fulfill those customers, lean management can be drilled effectively. A last misinterpretation is that lean just works inside specific environments. This perspective is gotten notification from supervisors in operations that are customarily huge bunch operations and also from directors of differing occupation shop operations. While these sorts of operations may never comply with the "part size of one" guideline, lean management envelops a great deal more than manufacturing process plan. In the event that endeavors were made to recognize and dispose of all non-esteem included exercises all through the organization, these organizations would hone vital parts of lean management. These organizations could likewise seek after different components of lean management, by persistently endeavoring to take after lean standards while embracing new manufacturing advancements. For instance, new advances have gotten to be accessible that take into account little part sizes on processes that generally require long setup or process durations, including semi-conductor wafer cleaning (Lester, 2000), covering/overlaying (Friedman, 2000), and synthetic testing (Anne', 2000).

Key misinterpretations with respect to Six Sigma

The most widely recognized misinterpretation of Six Sigma is that it is the new kind of the month, pushed by quality experts in a route like the way Deming Management, TQM, business process reengineering (BPR), and ISO 9000 were pushed in the later past. Lamentably, there will dependably be specialists who hop onto any fleeting trend, take a class and declare themselves specialists in a project. Six Sigma is no exemption to this wonder. Nonetheless, Six Sigma ought to be considered cutting edge regarding quality management, in that it obtains from past projects, particularly Deming's management methods of insight and TQM's attention on the customer, and includes new components, for example, a far reaching preparing structure and a wide meaning of significant worth from a

customer's point of view to integrate quality, as well as management and conveyance. Most would agree that while the name of Six Sigma may change later on, the principle elements will be continued to consequent projects and better than ever forms will rise. Another misinterpretation of Six Sigma is that the objective of 3.4 NCPMP is total and ought to be connected to each open door resistance and particular, paying little respect to its definitive significance in the customer's quality expression. While the 3.4 NCPMP was determined at Motorola taking into account the attributes of its products, Six Sigma programs don't utilize this metric as a flat out objective in all cases. As a component of Six Sigma, the Pareto standard is connected with the goal that change ventures will concentrate on the "least hanging apple" and make enhancements where they matter the most. Since no organization's business stays static long, new products and managements will by and large give a ceaseless wellspring of low hanging apples. On the other hand, illustrations can be found where an objective of 3.4 NCPMP will never be sufficient and the objective must be set at a higher sigma level. For instance, the atomic power, medicinal gadget, and aviation businesses all require the quest for outstanding quality to forestall disastrous loss of human life.

As a related point, defenders of ZQC frameworks may infer that ZQC is liked to Six Sigma given that ZQC brings about zero NCPMP as opposed to "settling" for 3.4 NCPMP. This point is invalid for two reasons. To begin with the six-sigma metric is connected to the yield from a process, before examination happens. The "zero" in the ZQC framework applies to yield from processes after an investigation happens. Second, numerous assessment frameworks are leaned to review mistakes. Ponders have demonstrated that some examination frameworks pass non-acclimating things at disturbing rates. These assessment blunders will be particularly predominant on tangible investigations. For instance, a learn at a car maker found that prepared reviewers passed 73 percent of non-adjusting things taking into account a tactile assessment (Burke et al., 1995). Henceforth, ZQC does not inexorably mean zero deformities getting away from the assessment. A last misguided judgment of Six Sigma is that it is a quality just program. As portrayed before, the idea of Six Sigma "quality" identifies with the whole customer esteem condition. Its appropriateness is wide, including manufacturing, conveyance, management, and support parts.

Integrating lean management and Six Sigma

It was brought up before that organizations rehearsing either lean management or Six Sigma alone may achieve a state of consistent losses. In this area, benefits that might be determined by joining the projects are depicted. What's more, suggestions are made that will help organizations honing one of the projects to coordinate the projects through transformative, as opposed to progressive, changes.

What canlean organizations pick up from Six Sigma?

Lean organizations ought to make more utilization of information in basic leadership and use techniques that advance a more investigative way to deal with quality. For instance, when quality issues happen inside a leanmanagement framework, deformities are liable to be recognized inside by means of the ZQC framework. When this happens, waste is caused in various ways. To start with, there

is lost open door for the production of that segment since operation times are synchronized with interest by means of the power arrangement of production control. Second, cost is included through revamp or scrap. Third, circuitous faculty and other overhead should be accessible to handle the scrap and adjust, for example, a repair office. For instance, consider an manufacturing cell with a two-minute process duration. The cell works for two eight-hour shifts, bringing about an objective production of 480 units for each day. Work in the cell comprises of 20 individual errands, and every unit of product has an aggregate of 100 OFDs. In this cell, when the 480-unit day by day target is not met because of framework varieties (e.g. abandons, machine downtime, power disappointments), extra minutes must be used. For instance, if segment quality at the OFD level were 1,000 NCPPM (0.1 percent), then by and large 1.5 hours of extra time would be required every day. On the off chance that this were the environment, the organization could consider cushion amounts to be pre-delivered, however this practice likewise makes squander and is undesirable.

The ZQC framework likewise can possibly bring about unwavering quality and quality issues because of the cooperation of resiliencies in complex products. A case including Ford transmissions represents the issue brought on by depending on resilience based pass/fall flat criteria amid examinations. Ford had an issue with guarantee claims for programmed transmissions. The transmissions were made at both the Ford Batavia (Ohio, USA) office and at a Mazda office in Japan. Information demonstrated that consumer loyalty was higher for the Mazda-assembled transmissions. In this way, tests of both Ford and Mazda transmissions were dismantled and every segment part was measured (Gunter, 1987). The Portage transmissions all fit in with resistances, however displayed a much larger amount of dimensional variety than the Mazda transmissions. With a product as mind boggling as a transmission, the cooperation of the parts brought about more disappointments in the Ford transmissions. All together for a lean maker to guarantee that this issue is not rehashed, less reliance would should be set on pass/come up short property reviews and more on keeping forms on target. The Portage transmission case shows a marvel that is liable to happen at whatever point property, or go-no go, investigations are utilized to judge quality, as is frequently the case in ZQC frameworks. By gathering and dissecting variable estimations utilizing control diagramming strategies, processes can be successfully continued target. In environments where variable estimations are immoderate or tedious, restricted farthest point gaging might be utilized to keep forms on target (Ott and Schilling, 1990). On the other hand, pre-control, otherwise called stoplight control, might be utilized inside the connection of ZQC (Salvia, 1988). A correlation of control diagrams and pre-control demonstrates that under most conditions, control outlines are more qualified for keeping forms on target (Maleyeff and Lewis, 1993).

What can Six Sigma organizations pick up from lean management?

A centered organization must have both brilliant products and give a high caliber of management.

For instance, an organization that works in a group and-line mode risks giving poor management to customers regardless of the fact that quality is at six sigma levels. By diminishing manufacturing lead times, an organization that is creating to

demand will upgrade aggressiveness by accomplishing quicker deliveries or by meeting guaranteed due dates a higher extent of the time. An organization that is delivering to stock will pick up from diminished lead times by diminishing the skyline of their figures and by renewing stocks all the more frequently, subsequently expanding the organization's incomes and stock turnover rate. Six Sigma organizations ought to integrate preparing in lean management techniques that dispense with all types of waste, for example, kaizen, decreasing setup times, and mapping the worth stream. Two cases will be utilized to show how Six Sigma organizations may get to a state of consistent losses, due to the non-utilization of certain lean management systems. Consider the accompanying environment, adjusted from a Harvard Business college contextual investigation (Wong and Hammond, 1991). An manufacturing organization that integrates a kids' knitwear division is utilizing a process situated format (i.e. the plant is sorted out by machine sort). For this product, the normal number of operations is ten and the normal preparing time per operation is one moment.

In the same way as other organizations keep running in this conventional clump and-line mode, handling is done in batches since machine setup times and the hesitance to hazard inactive hardware cause the organization to amass expansive WIP inventories on the shop floor. For the environment, it is noticed that a normal of 30,000 articles of clothing of work-in-process stock exists on the shop floor and the normal manufacturing lead time is 15 days. The 15-day lead time brings about a percent esteem included time of 0.14 percent. Observation demonstrates that, by decreasing WIP stock, in this way expanding the extent of significant worth included time, the lead time can be lessened drastically. For instance, the lead time can be lessened to 17 hours by expanding the quality added extent to only 1 percent. It is inside lean management that Six Sigma organizations will figure out how to build the worth included time of their operations. Consider an option case including a regular Six Sigma change venture where an organization is encountering excessively numerous missed due dates. Endeavors to address the issue may start with the "Five whys" underlying driver examination, a methodology likewise frequently rehearsed in a lean organization. The aftereffect of the "Five whys" arrangement of inquiries are:

- Issue is absent due dates – why?
- Lead time are long – why?
- insufficient limit – why?
- Long setup times – why?
- Bite the dust alteration is tedious.

Now, two sorts of choices are conceivable:

- increment limit by acquiring extra apparatus, and
- increment limit by lessening the setup times.

The last option is best regarding cost and would be the conspicuous decision in a lean organization. For this environment, the genuine underlying driver in this circumstance might be that the absence of lean production information inside the organization has propagated and standardized long setup times.

The crossing point of lean management and Six Sigma

The execution of a business is controlled by the intricate cooperations of individuals, materials, gear, and assets with

regards to the system that deals with these connections. Most would agree that management hypothesis with respect to working frameworks is as yet advancing. While both Six Sigma and lean management speak to the best in class, every framework offers need to specific features of hierarchical execution. In this manner, in an exceptionally centered environment, consistent losses may come about when either program is actualized in seclusion. An exhaustive examination of the two projects gives some imaginable reasons why the projects alone may neglect to accomplish outright perfection. A bridges the way of upgrades that may happen in organizations that practice lean management or Six Sigma, and the relating enhancements that a coordinated system could offer. The flat pivot speaks to the customer's point of view of significant worth, including quality and conveyance execution. The vertical hub speaks to the maker's expense to give the product or management to the customer. Under either framework, changes will be made, however these enhancements will start to level off at one point in time. With Six Sigma alone, the leveling off of enhancements might be because of the accentuation on improving quantifiable quality and conveyance measurements, yet disregarding changes in the essential working frameworks to evacuate inefficient exercises. With lean management alone, the leveling off of changes might be because of the accentuation on streamlining product stream, yet doing as such in a not exactly experimental way identifying with the utilization of information and measurable quality control techniques.

Conclusion

A lean, Six Sigma (LSS) organization would profit by the qualities of both lean management and Six Sigma. A LSS organization would integrate the accompanying three essential principles of lean management:

- It would fuse a superseding theory that looks to amplify the quality included substance of all operations.
- It would continually assess every motivating power framework set up to guarantee that they result in worldwide enhancement rather than neighborhood streamlining.
- It would fuse an management basic leadership prepare that constructs each choice with respect to its relative effect on the customer.

A LSS organization would integrate the accompanying three essential fundamentals of Six Sigma:

- It would stretch information driven processes in all basic leadership, with the goal that progressions depend on experimental as opposed to impromptu studies.
- It would elevate processes that endeavor to minimize variety of value qualities.
- It would outline and actualize a far reaching and very organized instruction and training regimen.

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