



THE LEAN ENGLISH PODCAST

Podcast 3: Six Sigma
Part I



PODCAST REVIEW

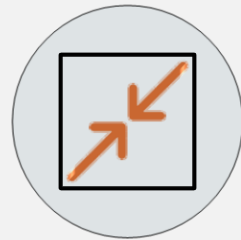
- First episode, the differences between Lean, Six Sigma and Agile.
 - Lean is the least complex to understand; easiest to implement, and quickest to show benefit
 - Six Sigma has a more rigid project structure, is more technical and may require additional tools to implement
 - Agile is primarily for software development, uses many Lean principles, and reduces the time for product delivery
- Second episode, focus solely on Lean
 - Lean is a composite of tools and techniques developed over years with the contribution of many individuals, particularly the Toyota Motor Company
 - There are 5 Focusing Steps that help companies understand customer requirements, reduce waste, generate flow in their production, and identify and solve company-wide problems



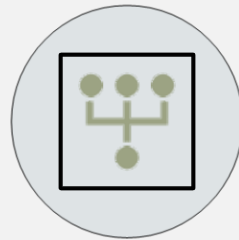
WHAT IS SIX SIGMA?



SIX SIGMA IS A TOLL-GATED PROJECT MANAGEMENT METHOD FOR PROCESS IMPROVEMENT.



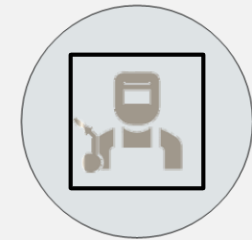
THESE PROJECTS SEEK TO REDUCE VARIATION, THE CAUSE OF UNPREDICTABLE AND UNWANTED RESULTS.



CUSTOMERS HAVE EXPECTATIONS THAT CAN BE VERY SPECIFIC, AND THE ONLY WAY TO ENSURE YOUR PROCESSES MEET THESE EXPECTATIONS IS THROUGH STATISTICAL PROCESS CONTROL.



MEASUREMENTS FOR EVERY ASPECT OF THE BUSINESS ARE TAKEN AND ANALYZED TO DETERMINE HOW TO IMPROVE PERFORMANCE AND CUSTOMER SATISFACTION.



A COMPANY THAT IS PERFORMING AT A SIX SIGMA LEVEL EXPERIENCES ONLY 3.4 DEFECTS PER MILLION OPPORTUNITIES, (DPMO).



OTHER DIFFERENCES



Financial requirement

- Lean assumes that waste removal will lead to lower costs and better profitability.
- Six Sigma does not assume this and requires that all projects benefit the company financially.
- Project champions require the team to calculate the potential return on investment (ROI) to justify the resources required to carry out a project.

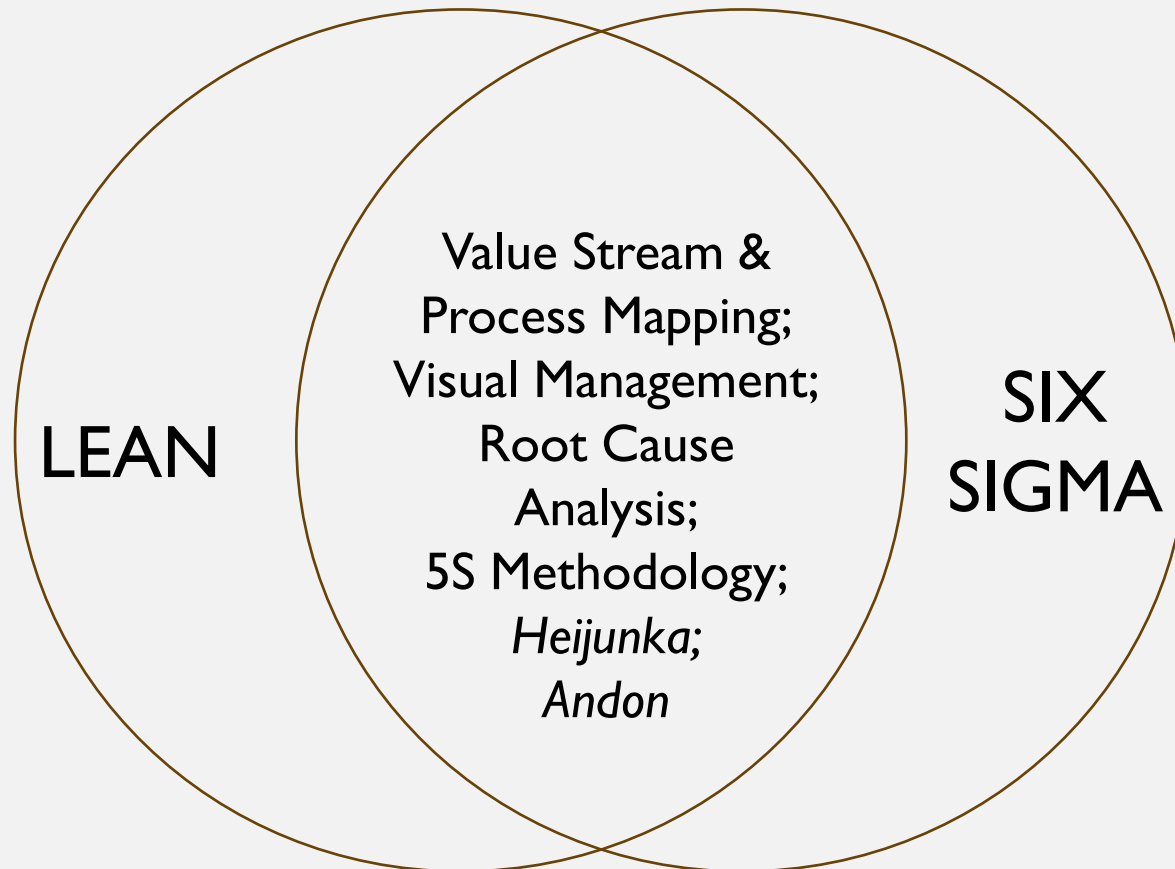


Root cause analysis

- Lean is best when the cause of the problem can be identified without intense statistical analysis.
- Six Sigma projects are only carried out if there is no known solution to the problem.
- Six Sigma is used when the root cause of problems is hard to identify, and solutions may only be found through rigid scientific experiments.



SHARED TOOLS





SIX SIGMA PROJECT MODEL

The Six Sigma project has 5 well-defined stages and works like this:

1. In the **Define** phase, you identify a specific problem that needs to be fixed, justify the project by showing your boss the financial benefits, and create a cross-functional team and plan to do it.
2. In the **Measure** phase, you gather as much relevant data as you can afford to understand everything about the problem.
3. In the **Analyze** phase, you look at the data to identify the root cause for your problem.
4. In the **Improve** phase, you search for and implement the solutions to the root cause.
5. In the **Control** phase, the team documents and provides training on the new process and monitors the results to ensure sure that the solution continues to provide the desired benefit.



SIX SIGMA TOOLS BY PHASE

- Define phase - Understand the Problem and Goals
 - Project Charter
 - High Level SIPOC & CTQs
- Measure Phase - Quantify the Current Performance
 - Basic statistics
 - Process maps
 - Data collection plan
- Analyze Phase - Identify Root Causes
 - Cause and Effect diagrams
 - Hypothesis testing
- Improve Phase - Develop and Test Solutions
 - Brainstorm and prioritize ideas
 - Design of Experiments
- Control – Sustain Improvements
 - Control Charts
 - Standard Operating Procedures
- Closure, training and handover



CROSS-FUNCTIONAL TEAMS

Most organizations are broken down into functional areas for easier management and productivity tracking.



However, this is not how customers view an organization, and separating information into functions keeps teams from solving enterprise-wide problems.



An organization's process improvement teams must be independent of functional influences.



Teams need to be able to reach across functional lanes so they can find and solve root causes to problems that arise in other areas.



QUALIFICATIONS OF SS BELTS



- **Green Belt**

- Six months of general Six Sigma training; new certifications test knowledge
- Assists Black Belts on larger projects; often begins SS work as data analyst;



- **Black Belt**

- Years of project, leadership and statistical training, exams and completed high level projects are necessary for certification
- Leads cross functional teams without the need for oversight; works in the PMO
- Projects must save significant amounts of money to be valid



- **Master Black Belt**

- Advises executive leadership and leads enterprise-wide, multi-year projects
- Years of project work as a Black Belt; seen as a Subject Matter Expert
- Develops curriculum and trains Black Belts; manages the PMO



Purpose: Purpose: Identify what needs improvement and why it matters.



Output: A clearly defined problem, goal statement, and understanding of customer needs.



Deep dive:

- Project charter
- SIPOC and CTQs

DEFINE PHASE



PROJECT CHARTER

- The project charter contains 3 important statements; Problem Statement, Business Case and Scope Statement.
- There are 6 steps to chartering a Six Sigma project:
 1. Obtaining a problem statement
 2. Identifying the principal stakeholders
 3. Creating a macro flow of the process
 4. Selecting the team members
 5. Training the team
 6. Selecting the team leader



SIPOC AND CTQS

- A high-level view of a process is necessary at the beginning of a SS project to help the team understand the project's impact.
- It outlines the links between suppliers, inputs and processes, and sets the stage for the measure phase by highlighting the Critical to Quality performance metrics, CTQs.

Suppliers	Inputs	Process	Outputs	Customers
Critical Input Measurement: • • •		Critical Process Measurement: • • •		Critical Output Measurement: • • •

END OF PART I