



# LEAN SIX SIGMA

Overview, belt format and benefits

# Overview

- process improvement methodology designed to eliminate problems, remove waste and inefficiency
- Also aims to improve working conditions to provide a better response to customers' needs
- combines the tools, methods and principles of Lean and Six Sigma into one popular and powerful methodology for improving operations of organisations
- Its three key elements are:
  - **Tools and techniques:** A comprehensive set of tools and analytical techniques that are used to identify and solve problems
  - **Process and methodology:** A series of phases that organize the use of the problem-solving tools to ensure that the true root causes are found and that a solution is fully implemented.
  - **Mindset and culture:** A way of thinking that relies on data and processes to achieve operational performance goals and continuously improve

# *Six Sigma- its phases*

- Define
  - boundaries for the process being analysed are set
  - expectations or desired performance for that process are defined from a customer perspective
  - Ensures change does not degrade the customer experience, but instead enhances it
- Measure
  - current performance of the process, product or service is measured to determine what is actually occurring, especially from a customer perspective
  - Ensures analysis and solution are based on actual performance, not theoretical or anecdotal information
- Analyse
  - product or service is analysed using the measured data to determine the source or sources of the variation that are causing the problem
  - ensure the true root cause(s) is identified and not just a symptom
- Improve
  - possible changes to the process, product or service are assessed and a solution set of changes is designed and tested
  - Ensures the solution creates the desired effect and that the variation is reduced or eliminated.
- Control
  - changes are implemented, the supporting systems are also updated and the process, product, or service is put under control
  - ensure the solution is fully implemented in a sustainable manner and to identify if performance starts to degrade

# *Lean enterprise- its principles*

- Lean developed by Toyota Processing Systems with the primary agenda of minimising waste
- Key argument is that a process with waste in it means that company is creating large-scale, high quantity waste; this must be avoided to maximise efficiency
- Important principles
  - Value
    - determined by what the customer considers to be important within a product or service
  - Value stream
    - set of business activities and steps involved in creating and delivering products and services to the customer
  - Flow
    - degree to which there is smooth uninterrupted flow of activities that add value to the customer, rather than waste and inefficiency that impedes the flow through the value stream
  - Pull
    - degree to which the value stream is only processing products and services for which there is a customer demand, rather than creating something and hoping someone wants it
  - Perfection
    - continuous assessment of value stream performance to identify and improve the value created and delivered to the customer

## *Lean enterprise- its waste classification*

- Using the terms of the Toyota Production System, the Lean methodology identifies and strives to eliminate three types of waste:
  - Muda
    - Non-value added work – pure waste
  - Mura
    - Unevenness in flow – unpredictable variation requires compensation elsewhere in the system
  - Mudi
    - Over-burdening resources beyond their normal rated capability – stresses and damages resources so that they are unable to do a normal workload

# *Lean Six principles*

- Addressing a real world problem
  - Problems addressed are real world problems impacting customers in the present
  - Pushes project members to rework and repair process activities, strategically enhancing the efficiency
  - Thus, root cause is something organic, to be discovered through genuine analysis, rather than a designed issue with a set solution
- Analysis is accomplished by a team
  - Cross functional analysis requires cross functional team work
  - Consequently, all perspectives and sub-bodies within the organisation are involved in the problem analysis as well as development of the solution
  - Diverse set of perspectives integral in understanding problem and its implications as well as identifying a solution and improving overall efficiency
- Analysis is focused on a process
  - Analysis intends to investigate and improve actions which are the steps embedded in processes
  - Thus, contextual background of actions is important in order to identify any defects reducing efficiency
- Analysis is based upon data
  - Data collection integral element of Lean Six since aim of achieving maximal efficiency is derived through best scenario possible given facts
  - Allows analysis to verify defects, their correct rectification as well as further verification of solution's effectiveness
  - Finally, data use makes sure that solution is permanent instead of interim, having the capacity to prevent issue from returning

# *Lean Six belts*

- Yellow Belt
  - Team members of a Lean Six project led by Green or Black Belt
  - Often tasked with data collection for analysis, being an expert from their specialisation
  - Lead implementation of solution within their own specialisation
- Green Belt
  - Lead small teams based on a single function
  - Responsible for ensuring the necessary Lean Six techniques and tools are used
  - Typically the only one in the team trained in Lean analysis techniques and Six Sigma statistical techniques
- Black Belt
  - Lead large-scale cross-functional projects
  - Perform value stream or statistical data analysis for projects they lead
  - Provide training of Lean Six Sigma to Yellow Belts and Green Belts
  - Meet with organisational stakeholders and discuss issues to be resolved and status of projects
- Master Black Belt
  - Usually a single MBB, typically a senior position holder, within an organisation
  - Manage the initiative
  - Work with senior leadership to identify Black Belt and Yellow Belt needs and their allocation among departments and functions
  - Possess a status report of all active Lean Six projects and are able to assess overall impact of the project

# *Organisational benefits of Lean Six Sigma*

- Simple processes
  - Business processes simplified as areas of inefficiencies and wastage are erased or refactored
  - Allows processes to be easier to comprehend, faster and achieve greater customer satisfaction and customer service benchmarks
  - Also allow overhead costs to be minimised, widening profitability
- Fewer errors and mistakes
  - Simplification of business processes would allow greater clarity, thus removing errors and making it easier to identify errors
  - Data reliance would power greater reliability due to decisions and actions being backed by factual evidence
- Predictable performance
  - Reduced complexity would enable lesser variation within processes
  - This would enable greater predictability translating to greater stability in dynamic business environments
- Active control
  - Given data reliance and simplified operating mechanics, process managers can make decisions with much greater efficiency
  - Performance, employee morale and agility improved
  - Shorter cycles and greater control can expedite organisational response to dynamic marketplace



# *Personal benefits of Lean Six Sigma*

- Personal effectiveness
  - Structured methodology as a core function develops flexibility of employee to be effective across a multitude of roles
  - Organised problem solving approach fosters holistic efficiency in work life as problems are identified and rectified with minimal resources wasted
- Leadership opportunities
  - Leading Lean Six projects inherently develops communicational and leadership skills
  - Provides exposure to senior management roles and sharpens project-management acumen
- Pay and promotability
  - Lean Six Sigma enhances pay and promotability potential