

Management

Evolution of Lean Six Sigma

Lean thinking evolved from 1910 in the Manufacturing sector and Six Sigma made its name in the 1980s within Motorola. In the Manufacturing sector, Lean led to a number of operational improvement techniques such as 5S, Kaizen, Total Productive Maintenance (TPM), Just In Time, (JIT), Kanban and Gemba. Whilst the Manufacturing sector had the benefit of visual processes, the Service sector was unable to benefit from these tools to the same extent.

Measuring services is complex

The Service sector generally does not operate from large floor spaces arranged in large wide locations, like factories. Processes are not clearly visible and every service offering is different whether it is for the same person or for different people. It is also very hard to see a physical product in services and follow it through its key processing, from raw material to finished product. Here the service product is hidden within many interconnected departments which is why it can take weeks to complete a simple service.

There are frequently invisible hand-offs, bottlenecks and non-ownership of the process as it crosses inter-department fiefdoms, all with their own measurements for performance. It is interesting to consider the first of the four rules in total productivity systems: Rule 1 – “All work shall be highly specified as to content, sequence, timing, and outcome.” Unfortunately this is not something which we see much in the Service sector which for the purpose of this article, includes the private sector, development organisations and government.

As a rule, the Service sector consists of more people than machines unlike the Manufacturing sector. In this sector it is also easier to divorce the product from people whilst in Services, people form a critical part of the Service offering. For example, a car can be driven away, a phone bought and taken away. However, a holiday is dependent on the level of service from staff – it is not only the room you buy. Likewise if you visit a hospital, the advice time taken and attitude of the doctor is part of the service.

The 5S tool which is about sort, set in order, shine, standardise and sustain has limited relevance in Services. It can be used to some extent in the sense of arranging papers, etc., and standardising processes but it cannot bring about major efficiencies in the Service sector. However, Value Stream Mapping which follows a process from start to finish can yield more positive results.

What is Lean?

Lean is a Japanese approach to management that focuses on cutting out waste, whilst ensuring quality. This approach can be applied to all aspects of a business – from design, through production to distribution.

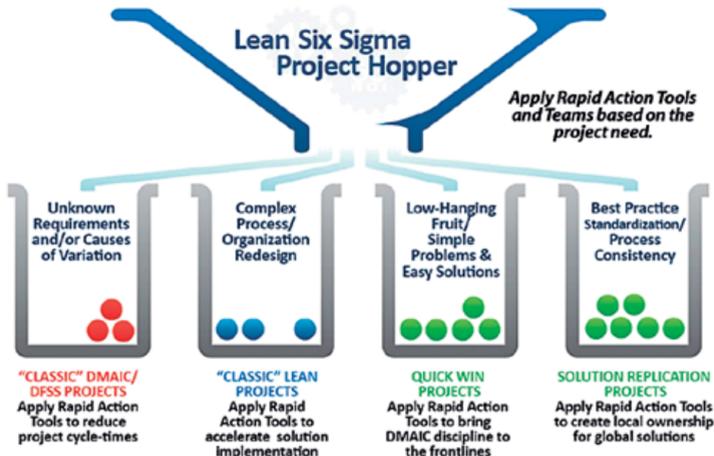
Eliminating waste along entire value streams, instead of at isolated points, creates processes that need less human effort, less space, less capital and means that it takes less time to make products and services at far less costs and with much fewer defects, compared with traditional business systems. Companies are able to respond to changing customer desires with high variety, high quality, low cost, and with very fast throughput times. Also, information management becomes much simpler and more accurate.

How can we use Six Sigma?

Six Sigma is the most effective methodology available for improving the performance of any organisation by minimising the defects in its products or services. Every error committed, has a cost associated to it in form of losing customers, redoing a task, replacing a part, in terms of a waste of time or material or in losing efficiency.

Six Sigma is based on assumptions that most processes follow a Normal Distribution in most cases. This means that we can assume there is an average and there are variances. When an organisation achieves a level of Six Sigma it implies

Lean Six Sigma can transform services, development and government sectors



that per one million transactions, there are only 3.4 defects. However particularly in the Service Sector, many organisations have not reached this level and may not even aspire to do so. There are a number of tools in Six Sigma which can be used to analyse processes, rank and prioritise problems, measure processes and then implement solutions. It is of particular importance to have metrics, KPI and KEI (Key Exception Indicators) in place to be able to take the processes to the next level.

Six Sigma can be used to improve a process or to design a process from beginning to end. To do this, a Project Charter has to be drawn up and a team formed consisting of Six Sigma experts, the process owner, the Sponsor and others involved in the process. Six Sigma can be used to increase the efficiency of Call Centres, improve costs and efficiency of Supply Chains, reduce the Turn Around Time to deliver a credit card, loan or overdraft, etc.

Six Sigma envisages a defect level in the Problem Statement and works backwards to evaluate the root causes that created it. Then it addresses the root causes and puts into place the required processes or alternatives. The new process is then tracked for stability of the process. The basic process that Six Sigma follows is DMAIC. This stands for Define, Measure, Analyse, Implement and Control. There are other versions namely DFSS which is Design for Six Sigma which addresses new projects.

Identifying 8 wastes

The 8 wastes which are identified in Lean can be considered provide an effective tool to assess efficiency. These wastes are: Travel, Inventory, Motion, Waiting, Overproduction, Over-processing, Defects and Skills. The Lean concept focuses on the difference between a Value added activities and those that do not add value. Value addition is defined from the customer's perspective – it is what the customer is prepared to pay for.

In Services, staff are a major component of costs, hence staff time needs to be analysed carefully – how much time do they spend in moving from one floor to another, how much time do they spend waiting for meetings to start, is every minute of the meeting productive or not? Do long staff hours actually contribute to the productivity of the staff member and the company? What is the opportunity cost of spending time at meetings?

Excessively long meetings can be counterproductive as it takes time away from staff to meet customers, from their ability to address other issues and to analyse processes. Long staff hours may even lead to sickness and bad health. According to Lean, long meetings may be interpreted as a waste in terms of time and in terms of over-processing – as too many people are spending too much time on a decision.

The Service sector also faces the difficulty of not being able to gage its productivity on a daily or weekly basis unlike the manufacturing sector where the pace is measured by the product output, work in progress and inventory. In the service sector, overall output is judged through budgets and the day to day efficiency of the company is not tracked.

An interesting exercise would be for each staff to monitor and log all their activities per day and perform an analysis of what a customer would be prepared to pay for or how much time, they felt was actually productive. So travel, motion and waiting could be measured not only for processes but also for individual staff.

Another waste is “inventory” and this is especially relevant to the hotel sector – as they carry large stocks of food. Excessive inventory and overproduction can lead to waste, as the food deteriorates and needs to be discarded. Inventory or overproduction can also mean an excessive number of forms or leaflets, as in the Service, Development or Government sector.

Skills are considered a waste when staff are under-skilled for the job. If a person lacks the skills for the job – the job will not be done and more over it may have to be re-done. So there is a doubling of costs and additional time spent.

Defects are also considered a lean waste and need to be reduced or removed. However, the definition of what is considered a defect needs to be clarified. Defects can be errors in an application form, the wrong items delivered in a restaurant, dropped calls in a call centre, excessive delays when checking out of a hospital, etc.

Failure demand

In reality improving efficiency means achieving more for less. In fact, one of the most prevalent wastes identified in Lean projects is ‘failure demand’. This is the demand that an organisation has to deal with when an event has failed to meet customer expectations. Addressing the root causes of the initial failure both reduces the costs of rectification and produces a more satisfied customer.

Experience suggests that failure demand can be as much as 50% of the demand on the system – that means that half of the resources in an organisation are spending their time clearing up issues for unhappy customers. This can involve complete processes, a re-processing centre and even an entire call centre. In manufacturing these are sometimes referred to as “hidden factories” – huge rework centres that process products and services that failed to meet the customer's expectations and needs.

It is critical therefore to look at the whole process right through the organisation. Many “customer service improvement projects” are focussed on the customer centre, in part making sure that when you ring up to complain your case can be accessed instantly. Of course the real service is delivered by the operational part of the business. When this is fixed it will also lead to reduced demand on the call centre.

Management thinking

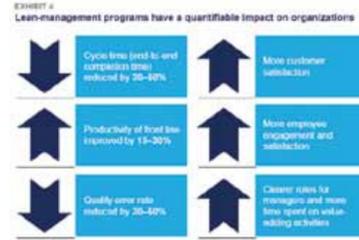
Today, many managers lack the statistical knowledge and the ability to apply statistics to problem solving. In fact, most management development programmes do not devote time within their programmes to practical and applied statistical methods. The challenge is to motivate the managers to understand and apply statistical methods as a fundamental framework for problem solving within organisations.

There is a real gap in its application today. We need to move away from firefighting to tackling problems that arise on a daily basis and determine the root cause, so the problems do not come back repeatedly. There is a big need for a change in culture. Brave leaders are required who can clearly set direction and look towards transforming organisations.

Lean Six Sigma delivers

Lean Six Sigma combines the analysis of Lean and the statistical methodology of Six Sigma. Lean Six Sigma (LSS) is a powerful, flexible and proven cost and waste elimination method that has been used successfully in both private and public organisations. LSS has been shown time and again to enable organisations to reduce total costs by 25% by eliminating wasted time and activities from operations.

This waste reduction effort has also served to increase the quality of the organ-



isation's products. Most importantly, LSS builds foundations within organisations that stimulate and nurture cultures of continuous improvement; thus providing these benefits both today and into the future.

Lean Six Sigma brings powerful methods for quickly combating recessionary pressures. Its application in the service sector and office environment unlocks significant opportunities to reduce costs, remove waste and improve the overall customer experience. It provides a compelling option for consideration, not least because it helps organisations across the public and private sector to achieve cost reductions without sacrificing service quality. It is about making a process or operation “fighting fit,” not about cutting it to the bone.

Improvement activity must be tailored to circumstances if benefits are to be sustained and in reality, different approaches are often brought together to deliver the right result. ‘Lean Six Sigma’ recognises that the improvement strengths of Lean can be harnessed with the financial benefits and analytical discipline of Six Sigma to create benefits on a far greater scale. It is a systematic method to improve an organisation's capability to meet customer demands, and identify ways to deliver improved customer service, at lower cost – in other words: “achieving much more with less”.

Lean Six Sigma is the application of lean techniques to increase speed and reduce waste, while employing Six Sigma processes to improve quality and focus on the Voice of the Customer. Lean Six Sigma means doing things right the first time, only doing the things that generate value, and doing it all quickly and efficiently.

By putting Lean Six Sigma principles into practice, organisations can offer high-performing services that typically achieve:

- A clear focus on the issues that matter most to customers and other stakeholders
- An understanding of customer demand and how this can vary
- Greater responsiveness and flexibility to meet customer needs
- More effective service delivery, at reduced cost
- Whole systems' improvement through more capable end-to-end processes
- Sustainable changes in culture, improved communication and morale
- Higher levels of customer satisfaction
- Improved productivity and efficiency
- Reduced theft, loss and fraud

The Association of Certified Fraud Examiners, UK (ACFE) reports that organisations lose on average 5% of annual revenues to fraud, waste and error. When one looks at the impact on the bottom line, it is equivalent to as much as 30% of net profits of a healthy company.

Interestingly, a survey shows that in the past 10 years the defence and detection approaches against economic crime has shifted from a largely even split between Controls, Culture and Accident to 55% focussed on Controls, and low 20%'s each for Culture and Accident.

Prioritising aid in the development sector

Prioritising and evaluating the success of projects in the Development sector is becoming one of the greatest challenges for stakeholders. Governments are under increasing pressure to show transparency and results with funds raised from tax payers. It has been stated that the quality of aid delivery is failing partly because of poor performing organisational processes performed by those in the aid industry.

A strong argument can be made that processes in this industry are not managed and aligned to deliver appropriate outcomes efficiently. For instance, in Australia, November 2011, the Government announced a new Transparency Charter (“the Charter”) for the aid program. The Charter commits the aid program to publishing documents and data in a way that is comprehensive, accessible and timely. In particular it commits:

- To be transparent and open about international development programs,
 - Publish detailed information — on policies, plans, processes, the results of aid activities and evaluations and show where the money is spent and its impact on reducing poverty
 - Welcome public feedback to further improve the effectiveness, efficiency and transparency of the aid program and achieve better value for money
- As required increasingly by

Governments, accountability, effectiveness and efficiency are required in Development projects. To improve processes and to evaluate the impact, Lean Six Sigma tools can be very relevant – in redesigning and create better processes to ensure that maximum funds reach the recipients.

Project prioritisation is also a critical factor in project evaluation. There are many aspects that donors are trying to achieve when they provide funds. Whilst projects have the main focus areas, donors are looking to tie in more results - such as women's empowerment and environmental objectives.

The project prioritisation chart which is one of the Six Sigma tools, can be used effectively in development work to rank inputs and outputs to evaluate the relative return of every dollar that is spent and to assess which aspect of the project is yielding the most benefits. This ranking system needs to be ideally carried out with all the stakeholders.

Productivity improvement in the Government Sector

Governments around the world want to deliver better services – whether it be education, health care, or even transportation. But the funds required to meet such expectations are enormous. The need to get value for money from governments at all levels is therefore under the spotlight as never before.

Therefore public-sector leaders are looking with growing interest at “lean six sigma” techniques. From the repair of military vehicles to the processing of income tax returns, from surgery to urban planning, lean six sigma is showing that it can not only improve public services but also transform them for the better. Most importantly, this approach means that there does not have to be a trade-off between the quality of public services and the cost of providing them.

Examples of how Lean Six Sigma can be used in the government include: Eliminating unnecessary reporting, reducing number of steps and time in processing application and issuing permits, reducing overall lead time, reducing the time customers spend waiting, etc.

Building world class organisations

When we examine the internal operations of globally dominant organisations, including Toyota, and top-tier teaching hospitals in the US – organisations operating in vastly differing industries, they share one thing in common: the skillful management of complex internal systems that generates constant, almost automatic self-improvement at rates faster, durations longer, and breadths wider than anyone else musters. As a result, each enjoys a level of profitability, quality, efficiency, reliability, and agility unmatched by rivals. In addition they have followed the principles below:

- Built a system of “dynamic discovery” designed to reveal operational problems and weaknesses
- Attacked and solved problems at the time and in the place where they occur, converting weaknesses into strengths
- Disseminated knowledge gained from solving local problems throughout the company as a whole
- Created managers invested in the process of continual innovation

Lean Six Sigma has assisted them to achieve this as a practical operational quality management methodology. The integration of this methodology into service processes is a challenging operation that involves various tools and approaches providing a comprehensive management to all organisation's aspects and manpower, which can powerfully result in better service quality level and higher financial revenues.

The secret of world-class companies' success basically, is their ability to do more with less. This lies in getting the mix right: streamlining processes, embedding controls within the processes, reducing or eliminating manual handoffs, and leveraging the functionality of technology which is essential to driving lower error rates and lower overall costs.”

It is of particular relevance to note that 60% of Fortune 500 companies use Lean Six Sigma tools. Most if not all the top consulting firms in the world offer Lean/Six Sigma Consultancy as a leading tool for organisational improvement. In fact, the international leading consultancy firm Deloitte estimates that in the private sector, for every dollar spent on a Lean Six Sigma program, five dollars per annum is returned in benefits.

(The writer is a graduate of the London School of Economics and Political Science. She has an MBA from CASS Business School, London. She gained a Black Belt with Standard Chartered Bank and is now also an International Lean Six Sigma Black Belt holder. She undertakes Six Sigma training and is also a Consultant and Speaker on the subject. She can be contacted at sixsigmasl@gmail.com.)

