

Introduction to Lean Six Sigma

Learning objectives:

1. Understand the fundamentals of Lean and Six Sigma.
2. Understand the importance of improving productivity by eliminating waste and variability.
3. Learn how to successfully implement and manage Lean Six Sigma philosophy, tools, and methodologies.
4. Develop a leadership mindset and become a change agent in establishing the structure needed to achieve impactful results.

Content

- I. Background
- II. Business Development Model
- III. What is Lean and Six Sigma?
- IV. Benefits
- V. Implementation Process
- VI. Change Management
- VII. Structure and Roles
- VIII. Leadership



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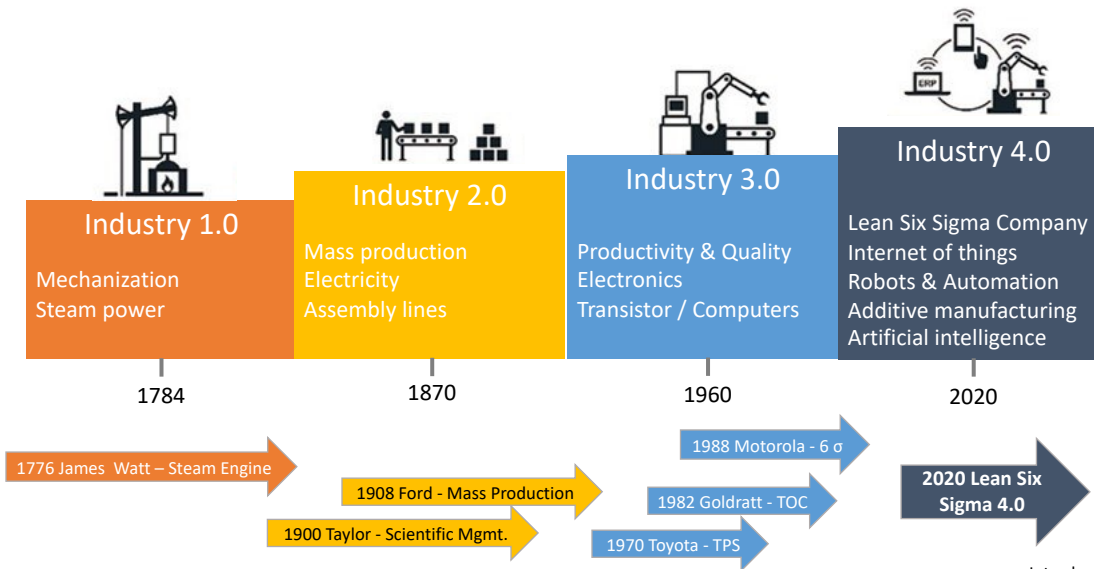
**“When the winds of change blow, some people build walls
and others build windmills.”**

- Chinese Proverb



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I. Background



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Attention!

Many companies continue to encounter:

- Slow delivery of products and services
- Constant customer complaints
- Inconsistent quality
- Poor customer service
- High costs and prices
- Poor internal communication

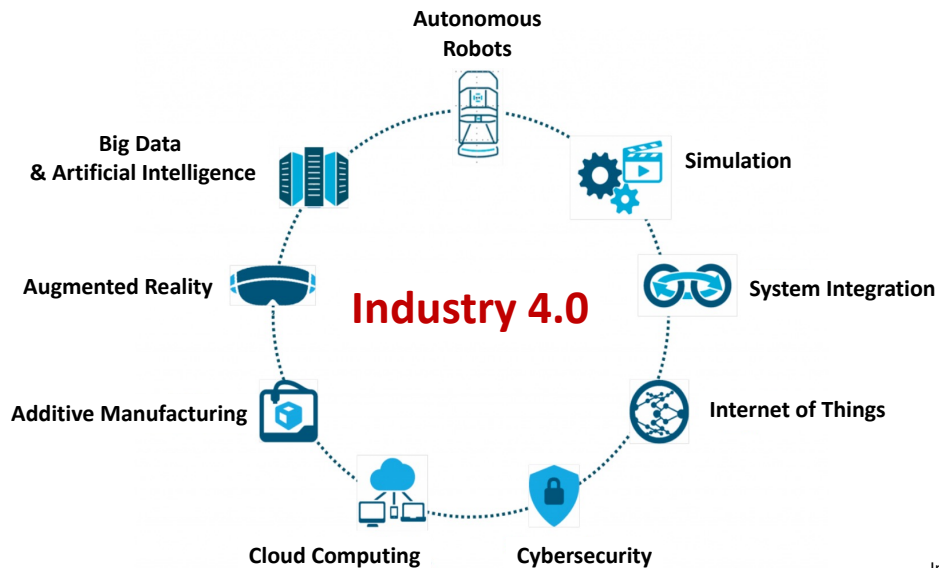
THESE COMPANIES ARE DESTINED TO VANISH!

“It’s not the big that eat the small...it’s the fast that eat the slow.”

Jason Jennings

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Industry 4.0 elements



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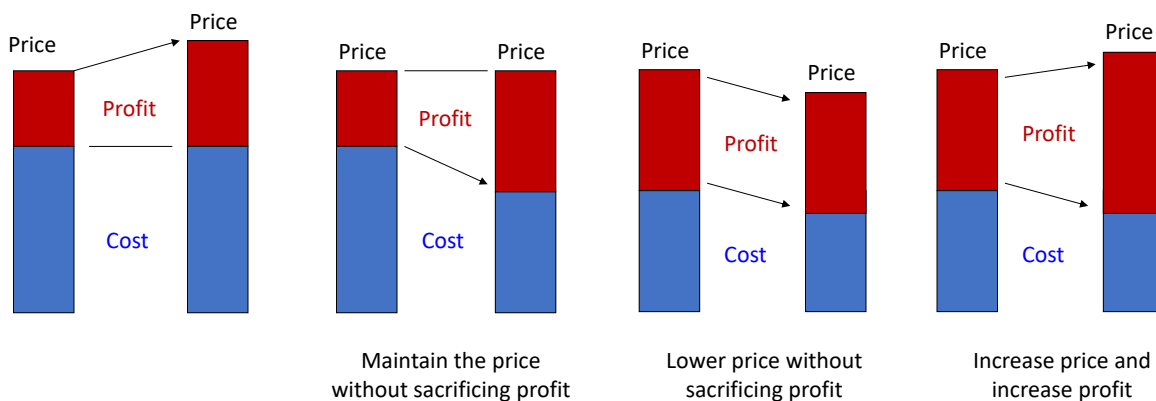
Which model represents your business?

Traditional Thinking

Lean Six Sigma Thinking

$\text{Cost} + \text{Profit} = \text{Price}$

$\text{Price (fixed)} - \text{Cost} = \text{Profit}$



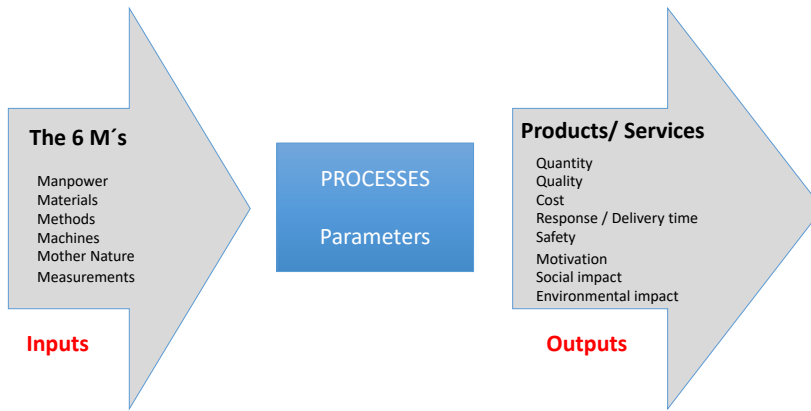
The key to increasing profits: **reduced costs & increased revenues**

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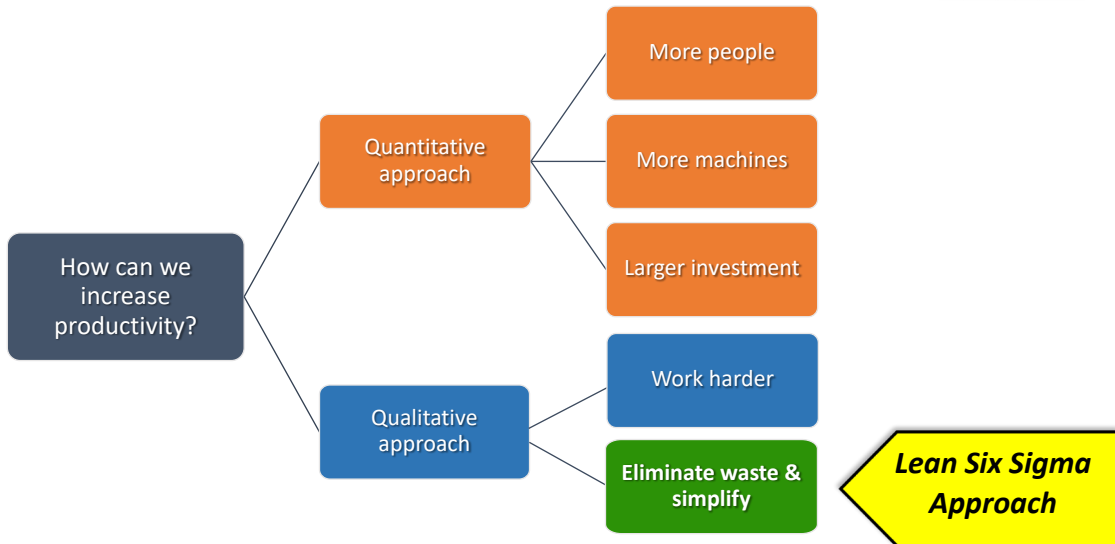
Productivity and its limitations



$$\text{Productivity} = \frac{\text{Outputs}}{\text{Inputs}} = \frac{10,000}{\$10,000} = \frac{20,000}{\$5,000}$$

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Methods to increase productivity



Let's work smart!

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Limitations to Productivity

Muri Overburden

- Overbearing tasks
- Work related stress
- High-risk tasks

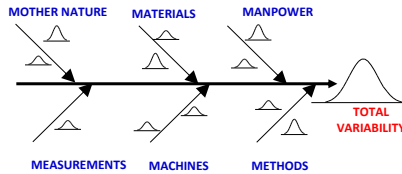
Mura Variability

Total Variability

- The variation that results from all process inputs

Muda Waste

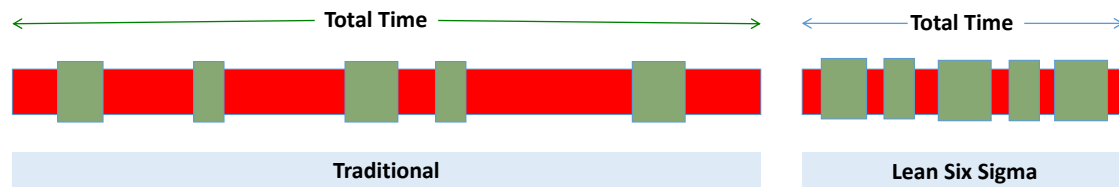
- Overproduction
- Excess inventory
- Defects and Rework
- Unnecessary movements
- Overprocessing
- Waiting and Searching
- Transport
- Waste of energy
- Non-utilized talent
- Contamination / Pollution



Lean Six Sigma reduces non-value-added time

Eliminate overload, variation, and waste

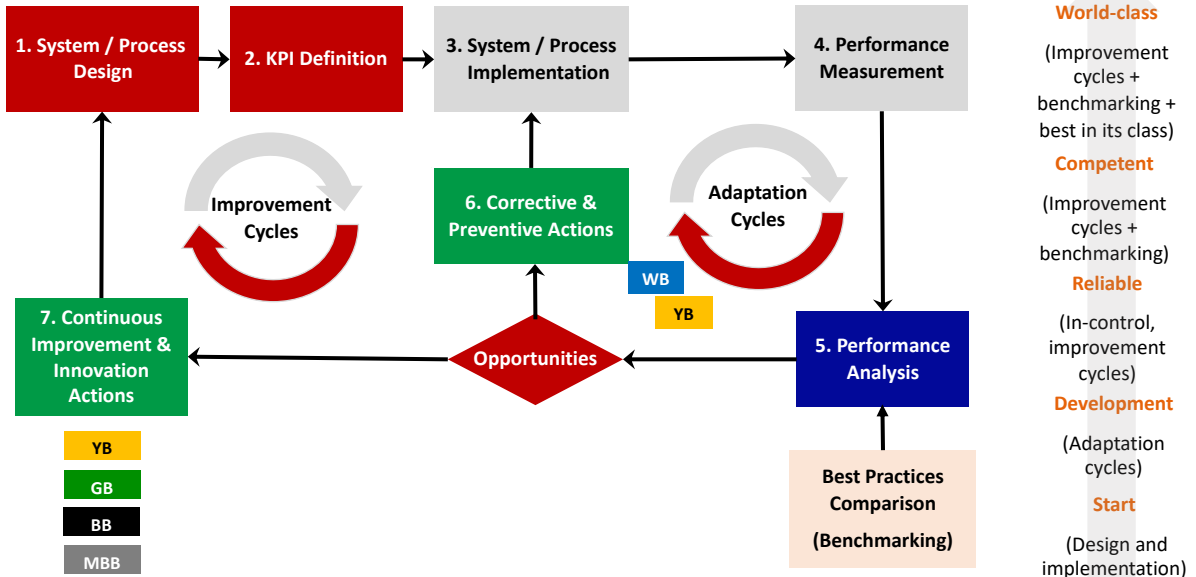
- Non-value-added time
- Value-added time



Reduce: Time, costs, defects, inventory, space, waste.

Increase: Productivity, customer satisfaction, quality, cash flow.



II. Business Development Model



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III. What is Lean & Six Sigma?

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- **Lean = Speed**
Improves flow by eliminating waste

TOYOTA
- **Six Sigma = Quality**
Improves the process by reducing variation

Motorola



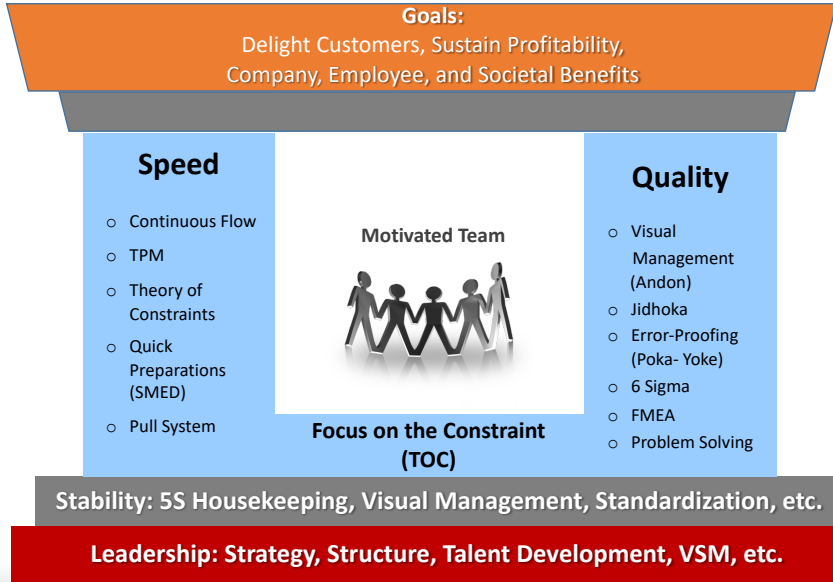
 **Toyota Production System**

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Lean Six Sigma Model



Source: Lean Company by Luis Socconini

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IV. Benefits



Hard Savings

- Reduce costs
- Increase profit
- Increase demand
- Reduce inventory
- Timely response and delivery
- Increase productivity
- Improve cash flow
- Improve quality
- Reduce defects and rework
- Improve space utilization



Soft Savings

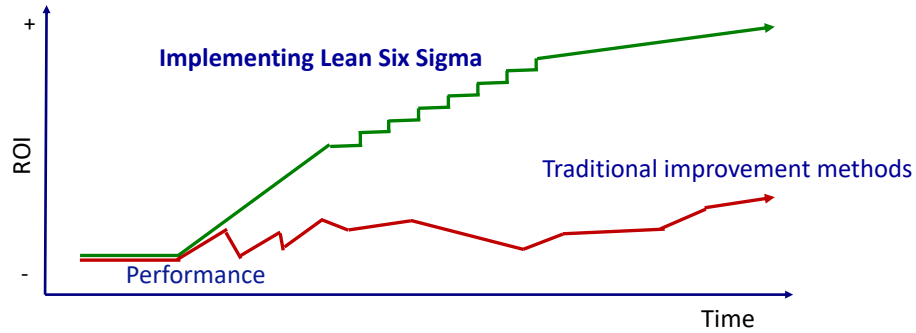
- Improve communication
- Improve customer and employee satisfaction
- Reduce employee turnover
- Improve safety / Reduce risks
- Build a culture of continuous improvement
- Improve decision-making

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Benefits of Lean Six Sigma vs. other methodologies



Lean Six Sigma = Breakthrough Results

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Lean Six Sigma is applied throughout the company



LEAN SIX SIGMA COMPANY												
Upper Management	Human Resources	Research & Development	Sales & Marketing	Accounting & Finance	Procurement	Service	Manufacturing	Maintenance	Logistics	Quality	IT	
<p>STRATEGIC TOOLS</p> <ul style="list-style-type: none"> Hoshin Kanri Value Stream Structure Value Stream Map Talent Development Agile Project Management Standard Work for Leaders Kata Gemba Walks 												
<p>Strategic Tools</p> <p>All areas use management tools to define, execute and follow up on strategies.</p>												
<p>BASIC TOOLS</p> <ul style="list-style-type: none"> 5S Housekeeping Visual Management (Andon) Standardize Work Personal (Self) Management 												
<p>Tactical Tools</p> <p>All areas use basic tools to support identification, development and sustainment of improvements.</p>												
Upper Management	Human Resources	Research & Development	Sales & Marketing	Accounting & Finance	Procurement	Service	Manufacturing	Maintenance	Logistics	Quality	IT	
Planning	Talent Attraction	Product Development	Mktg. Campaigns	Budget Cost Acct.	Supplier Development	Lean Service	Lean Manufacturing	Autonomous	Incoming Warehouse	Quality Deployment	Hardware	
Strategic Mgmt.	Talent Development	Lean Startup	Surveys	Inventory Payroll	Purchasing			Preventive	Routing Loading	Quality System	Software	
Decision Making		Design for Six Sigma	Pricing	Acct. Payable	Warehouse			Predictive	Transportation	Calibration	Communication	
			Lean Retail	Financial Statements				Energy			Help Desk	

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Lean Six Sigma benefits industries of any type and size



- Food & Beverage
- Electronics
- Metallurgy
- Services
- Automotive
- Government
- Agriculture

- Pharmaceutical
- Banking
- Hospitality
- Healthcare
- Construction
- Cosmetics

- Plastics
- Lubricants
- Logistics & Customs
- Education
- Footwear
- Textile
- Printing
- Foundry

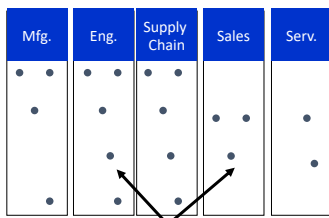
LEAN MANAGEMENT WHITE BELT YELLOW BELT GREEN BELT BLACK BELT MASTER BLACK BELT

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Traditional vs. Lean Six Sigma

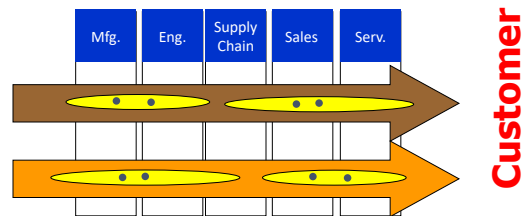


Traditional



Isolated projects by departments

Lean Six Sigma

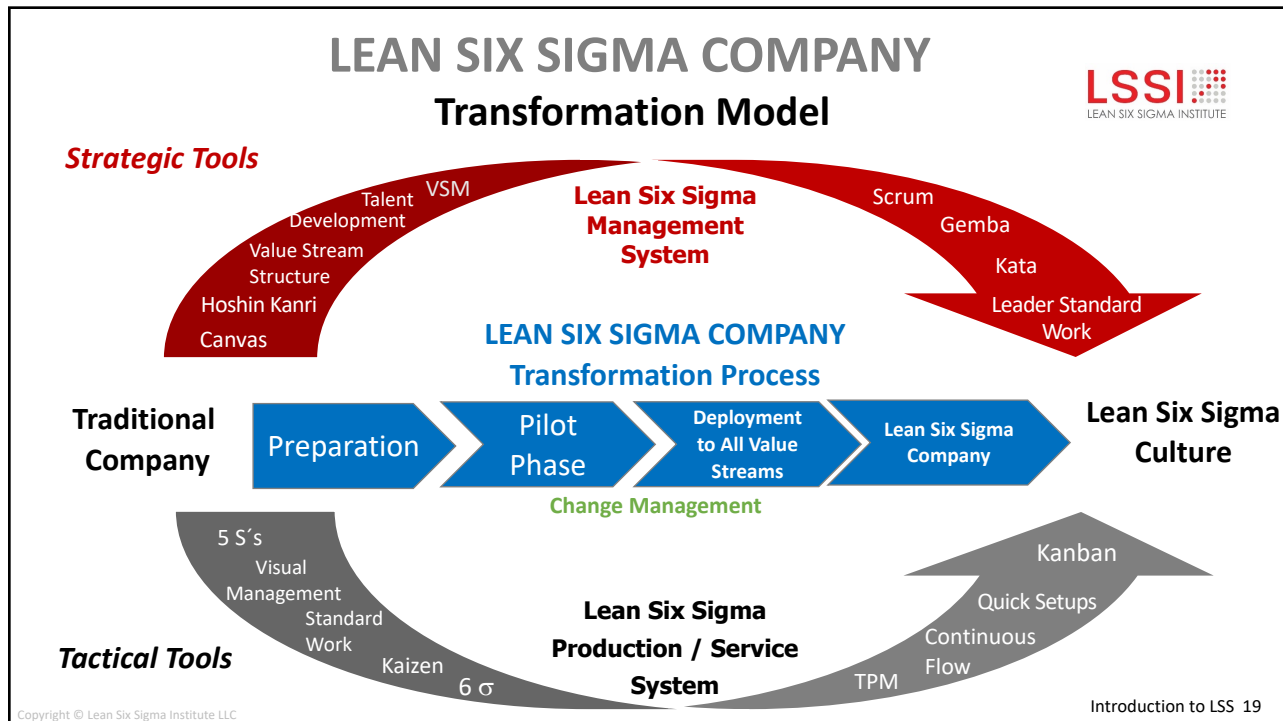


High-impact projects in the value stream or service family

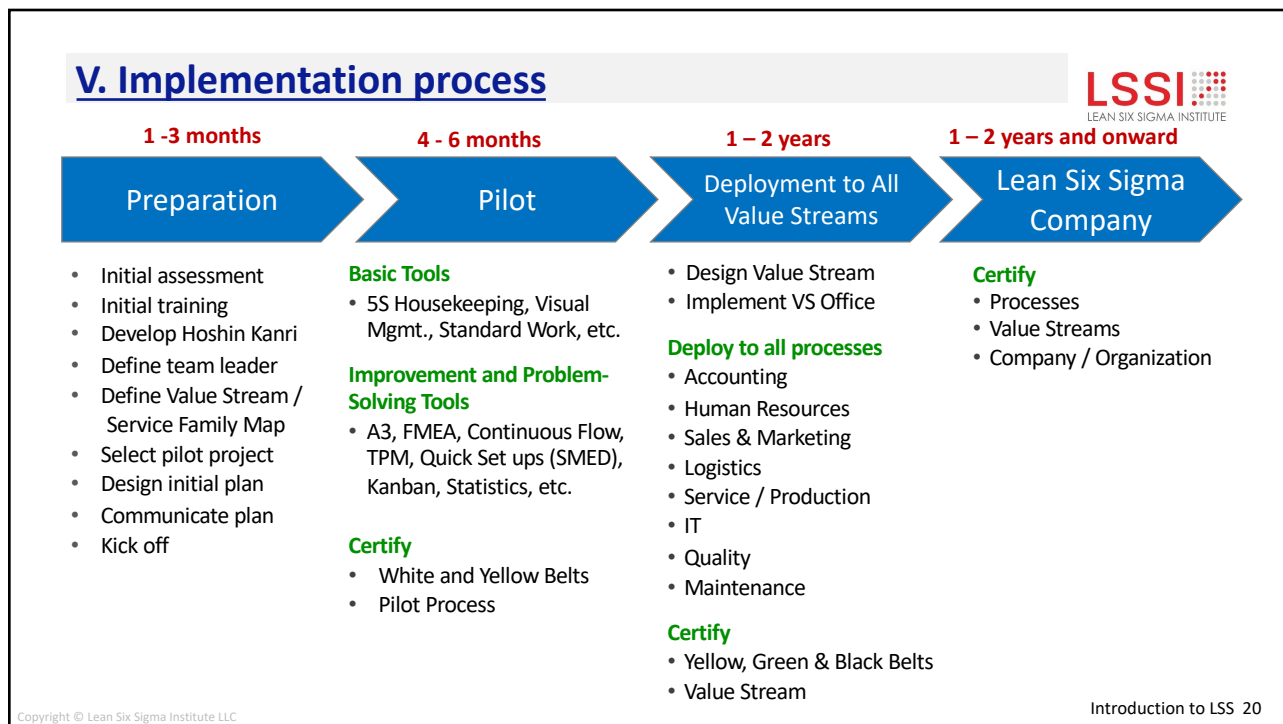
*"If I could change the way we implemented it,
I would have started with Lean and then Six Sigma."*

Jack Welch, Ex-CEO GE

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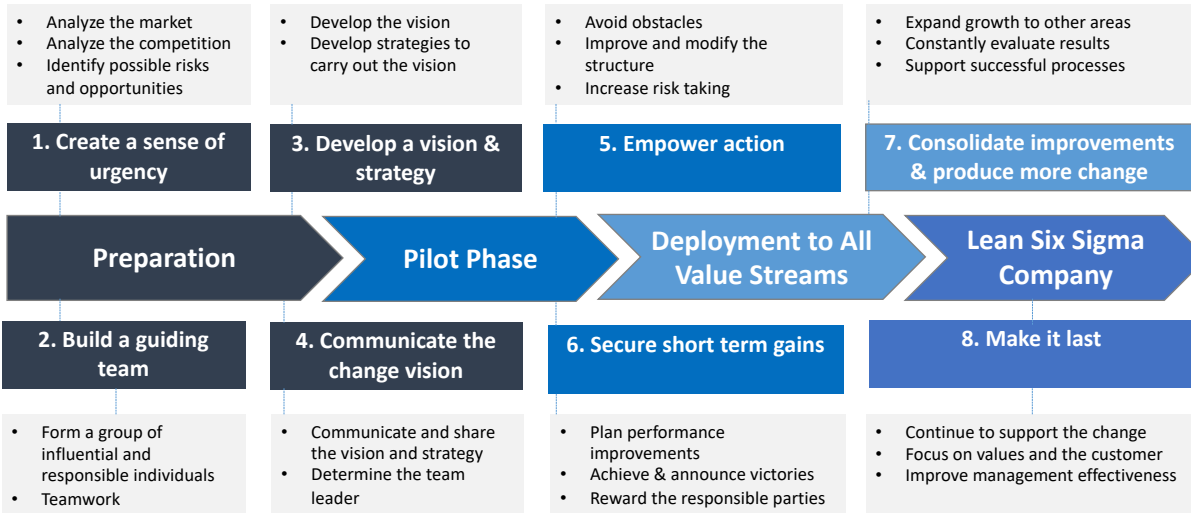


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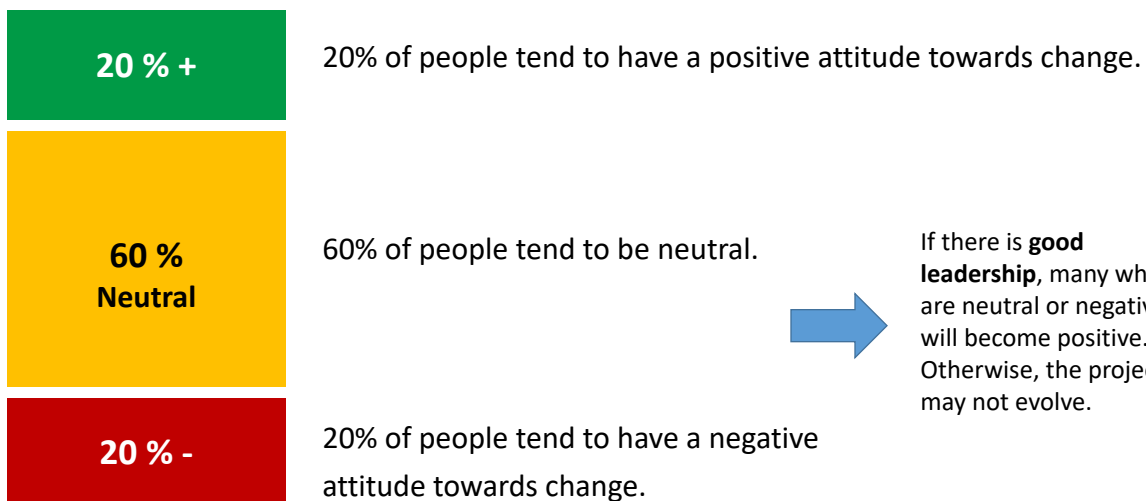
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VI. Change Management - John Kotter (Work with the People)

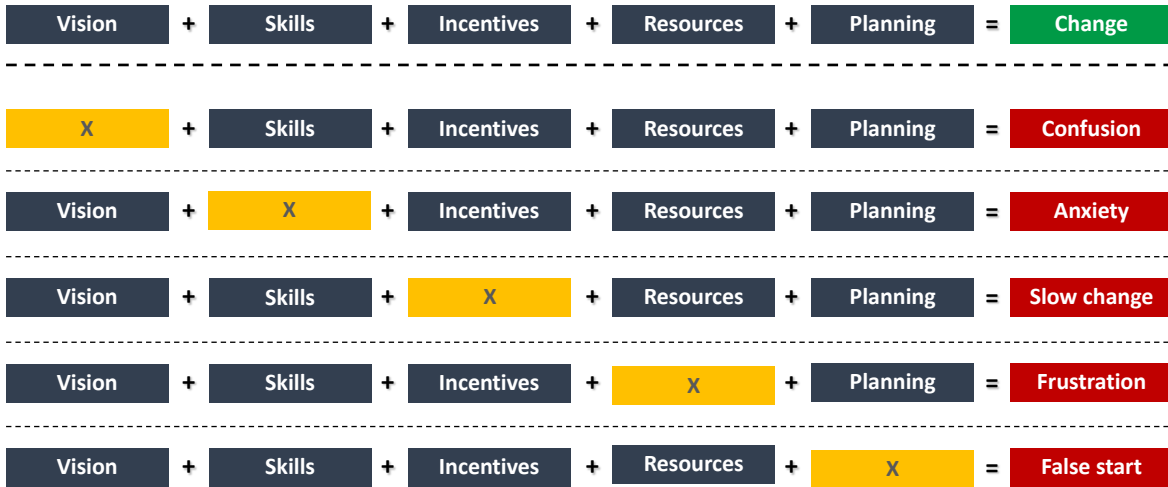


Resistance to change

It has been proven that when facing projects:



Why some companies can and others cannot?



Lean Company Certification

There are four certification categories:

1. People Certification

Training and certification as:

- White Belt
- Yellow Belt
- Green Belt
- Black Belt
- Master Black Belt

2 projects per year

2. Process Certification

- Evaluate if the processes meet the requirements.
- Make sure that the methods are supported and the tools work.

2 evaluations per year

3. Value Stream Certification

All value stream processes have achieved a certain level of progress and people are exercising the correct habits.

2-4 evaluations per year







4. Company Certification

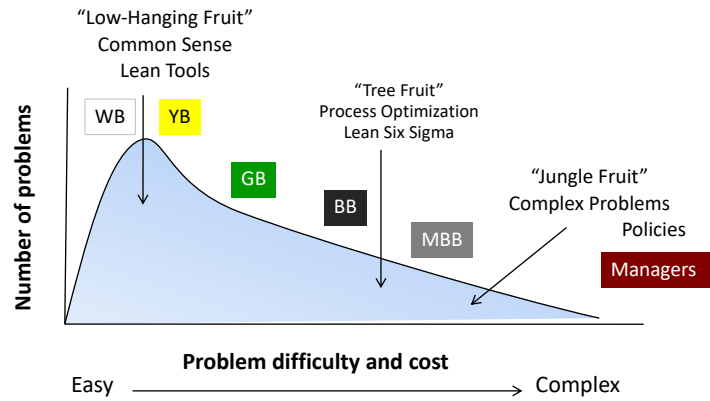
The company has a Lean / agile management culture and a leadership team that makes decisions based on facts and data.

2 evaluations per year

Certification levels

CERTIFICATION ACCUMULATIVE

	Lean Champion	8 hrs.
	White Belt	8 hrs.
	Yellow Belt	40 hrs.
	Green Belt	80 hrs.
	Black Belt	120 hrs.
	Master BB	160 hrs.



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VII. Lean Six Sigma roles

					
CHAMPION LSS Management	WHITE BELT	YELLOW BELT	GREEN BELT	BLACK BELT	MASTER BLACK BELT
Responsible for budget and resources	Project Team Member	Lean Practitioner	Small Project Leader who provides specific support	Project Leader & Coach	Experienced Implementation Expert and BB coach
Lean Six Sigma Project Sponsor	Practices the basic tools every day as part of his/her work	Ensures philosophy is sustained on a daily basis	Ensures sustainability in his / her area of responsibility	Ensures correct implementation for the value stream	Expert in practicing Lean Six Sigma throughout the company and supply chain
Leaders	100%	20 – 50%	10- 20%	1 – 3%	1 %

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Lean Six Sigma Structure



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VIII. Lean Six Sigma requires Leaders



BOSS

- Manages employees
- Depends on authority
- Inspires fear
- Says "I"
- Places blame for breakdowns
- Knows how work is done
- Uses people
- Takes credit
- Commands
- Says "Go"



LEADER

- Coaches employees
- Has goodwill
- Generates enthusiasm
- Says "We"
- Fixes the breakdowns
- Shows how it is done
- Develops people's talent
- Gives credit
- Asks
- Says "Let's go"

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Conclusion

"No organization, large or small,
local or global, is immune to
change."

"To address new technological,
competitive, and demographic
forces, leaders from all sectors are
trying to fundamentally alter the
way their organizations do
business."

John P. Kotter

