Cutting Waste

How LEAN and OnRamp ERP can help improve your business

Waste is one of the greatest enemies of a corporation. Whether it is wasted time in an office waiting for a report to be approved, or wasted inventory spoiled by inaction on the floor, any waste is a negative balance that you don't want to carry on your books.

To help remove the waste, brilliant minds came up with LEAN.

Removing waste is a simple enough concept to understand but, like many other simple things, it can still be confusing. The problem starts with the fact that cutting waste is actually a lot of work, where cutting costs is easy. In other words, the first important lesson to take home from LEAN is this:

> **The goal is not to cut costs, but to decrease costs by cutting waste.**

At this point, you may be getting concerned. After all, LEAN can have a bad reputation in certain circles created by those that believe that the process does nothing but bring stress and overwork to your employees, thus negatively affecting their moral, their health, your retention rates, and ultimately, your business. To make your life easier moving forward, this paper is going to call cost cutters as "leaners" and those doing the work to cut waste as LEAN thinkers.

Leaner vs LEAN Thinker

The unfortunate side effect from the "leaners" confusing waste cutting with cost cutting is that these company programs are just calling themselves "lean" when in reality they are just implementing cost cutting measures by way of outsourcing, layoffs, and cutting programs like maintenance and prevention. These "leaners" have a severe negative effect on the business and work relations, and the goals of the LEAN methodology.

Oftentimes, "leaners" are senior leaders that are not adopting LEAN thinking but instead limit themselves to delegating the difficult task of cutting to outside consultants or internal specialist teams without proper LEAN thinkers doing the job of "leaning" the corporate processes.

LEAN thinking is meant to seek cost reductions by finding the policy origins of unnecessary costs and eliminating the cause instead of just cost cutting, which is often just forcing people to work within reduced budgets and worse conditions just to get a line by line cost advantage.

You can, of course, see the difference. But to many managers cost cutting is far more expedient, and as such inexpensive, than cutting waste. And since the label is available, these "leaners" can just tack LEAN to their plans and call it a day.

But this is not the goal. Your aim is to **decrease costs by cutting waste** and any approach that isn't explicitly aimed at using LEAN for every process, person, or position cannot be considered to be LEAN.

**This leads you to the question of how to move forward. How do you use LEAN?
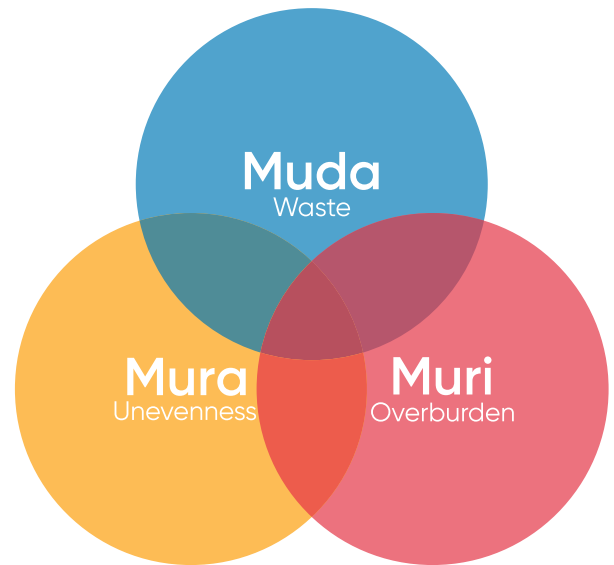How can you become a LEAN thinker?**

The Three Deviations

One of the first hurdles to cross is understanding the 3 types of deviation to efficient processes:

Muda, or
Wastefulness/ Uselessness/ Futility

Mura, or
Unevenness/ Non-Uniformity/ Irregularity


Muri, or
Overburden/ Excessive/ Unreasonable

In this paper we will be focusing on Muda.

Muda
Waste

Mura
Unevenness

Muri
Overburden

What is Muda

Muda means wastefulness and uselessness, i.e. something that does not add value. In many processes, the second idea, uselessness, should be reviewed before making a process modification. For example, there are many processes on a factory floor that do not add value to the customer but are extremely useful, like quality testing, or maintenance. These processes are quite necessary for the continued operation and success of your business.

The hope is that continued process improvements you make elsewhere can help to decrease the costs of these useful, but not as valuable, processes in the long run.

And to find those improvements, we have to look at our DOWNTIME.

Think
DOWNTIME

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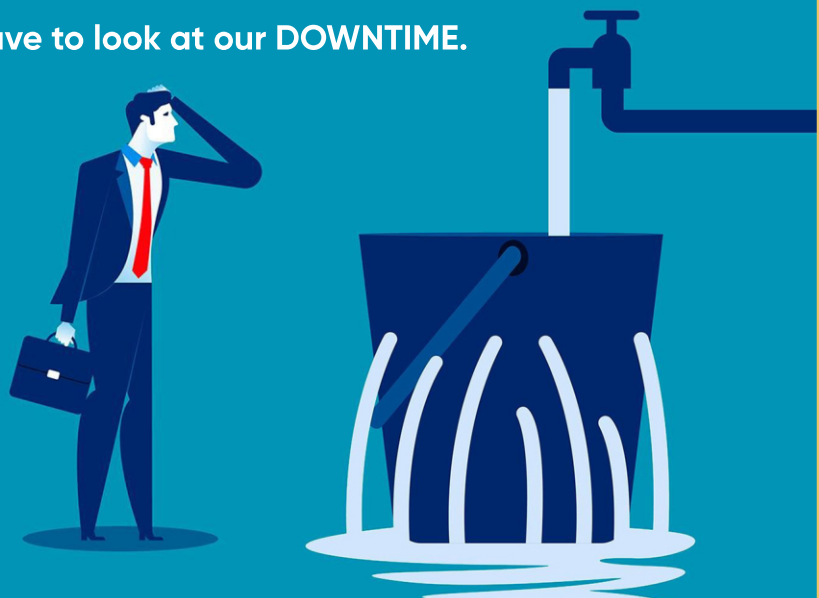
Defects
Efforts caused by rework, scrap, and incorrect information.

Overproduction
Production that is more than needed or before it is needed.

Waiting
Wasted time waiting for the next step in a process.

Non-Utilized Talent
Underutilizing people's talents, skills. & knowledge.

Transportation
Unnecessary movements of products & materials.

Inventory
Excess products & materials being processed.

Motion
Unnecessary movements by people (e.g. walking).

Extra Processing
More work or higher quality than is required by the customer.

DOWNTIME is not, in this case, what you do on a Saturday after all the chores are done. No, DOWNTIME is one of the most useful items in business: an acronym.

As you can see in Figure 2, DOWNTIME is short for:

- **DEFECTS**
- **OVERPRODUCTION**
- **WAITING**
- **NON-UTILIZED TALENT**
- **TRANSPORTATION**
- **INVENTORY**
- **MOTION**
- **EXTRA-PROCESSING**

These 8 items are groupings of the actions where you will find waste in your processes. In the coming chapters we will come to understand each in turn.

Understanding DOWNTIME

DEFECTS

Defects are products that are not fit for use. This includes damaged and unusable production, reworked items, and errors cause by incorrect information.

Defects are a part of manufacturing and the most visible examples of waste. Oftentimes, finding and resolving defects results in either reworking or scrapping the product. Both results are wasteful as they add additional costs to the operations without delivering any value to the customer.

To counteract this waste, you can implement the following:

⬡ **OFFICE –** A single database for all records, including parts, BOM, and Routing, pareto charts and analysis.

⬡ **PRODUCTION FLOOR –** Better maintenance management, better quality management, better scrap management, online reporting that includes operator visual inspections, add quality alerts.

Other actions include: standardize work, use SPC to decrease frequent errors and redesign processes.
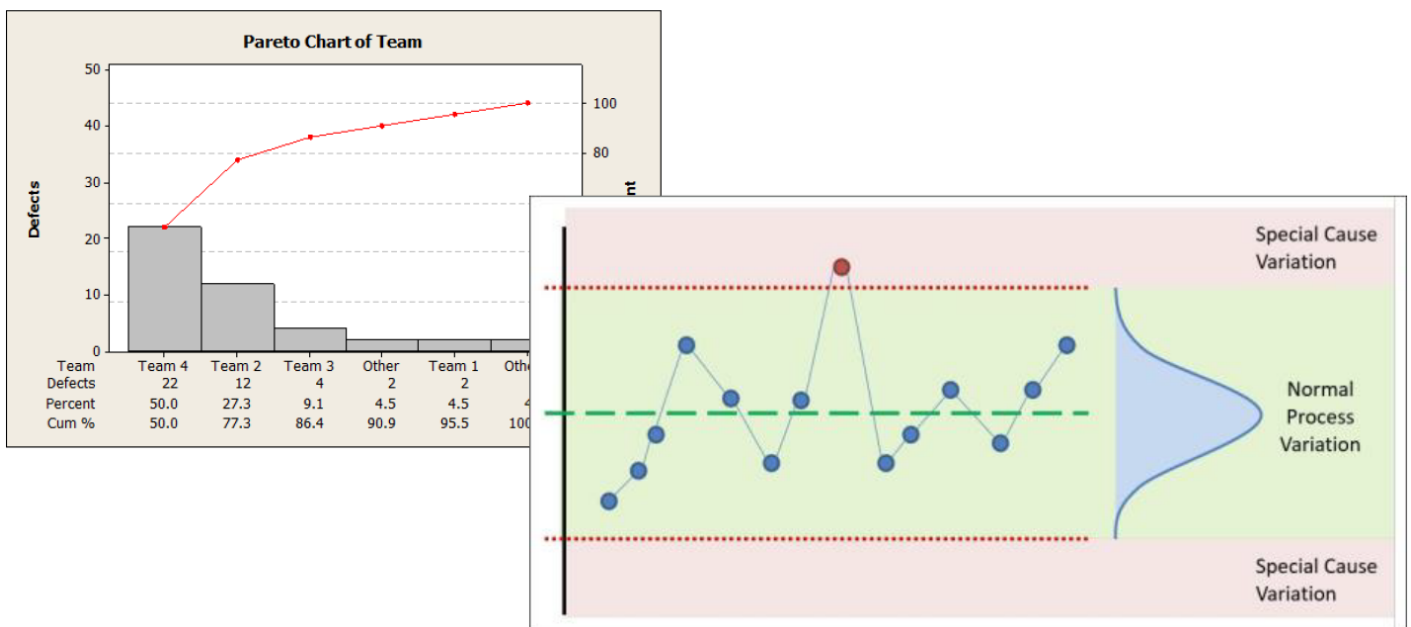
OVERPRODUCTION

Overproduction is the act of making more than what you need.

It may be tempting to produce as many products as possible when you see idle workers and equipment or because it is cheaper to make more now than to re-set the tools again later. While it can be cheaper per part to mass produce, it can also lead to negative costs later associated to storage, obsolescence, a disrupted workflow, unseen defects, or damaged goods.

Wastes Caused by Overproduction

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- Excess Inventory
- Poor Process Capacity
- Non-skilled talent
- Shipping delays
- Vendor delays

- Tool outages
- Defective product
- Tool set-up issues
- Scheduling issues

In the office, overproduction can be any of the following: making extra copies of a document, creating useless reports, providing useless information, or delivering a product or service that a customer does not want. On the production floor, overproduction involves producing more products than demanded through a 'push production system' or a 'Just-In-Case' philosophy, or producing products in higher batch sizes than needed.

To counteract this waste, you can implement the following:

- **OFFICE –** On demand customizable reports and documents, a single database for all records, better customer relation management.

- **PRODUCTION FLOOR –** Better MRP, Order Policy suggestions, finite scheduling, EOQ calculations.

Other actions include: lead time analysis, excess inventory reports, standard time calculations.

WAITING

Waiting is simply is the time it takes to begin another process after finishing the current one.

Waste caused by Waiting

- Production bottlenecks
- Work cannot start due to lack of tools or material
- Excess setup time

- No time for proper maintenance
- No time for proper training
- No time for proper documentation

Whether it is people, material, or equipment sitting unused because something else hasn't arrived yet, any waiting is a waste. Waiting can have many causes but it can often be zeroed in to unevenness in production at your workstations.

In the office, waiting includes waiting for email responses, waiting for approvals, useless meetings, or a computer workstation waiting for a program to load. On the production floor, waiting includes delayed raw materials, inadequate operator instruction and training, or incorrect tools.

To counteract this waste, you can implement the following:

- **OFFICE –** Project management tools, email notifications, report warnings, a single database for all records, less locally installed software, faster loading systems, worker skill management.

- **PRODUCTION FLOOR –** Gateway queues, work center scheduling, shop monitors, online inspections, task automation, multi-skilled workers.

Other actions include: Redesigning processes to ensure a continuous flow or single piece flow, work order boxes, improved worker training.

NON-UTILIZED TALENT

Non-Utilized Talent is having workers that are skilled, or talented, in certain areas not being used to their full potential.

Waste caused by Non-Utilized Talent

- "That's not my job" mentality
- Lack of motivation
- Lack of involvement
- Lack of empowerment
- Under-utilized employee skills
- Lack of cross-training
- Lack of suggestions

Your employees are what makes your organization work. The waste of their potential by under-utilizing employees' skills and knowledge has a negative effect on your organization. This waste tends to occur when management is too far removed from the workers.

In the office, non-utilized talent includes insufficient training, poor incentives, not asking for employee feedback, and placing employees in positions below their skills and qualifications. On the production floor, this waste can be seen when employees are poorly trained, employees not knowing how to effectively operate equipment, when employees are given the wrong tool for the job, and when employees are not challenged to come up with ideas to improve the work.

In some organizations, management takes the responsibility of planning, organizing, controlling, and innovating the production process while the worker's role is to follow orders and execute the work as planned. But by not engaging the frontline worker's knowledge and expertise, you will find it difficult to improve processes. This is due to the fact that the people doing the work are the ones who are most capable of identifying problems and developing solutions for them. There are countless other benefits to recognizing your workers skills and ideas to improve their processes, like improved morale or finding natural leaders. By listening to these workers, you can cut many of your wastes and improve your productivity.

To counteract this waste, you can implement the following:

- **OFFICE –** Project management tools, training gap tools, a single database for all records.

- **PRODUCTION FLOOR –** Worker skill management, plant issue/ suggestion tools, detailed capacity planning.

Other actions include: implementing all hands meetings, adding a lead worker voice to the decision processes.

TRANSPORTATION

Transportation is the act of moving people, tools, inventory, and other objects over any distance.

Some results of unnecessary Transportation

Unnecessary movements of People, products, Materials, Information

- Cost
- Damage
- Time lost

- Spillage
- Wasted investment in logistic equipment

"I Had to go Across the Street!"

Transportation adds time to the process without increasing value, and creates an opportunity for damage to occur.

Poor plant layout leads to transportation wastes, and waste can be removed by achieving the shortest distance in a straight line.

Waste in these processes can be summed up as having people or things moving more than is required, which can lead to product damage and unfound defects. Additionally, all that motion of people and equipment leads to added work, wear and tear, and exhaustion.

To counteract this waste, you can implement the following:

- **OFFICE –** Improved communication venues between staff, quicker document access, a single database for all records.

- **PRODUCTION FLOOR –** Materials necessary for production should be easily accessible and easy to find, decreased materials handling.

Other actions can include: creating a U-shape production line, creating flow between processes, and not over-producing work in process (WIP) items.

INVENTORY

Inventory is, of course, your stock. Your raw materials, WIP, and completed orders waiting to be delivered. It can be difficult to think of inventory as waste, but too much of anything can be a bad thing.

Wastes Caused by Inventory

Poor process capacity

Waiting

Transportation issues

Hidden defects

Tool outages

Scheduling issues

Non-utilized talent

Waste in inventory involved rethinking inventory. For example, in accounting, your inventory is an asset and if you are purchasing from a vendor, a big order can net you a better discount. The problem is that your storage space is limited and overloading it can hamper the steady flow of items and work which can lead to waste, including:

- **UNFOUND DEFECTS**

- **DAMAGED MATERIALS**

- **INEFFICIENT LEAD TIMES**

- **RESTRICTED CAPITAL**

- **LOST INVENTORY**

To counteract this waste, you can implement the following:

- **OFFICE –** Better lead time and inventory management, better vendor relations, smarter customer relations, project management and approval system, a single database that can be quickly maintained, leading to less obsolete records.

- **PRODUCTION FLOOR –** Better work order management, better inventory management systems, better shipment management, better maintenance management system.

Other actions can include: purchasing materials as needed, reducing buffers, and setting up a queue system.

MOTION

Motion is the act of moving. This includes walking, lifting, reaching, bending, stretching, and moving.

The waste in motion includes any unnecessary movement of people, equipment, or machinery. Your goal here is to decrease excessive motion while designing your new systems to enhance the work of personnel and increase their health and safety levels.

Examples of wasted motion can include workers walking to a different location for materials, files, inventory, tools, or parts, excessive mouse clicks for a simple operation, entering data in multiple locations, repetitive movements that do not add value to the customer, or constantly readjusting tool settings.

Unnecessary Motion
Any motion of people or machines that do not add value to the product or the process.

Waste of motion is any motion of man and / or equipment that does not add value to the product or service a Wasteful motion is caused by:

- Poor workstation layout - excessive walking, bending reaching
- Poor method design - transferring parts from one hand to another
- Poor workplace organisation
- Large batch sizes
- Reorientation of materials

## To counteract this waste, you can implement the following:

- **OFFICE –** Easier to access files and data, improved team communication tools, a single database for all records, paperless accounting.

- **PRODUCTION FLOOR –** Better warehouse layout, improved storage system, smarter production planning, built-in 5S audits.

Other actions can include: a better organized workspace, placing items closer to workers to decrease their added motion, and placing items in a more ergonomic position to reduce stretching and straining.

EXTRA-PROCESSING

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Extra-processing is the act of doing more than what is required.

- Any effort that doesn't add value to the product or service
- Re-work loops or work-arounds
- Redundant process steps
- Extra fields requiring unused information
- Multiple signatures
- Unnecessary completion of templates, forms, documents
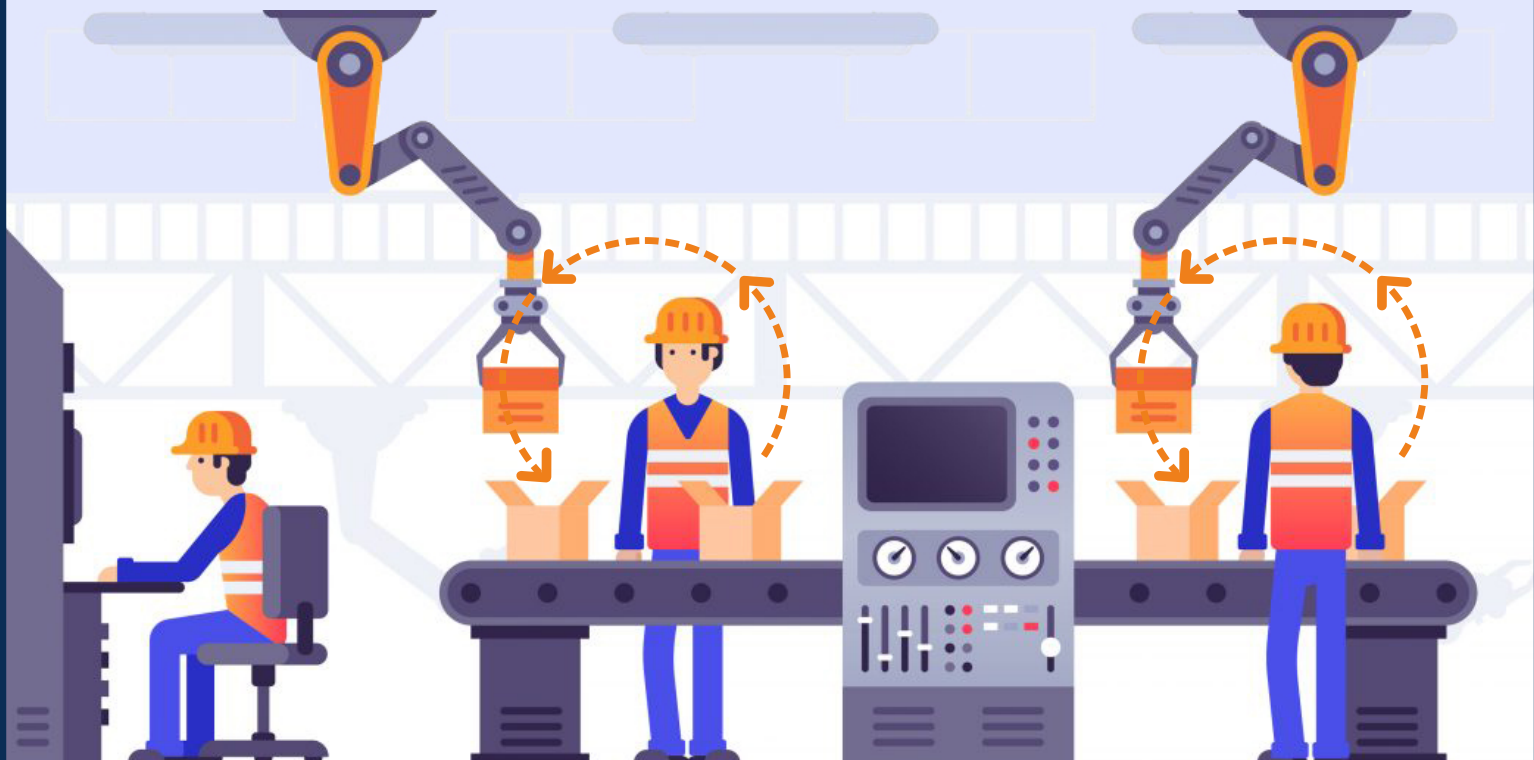
This waste can take the form of multiple versions of the same tasks, performing more work than what is required, or having more steps in a product or service than what is required.

In the office, extra-processing can include generating more detailed reports than needed, requiring multiple signatures for a document, unnecessary steps in a workflow or purchase process, re-entering data, and requiring more forms than needed. On the production floor, extra-processing includes using a higher precision than necessary, using components that exceed requirements, over-analysing a process, over-engineering a solution, making component adjustments after it has already been installed, having little or no standards, and having more functionalities in a product than requested.
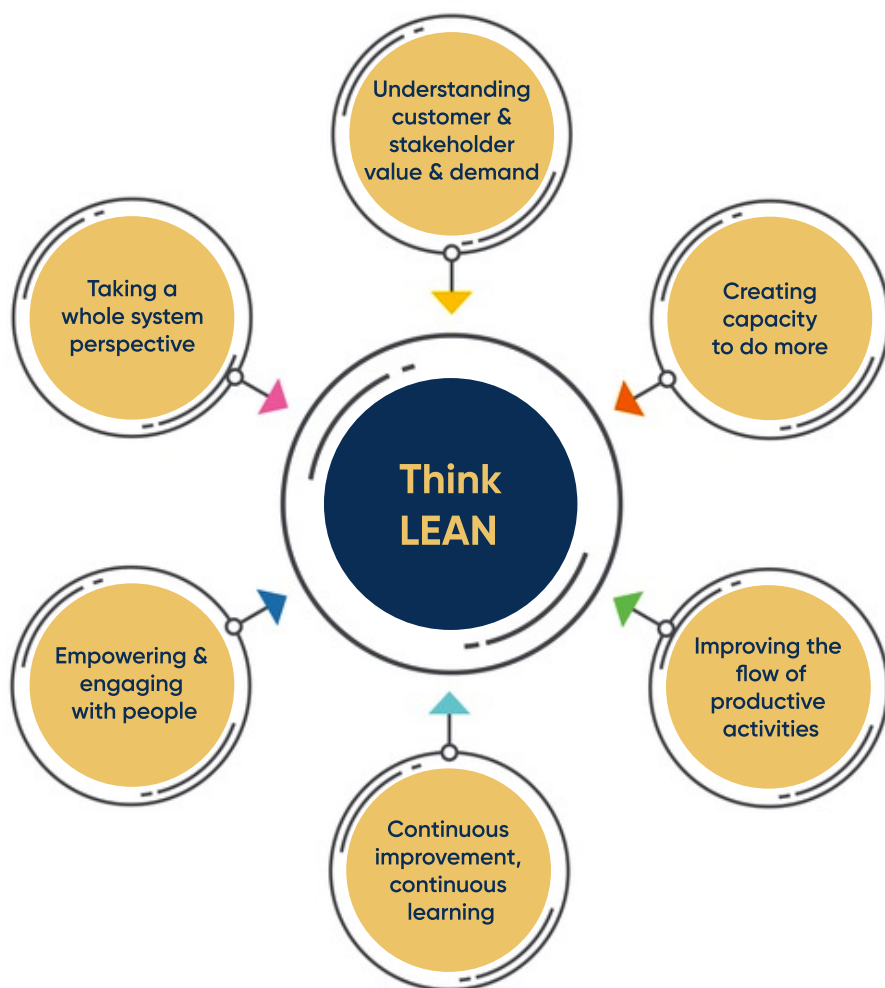
To counteract this waste, you can implement the following:

- **OFFICE –** Easier to access files and data, improved team communication tools, a single database for all records, paperless approval and sign-off, better customer request management.

- **PRODUCTION FLOOR –** Shop monitors with production entry capacity, improved engineering document and drawing management.

Other actions can include: better maintenance management.

Now you know about DOWNTIME and a bit about Muda, Mura, and Muri you are ready to move forward with good LEAN thinking.
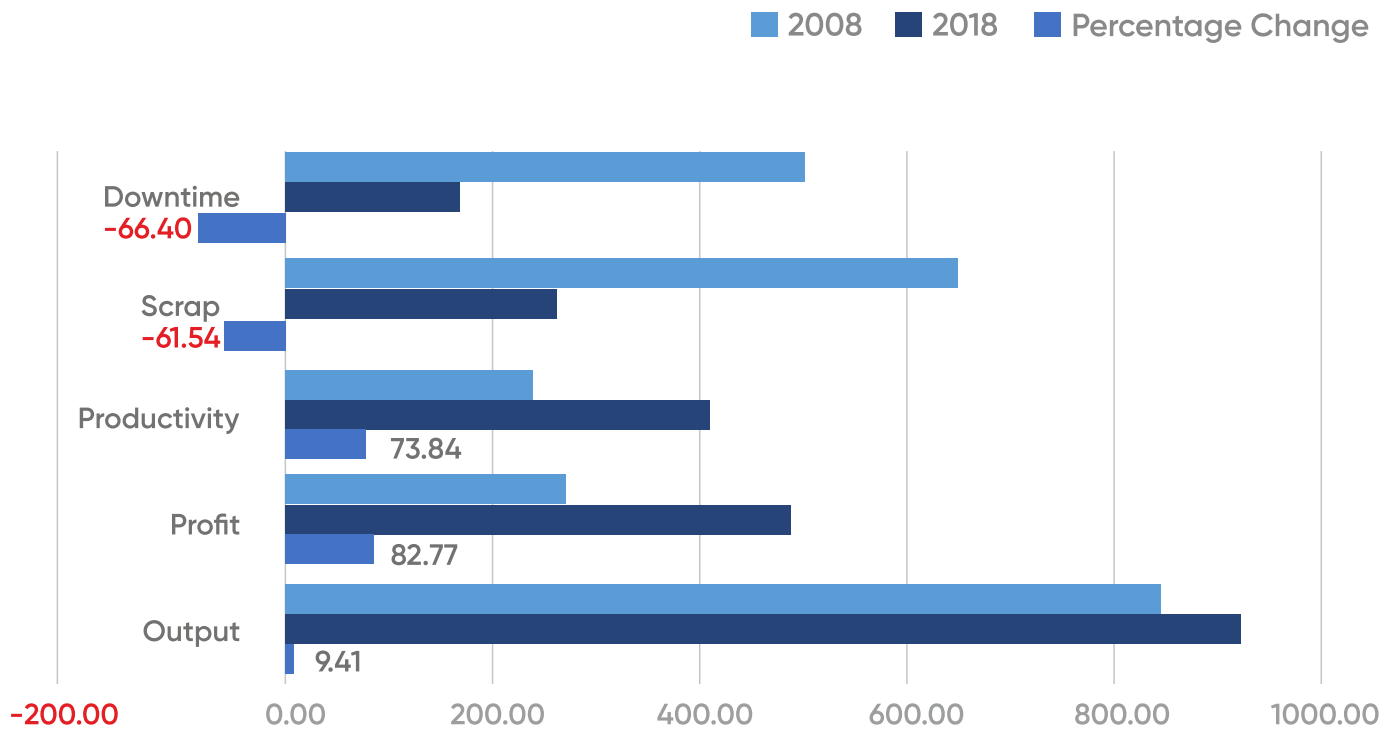
Think LEAN

Understanding customer & stakeholder value & demand

Creating capacity to do more

Taking a whole system perspective

Think LEAN

Empowering & engaging with people

Improving the flow of productive activities

Continuous improvement, continuous learning

Multiple global companies and many international companies you know of have adopted LEAN correctly and seen outstanding returns for their managerial time investment. However, a recent study, performed from 2008 – 2018 by the World Bank, implemented LEAN management ideas across 20 mid to large manufactories in India, including a follow-up after 10 years to see what improvements were felt by the corporations over that 10-year span.

The verdict? Over those 10 years, the companies saw an average increase in output, profit, and employee productivity, and a decrease in scrap and machine downtime year over year in comparison to their previous data and to their competitors that did not implement LEAN.

Corporate Improvement After LEAN

Legend: 2008, 2018, Percentage Change

Downtime: -66.40
Scrap: -61.54
Productivity: 73.84
Profit: 82.77
Output: 9.41

X-axis: -200.00, 0.00, 200.00, 400.00, 600.00, 800.00, 1000.00

Those are measured and measurable results that include manager changes and executive disengagement due to focus shifting. And over a long enough time to feel the difference.

LEAN thinking is a fundamental shift that you need to put smart solutions to common problems at the forefront of your company culture.

Your first step has been understanding what needs to be looked at. Checking reports and asking around can cut your waste and your DOWNTIME. But going at it alone with no experience in LEAN thinking can seem a mountain that is not worth climbing. Well, even the best mountain climbers in the world get help from the locals.

You need someone with the tools, processes, and expertise to put your LEAN thinking into practice for a fraction of the cost of going it alone, or hiring costly managing consultants.

Why onramp Solution is the #1 ERP for Manufacturing

FULL SUITE ERP SOLUTION - MORE VISIBILITY, MORE SAVINGS
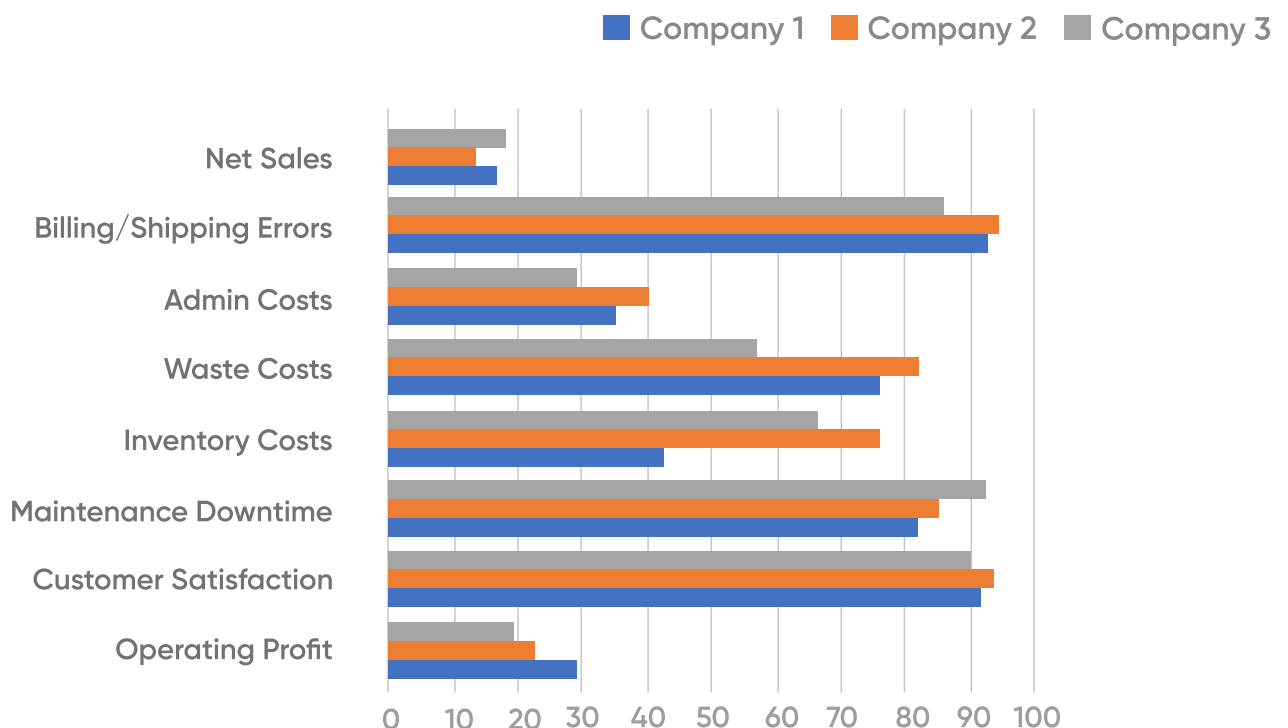
OnRamp is here to help.

OnRamp has decades of experience with LEAN thinking, automation, and process improvements that will cut your waste on all your DOWNTIME.

Backed up with the best manufacturing ERP on the market.

ELIMINATING DOWNTIME WITH ONRAMP

OnRamp knows that handling DOWNTIME can be stressful. You are maximizing what you can. OnRamp Solutions is an industry leader in applying LEAN principles to manufacturing. With our revolutionary ERP system implemented on your plant, and our production consultants to assist, we can help you cut down your waste with better processes, streamlined workflows, and smart automation.

Company Improvement Post ERP

Chart legend: Company 1, Company 2, Company 3

Categories (top to bottom): Net Sales, Billing/Shipping Errors, Admin Costs, Waste Costs, Inventory Costs, Maintenance Downtime, Customer Satisfaction, Operating Profit

X-axis: 0 10 20 30 40 50 60 70 80 90 100

Where OnRamp Helps You

OnRamp is a single point database ERP system that was designed from the ground up to touch all your business units and improve their processes and communication with each other **while decreasing DOWNTIME**. Here are some of the things that OnRamp can help you improve:

⬡ **PRODUCTION FLOOR:**

Shop monitors with production entry capacity	Engineering document and drawing management	Warehouse management system
Storage system management	Production planning	Work order management

5S audits	Inventory management	Shipment management
Maintenance management, including preventative maintenance management	Worker skill management	Plant issue/ suggestion tools
Detailed capacity planning	Gateway queues	Work center scheduling
Online inspection software	Task automation	Quality management system
Scrap management	Quality alerts	MRP
Order policy suggestions	Finite scheduling	EOQ calculations

🔶 OFFICE:

A single database for all records	Paperless approval and sign-off	Customer request management
Easy to access files and data	Team communication tools	Paperless accounting
Lead time and inventory management	Vendor relations portal and management	Customer relation management
Project management and approval	Training and skills gap analysis	Notification systems
Server run software with a locally installed shell	Customizable reports and documents	