



# IMPLEMENTATION OF LEAN SIX SIGMA IN BANKING

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*“Toyota achieves extra ordinary results with average people working in a brilliant system, while most organizations achieve mediocre results by hiring brilliant people to fight their way through broken systems. Just imagine the potential of combining brilliant people with a brilliant system.” (Graban, 2009)*

## **Preamble**

‘Lean Six Sigma’ is a concept that generally creates a fair deal of quizzical interest. The reason for this could be twofold; one, Lean Six Sigma has its roots in manufacturing and is not ubiquitous in the service industry yet and two, it is still relatively new in the local context. This article attempts to reduce some of the mystique behind this concept and provide clarity on its advantages and why it can be a competitive advantage in the banking sector. It also must be noted that ‘Lean’ and ‘Six Sigma’ are two separate quality improvement concepts that have been linked due to their complementary nature into one unified concept; i.e. Lean Six Sigma.

## **Introduction**

The banking industry is one of the oldest in the service sector. As banks are bound by internal and international regulations, they have been relatively slow in improving internal efficiencies, with more focus given to increasing their top line, while using standard practices in cost management. In the international front, this all changed however, as a result of the 2008 U.S economic crisis where most financial institutions made emergency cutbacks in order to survive the turbulent times. Since then banks have had to face the harsh reality of a changing landscape.

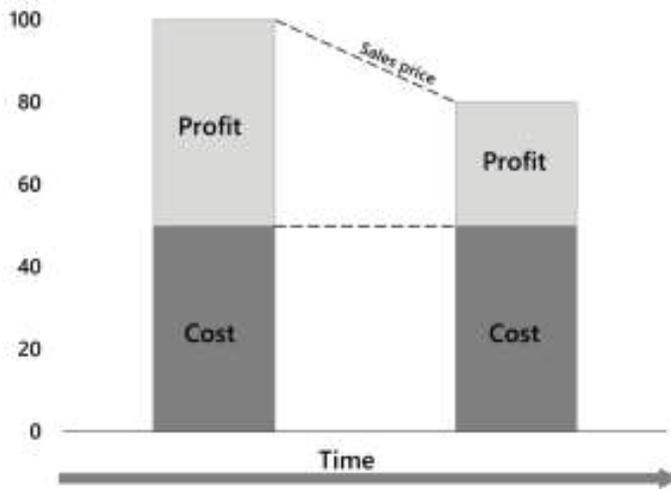
Closer to home, changing customer demographics, the fast pace of technological advancement in the Financial sector, decreasing margins due to local economic policies etc. have slowly but surely led to banks being forced to have a deeper understanding of how customers perceive value and re-look at the way in which their costs (middle line) is managed. To be truly successful in improving productivity and optimizing costs there needs to be a paradigm shift in the way in which these concepts are viewed. Below is a comparison of traditional thinking in terms of cost management and profit maximization in contrast to the ‘Lean’ approach.



## The traditional 'cost plus' model vs. Lean thinking

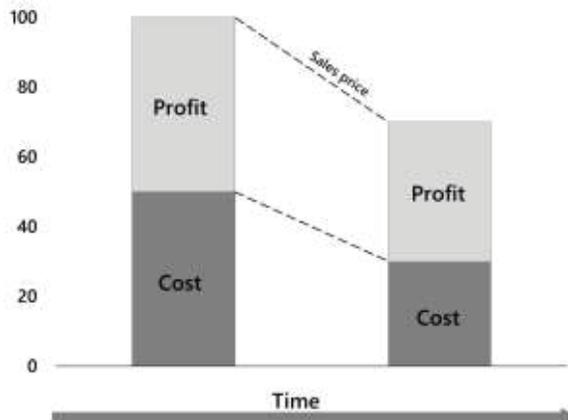
The traditional approach to maximizing profits is to have a 'cost plus' model where profits depend on pricing. This method however isn't effective over time, as prices are defined by the market and costs are not managed effectively due to the lack of implementation of effective process improvement techniques.

Figure: Traditional Cost Thinking



However according to Lean thinking, costs are considered controllable via the reduction of waste and improvement of operational efficiencies, thus being able to better maintain profits in a market with shrinking margins.

Figure: Lean Thinking

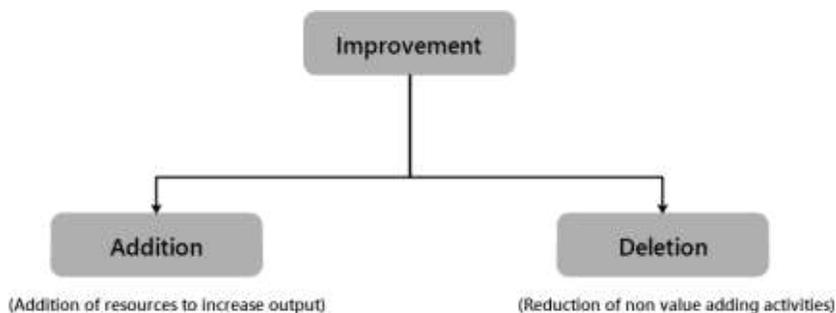


## The dreaded 'Cost cutting' exercise

Most organizations tend to take drastic measures during trying times. As profit margins decline and costs increase, the knee jerk reaction is to focus on cost cutting exercises such as budget cuts on staff training and development, reducing staff head count etc. This is in total contrast to the Lean approach.

### 'Addition' vs. 'Deletion'

Figure: Addition deletion concept (Source: Kaizen Institute – Operational Excellence for Business Excellence: The Kaizen way)



When faced with challenges in meeting deadlines or required sales volumes, the traditional approach is to increase investment in resources, i.e. 'Addition', resulting in more staff, or automation without improving the underlying processes. This leads to more overheads and in the case of automation, sub optimal process efficiencies. Furthermore, this cannot be done continuously as it requires capital expenditure (Kaizen Institute. Operational Excellence for Business Excellence: The Kaizen way). For example, when there are regularly long customer queues at branches, the bank might recruit and assign more staff to reduce customer waiting time.

In contrast, the Lean approach ('Deletion') aims at identifying and eliminating 'non value adding' activities and is part of a continuous improvement process. For example, to reduce customer waiting time, customer application forms could be simplified with existing account holders having to submit less information compared to new customers and cash deposit machines used to further reduce transaction cycle time and counter traffic. In Lean parlance, value is defined in the eyes of the customer. Value adding activities are ones that the customer would be willing to pay for, are done 'right the first time' and contribute to the conversion of inputs in their shape or form to the final product or service. Due to the regulated nature of the banking sector, unlike other industries, a percentage of the process activities would have to be carried out to ensure compliance with those regulations even if they are considered non value adding from a customer's perspective and therefore will be considered 'Necessary non value adding' activities.

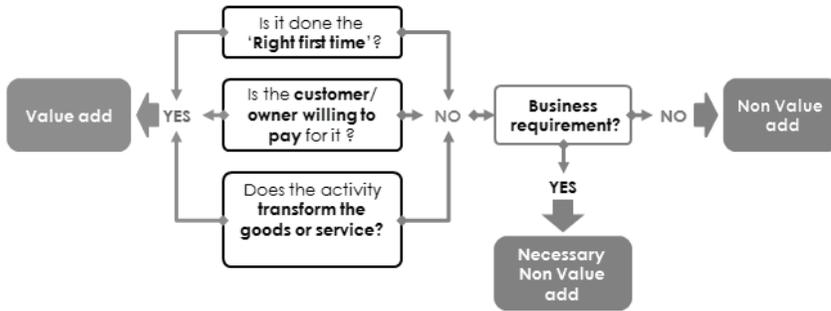


Figure: Identification of value adding and non value adding activities

Typically, activities that are considered value adding constitute only 5% of the total number of activities in a given process, while 60% of all activities can be considered ‘Non value adding’ in nature. While the traditional approach to increasing productivity is to focus on reducing the cycle time of value adding activities (Ex: Increasing the teller’s cash counting speed), in the Lean approach the main focus is on reduction of none value adding activities (Ex: Reducing the time taken for the teller to walk up to the Officer for approvals).

### Value adding and non-value adding activities in a typical process



Figure: Value adding and non-value adding activities (Source: Hines, Found, Griffiths and Harrison, 2011)

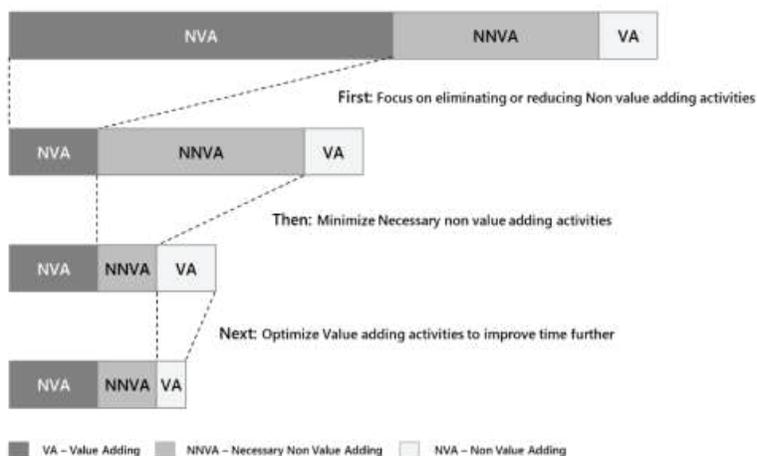


Figure: Steps of Lean implementation

While the main focus of Lean is on the elimination of non-value adding activities, in the context of the banking industry, through lobbying and discourse with the regulators, banks can also influence amendments to certain regulations to stay in line with technological advances. This could help reduce ‘Necessary non value adding activities’.

## Lean Six Sigma in brief:

### (a) Lean

The main tenet of Lean is that ‘value is defined in the eyes of the customer’. It concentrates on optimizing the flow of products and services through entire value streams at the pull of the customer (Ex: all process activities carried out from the time a customer applies for a loan to disbursement of the loan). This optimization happens largely through the reduction of waste. There are seven key wastes identified in Lean. These are; Waiting, Overproduction, Re-work, Motion, Over processing, Inventory, and Transport. Henry Ford in the early part of the twentieth century, followed by Taiichi Ohno in more recent times helped bring Lean practices to the fore.

“Waste is anything other than the minimum amount of resources (employee time, space, materials, equipment), which are absolutely essential to create value for the customer.” (Shoichiro Toyoda, Former President, Toyota)

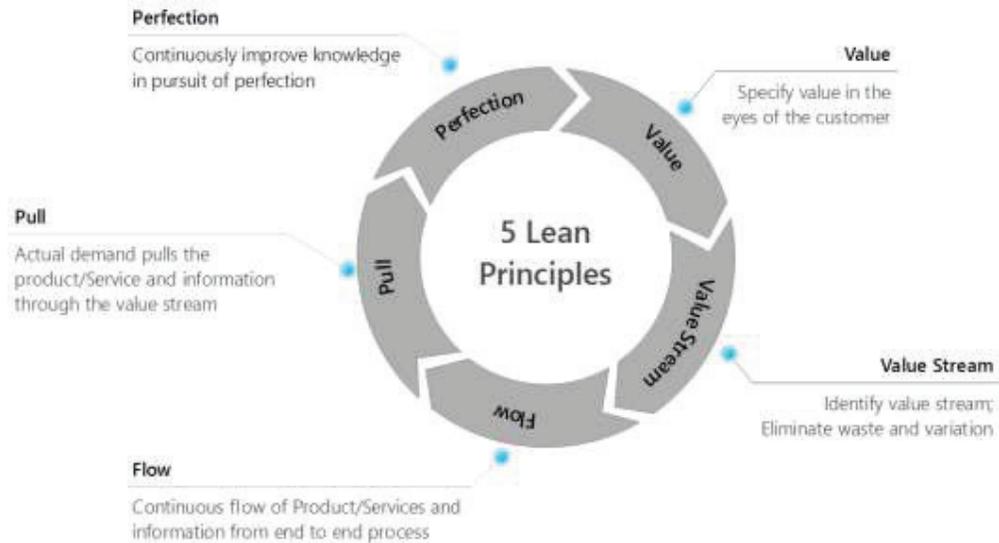


Figure: Five principles of Lean

### (b) Six Sigma

Six Sigma is a customer centric data driven structured approach to problem solving. A process that is Six Sigma compliant in essence would have no more than 3.4 defects per million opportunities, resulting in an extremely stable process that would consistently provide an output that is satisfactory to customers, leading to increased profits, quality of products, and employee morale. Six Sigma methodology (which was invented by Motorola in 1986) uses a structured five step process (termed the DMAIC cycle) during implementation.

Figure: Six Sigma DMAIC model

### Six Sigma (Reduce process variation)



Today both Lean and Six Sigma methods are used in unison in most manufacturing and service sector organizations as they complement one another.



## Examples for common types of wastes in banking:

### 1. Waiting:

Internal and external customers waiting to be served, or for decisions/approvals to be made.

### 2. Over Production:

Too much information included in Management reports/Too many customer application forms printed.

### 3. Rework:

Rechecking during manual reconciliation/ Not getting things right the 1st time.

### 4. Motion:

Too much motion due to poor layout and ergonomics at branches and processing centers.

### 5. Over processing:

Too many process steps, duplication of work, and non-value adding activities.

### 6. Inventory:

Too much inventory (Ex: customer forms printed and stored beforehand at branches, ordering a higher number of plastic cards than the actual demand).

7. **Transport:** Extensive use of courier services for transport of documents/Extensive staff movement for meetings, trainings, approvals etc.

## Lean Six Sigma implementation in the banking sector:

### Global

- Bank of America: Customer satisfaction metric rose by 25% (2003) across the organization/ omissions on customer statements reduced by 70% / mortgage application time reduced by 15days/ defects in electronic channels reduced by 88% / same day payments improved by 22% / non-credit losses driven down to 28% on a per account basis/ deposit processing improved by 35% / cumulative financial benefits exceeded USD 2bn by end 2003.
- HSBC Holdings: the quality team at HSBC transformed an under-performing unit in HSBC's Investment Banking unit with a single DMAIC project, using Lean Six Sigma resulting in a 274% improvement in net income.
- Bank of Montreal: Using Lean Six Sigma methodology, the bank reduced errors, improved cycle time, and eliminated waste with projected annualized savings of nearly \$55 million over a five year period.

### Local

- Nations Trust Bank: Account opening process from customer to document archiving stage, reduced to 8 working hours from 8-12 working days and costs reduced by 60% / turnaround time for loans reduced by nearly 70% / SME workflow efficiency increased reducing the division's cost to income ratio to 42% from 48.

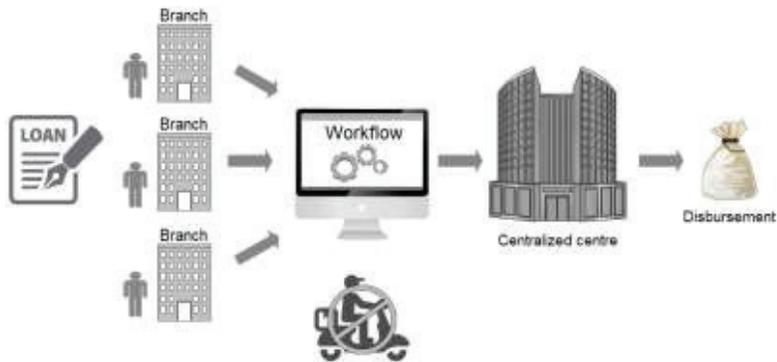


- Sampath Bank: Digitalization of account opening, LC issuance, personal loan disbursement processes and integration of these processes with the core banking system/ launch of e-mandate to eliminate manual form filling, possible data entry errors, and duplication of information/ Setting up the initial groundwork for a new workflow solution for LC opening.

## Lean initiatives at HNB

HNB made significant strides towards improving productivity and driving operational excellence using Lean Six Sigma methodology. For example, by identifying key 'wastes' i.e. 'Transportation' in its Credit appraisal process for Personal Financial Services, HNB implemented a new automated work flow system to electronically transfer its customer loan application documents to the Central Credit Operations from the branch network significantly reducing the turnaround time for Personal Financial Services. This in conjunction with numerous other Lean initiatives (implementation of Matrix management system, Branch target operating models, Thematic audit reviews, and an Online circular system) helped achieve a high level of autonomy for the bank's branch network by freeing branch staff to focus more on customer engagement and relationship management.

Figure: Electronic workflow for centralized Credit processing



Other significant Lean initiatives undertaken towards productivity enhancement by HNB were the implementation of paperless office with automated workflow systems, implementation of 1.3MW solar Photo Voltaic system bringing down the dependency on the national grid by 13% thus reducing the carbon footprint, plus a fully-fledged on-line learning management system.



# Implementing Lean Six Sigma in Banking

## Benefits of Lean Six Sigma in the banking sector

A bank which has Lean practices engrained in its 'DNA' will have the following characteristics and ensuing benefits (Oppenheim and Felbur, 2015O):

### **(a) Do the right work:**

Instead of doing things simply because 'they were always done that way', there is more focus on activities that create legitimate value and all tasks are tailored to reduce unnecessary steps (Ex: reduction in the number of approvals required for a loan by increasing the limit for the 1st tier and maintaining the total number of approval levels to three or below).

### **(b) Do the work right:**

Employees are well trained and have easy access to vital information. (Ex: all customer facing staff should have easy access to key inputs, documentation and procedures required to carry out their activities efficiently and in a standardized manner across all touch points).

### **(c) Know the Customer:**

Employees have a clear understanding of what their internal customers want and only deliver what is required, when it is required (Ex: branches ensure all mandatory documents and required information is sent in the exact manner required by the credit evaluation team).

### **(d) Flow:**

Tasks are aligned in the best possible sequence and value flows without, rework, back flow or duplication (Ex: as in the example given above, when the right information is sent, there is no rework, resulting in smooth process flow. Controls can also be implemented within systems ('mistake proofing') to prevent staff from erroneously missing mandatory documents).

### **(e) Full Visibility to Work Status:**

Dashboards are used to provide visibility to the status of work and who is doing what and by when it should be delivered (Ex: centrally accessible dashboards can be used to view the status of all projects reducing possible duplication of information in multiple reports created by different stakeholder departments).

### **(f) Spirit of Teamwork and Respect:**

No 'blame and shame' culture. Problems are blamed on processes and systems and not people. Leaders support and empower staff to continuously improve their areas of work (Ex: if there are delays in receiving approvals, the process is reviewed to identify and address key bottlenecks and SLAs are implemented and monitored to ensure adherence to set targets).

### **(g) Assigned ownership for each job:**

Every project has an owner who is responsible and accountable and has authority to



ensure successful timely implementation (Ex: all improvement projects would have designated project sponsors).

**(h) Continuous Improvement:**

Improvement is considered to be a continuous process.

## **Lean vs. Six Sigma – In what order?**

As Lean focuses more on waste reduction and cycle time calculations are carried out in real time, there is less dependency on historical data. Lean can be used even in the absence of formalized documented processes. In contrast Six Sigma relies on the availability of data to carry out statistical hypothesis testing to identify the true causes of a problem (Ex: statistically valid reasons for not meeting a specific KPI over a period of time).

Hence typically, Lean is better suited for less mature organizations with less data availability and lack of proper formal processes, whilst Six Sigma is more suited for organizations that have formal documented processes and availability of seamless data across systems. Lean is generally implemented first, followed by Six Sigma. This is just as applicable for banks as it is for other industries.

### **‘Top down’ or ‘bottom up’?**

There are different schools of thought regarding the ideal Six Sigma implementation model. Most tend to lean towards the ‘top down’ approach as it is essential that there is commitment from the Senior Management for a program of this nature to be successful. The ‘bottom up’ approach on the other hand provides staff empowerment and freedom to implement improvement initiatives of their own choosing, at the possible expense of it not being in alignment with the organizational strategy.

While a top down approach might seem the easiest to implement in the context of banks as they tend to have a relatively tall hierarchy and regulations, a more effective strategy is an amalgamation of ‘top down’ and ‘bottom up’ approaches. With this approach, the Management ensures there is structure and forward momentum with project implementation, while staff is empowered to propose improvement ideas. Ideas that are in line with the organizational strategy will be promoted whilst ones that are not could be augmented to include areas considered more in line with the company’s strategy into their scope. This results in a ‘Win-win’ for both parties. Furthermore it is important to note that 100% of operational problems are known only by the staff on the ‘factory floor’ and not in the ‘boardrooms’. For example it is the branch staff that would be privy to how easy or hard their customers find using the bank’s cash deposit machines (CDMs) and would be in a position to propose ideas to improve customer experience.



# Lean Six Sigma Implementation Challenges

## **(a) Identifying the Voice of the Customer:**

In many organizations, (banks being no exception) there tends to be a sense that the 'company knows best' and often you find that Management decisions are made with more of an internal cost optimization focus as opposed to making sufficient effort to understand the true 'voice of the customer' (VOC). This can lead to process improvement projects that do not always result in a positive customer experience (Ex: While digitalization may be the norm and results in leaner processes, not all customers are tech savvy and some may still prefer human interaction).

## **(b) Unavailability of data:**

Many Organizations have systems that are not integrated and do not have a proper data warehouse which can provide useful seamless information on demand. This makes data gathering and analysis tedious, impeding the speed of project implementation (Ex: having stand-alone Loan originating systems, core banking systems, card systems etc).

## **(c) Resistance to change:**

Change is often linked to 'discomfort'. When there are legacy processes and practices it is often a challenge to motivate people to do things differently even if it is to their benefit. This requires the use of effective communication, the inclusion of all stakeholders up front etc. Another method to help overcome resistance to change is to create a culture of change via staff training and development in process improvement methodologies.

## **(d) Regulatory controls:**

The banking industry is one of the most regulated industries and hence when carrying out process improvement initiatives one has the additional challenge of having to ensure compliance to said regulations even if in the strictest Lean terms certain activities might seem to be 'none value adding' from the perspective of the customer.

## **(e) Lack of leadership commitment:**

For any company wide process improvement initiative to be successful it is imperative that there is total commitment shown by the top management.

## **(f) Improper expectations:**

Companies that carry out Six Sigma initiatives with unrealistic expectations can become disenchanted, and lose momentum as a result. Lean Six Sigma by design will only provide incremental improvement and should be approached as such. For exponential improvement to be achieved, one would have to implement other techniques such as business process reengineering.



### (g) Poor execution:

Companies that succeed in Lean Six Sigma implementation have a structured method of project selection, mentoring and post implementation monitoring. In order to ensure successful implementation and sustainability it is important to carry out a pilot prior to launch, followed by post implementation monitoring to ensure new practices are sustained.

## Conclusion

Lean Six Sigma methodology is a time tested and proven methodology to improve productivity and reduce costs. The banking sector has been the last frontier due to the highly regularized nature of the industry. However with top management commitment, the right implementation strategy and creation of a culture of continuous improvement, there is much that can be achieved in process excellence by banks using this methodology.

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