

The Eight Lean Process Wastes

Waste activities: process activities that require time, money, or resources yet don't add value to the end result or for which the customer is unwilling to pay

D₂

Defects/Scrap/Rework

Defects are units or results that are unacceptable to a process customer, and are costly because time/money/resources become scrap and get discarded or are reworked and consume additional time and resources. Completing processes properly the first time is ideal.

O₁

Overprocessing

Putting more effort and extra process steps into an operation than is necessary means resources are being wasted. Reducing unneeded steps or resource consumption helps cut costs and time.

W₄

Waiting

Whenever there are gaps between the end of one step and the beginning of the next, work in process is forced to wait. Inconsistency and lack of balance in process steps extends the time between a request being made by the customer and when the order is delivered.

N₁

New Ideas/Employee Knowledge

Training, process knowledge, and functional expertise are valuable resources that can be wasted if not leveraged and lost if those process users leave the company.

T₁

Transportation

As an extension of unnecessary motion, the use of transportation means that processes and materials are not completed or utilized where they are required. Moving items around so they can be used where they're required should be minimized.

I₁

Inventory

The buildup of inventory means that goods and processes are available too far in advance of when they are required. Extra inventory is investment of time, money, and other resources in materials that are not being converted into revenue.

M₃

Motion

Extra steps requiring motion – reaching, walking, pushing, twisting, straining - added to processes consume operator time, energy, and exertion.

E₁

Excess Production

Producing more than is required or ordered by the end customer can grow into other kinds of waste – excess inventories and consumption of time and resources that can be better invested elsewhere.

What is Kaizen vs. Lean vs. Six Sigma?

Kaizen:

Japanese for “good change,” this is the mindset of continuous improvement. Kaizen helps us identify problems and propose/implement solutions, but the Kaizen mindset means driving to make things better and not merely accepting that things are as optimal as they’ll ever be. Kaizen events are more formalized multi-person analyses for defining problems and collecting potential solutions, but Kaizen improvements most often happen on an individual level.

Lean:

Lean is an operational philosophy based on two pillars – process optimization through waste activity reduction, and respect for people. Lean features a suite of tools that are applied with the intent of reducing and eliminating the eight Lean wastes. The Lean tools make processes operate faster and smarter with reduced variation and reduced defect rates with the intent of serving more customers better. The Lean tools have their roots in what’s known as the Toyota Production System. Lean is most often applied in manufacturing settings today, but the Lean tools are applicable to all types of processes, including those in the office and service industries. Respect for people refers to making processes better, safer, easier, faster, and less strenuous for users and customers by any means necessary.

Six Sigma:

Six Sigma is another suite of continuous improvement tools more focused on consistent output, stability, and accuracy. Six Sigma applies more statistical analysis and root cause analysis to reduce variation and achieve greater consistency.

The DMAIC Framework – Key Questions

Define:

What is the problem we’re trying to solve?
How do we know this is a problem?

Measure:

What is the size of the problem?
What are the proper ways/scales/metrics for measuring the problem?

Analyze:

What did the measurements tell us?
Where are our biggest opportunities for improvement?

Improve:

What are some potential solutions to the problem, and what will those solutions cost?
Who will be in charge of implementing potential solutions?

Control:

How do we sustain the improvements and prevent backsliding into the old processes?
How do we confirm that our improvements were effective?