Integrating Six Sigma and Lean for better results

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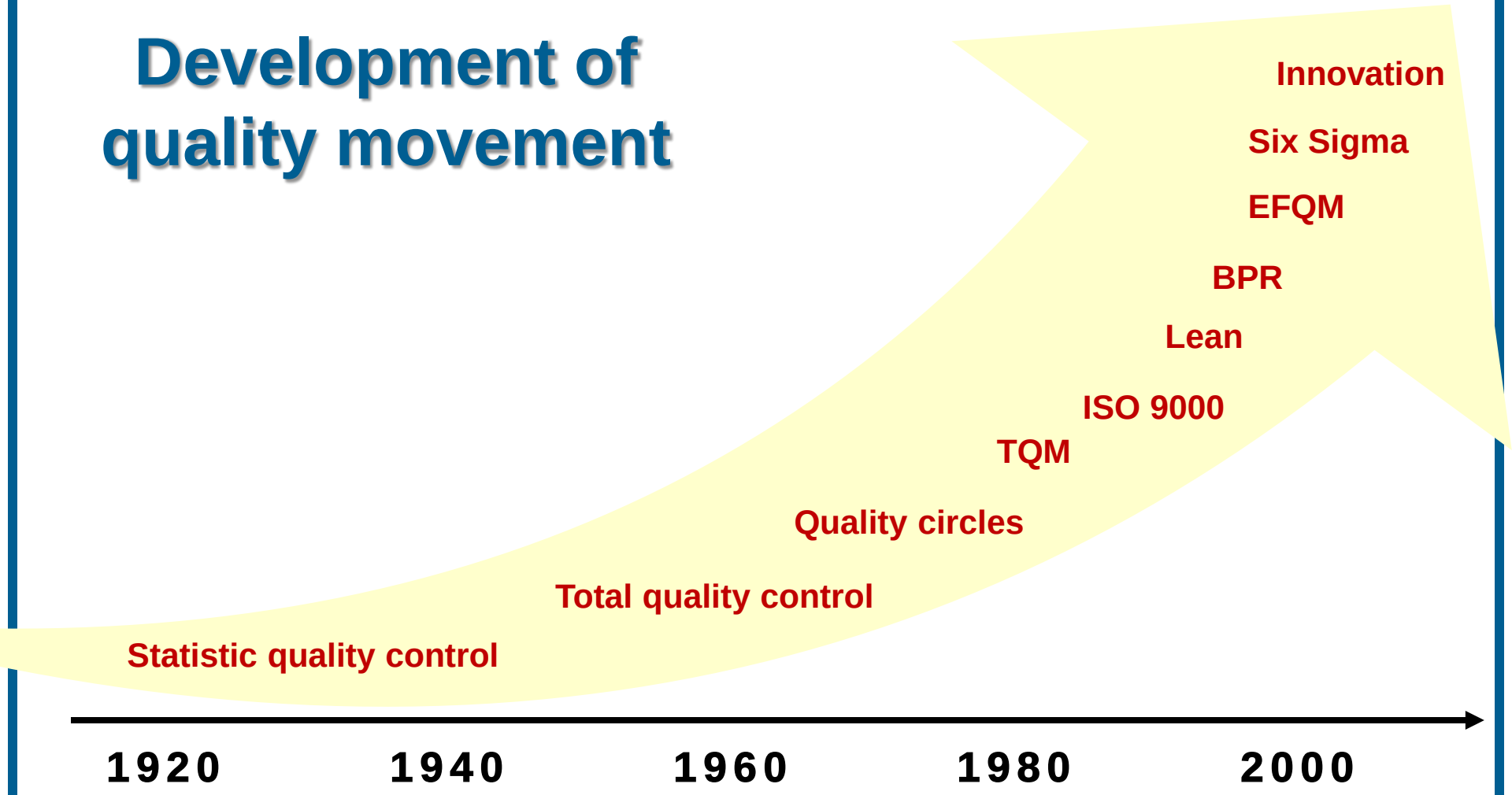
Development of quality movement



An *evolution* not a revolution!

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Continuous Improvements

Satisfied customers

Effective processes

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Poor Quality Costs

Rework

Scrap

Complaints

Extra work

Failure analysis

Capital cost

Inspection and testing

Down time

Inefficiencies

Re-design

Delays

Lost time

Lack of essential technique

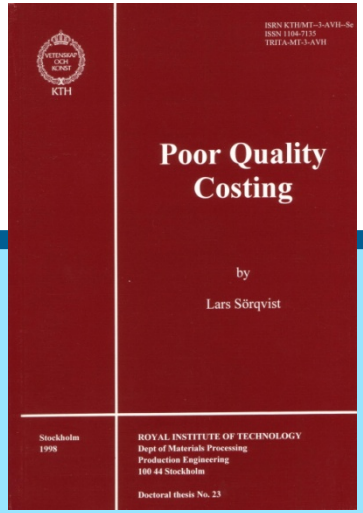
Lack of planning

10-40% of total turnover could be measured

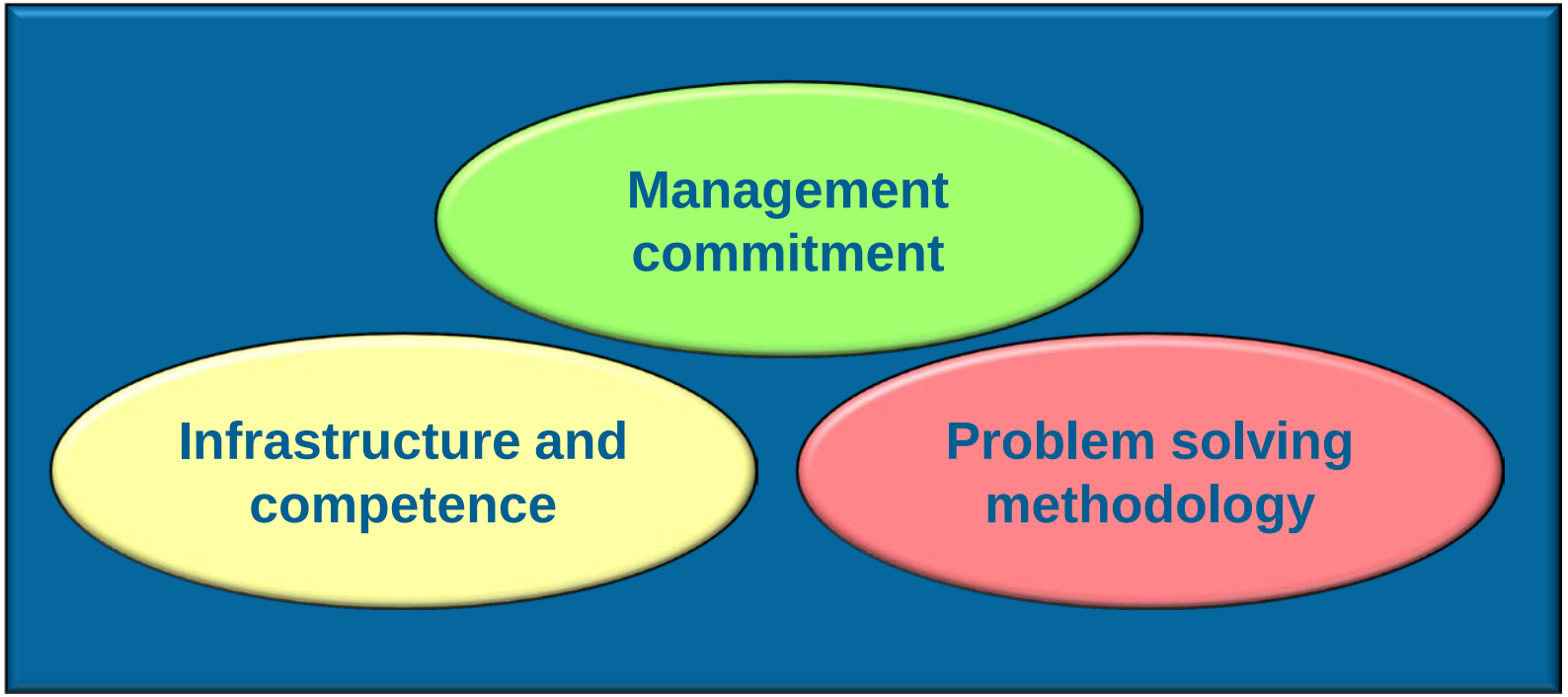
Customer dissatisfaction

Badwill

Lost sales



Continuous improvements



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Important management tasks

- Identify needs for improvement
- Select and give priority to important improvements
- Plan, give resources and start projects
- Follow up on-going projects and ask for results
- Deal with attitudes and resistance to change
- Lead implementation and focus on results
- Final reporting, replication and communication of success stories
- Develop an improvement culture in the organization
- Organize, lead and give priority to continuous improvements

Infrastructure

Managers responsible for improvements

Initiate, control and follow up improvement work

Steering role

Supporting role

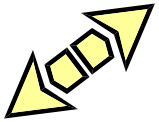
Executing role

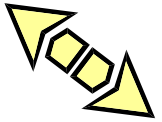
Employees in improvement projects

Solves problems and take actions

Qualified specialists and coaches

Support managers and project teams





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Six Sigma is a ***systematic improvement concept*** based on a defined ***role structure***, a ***common project model*** (DMAIC) and deep competence about many ***powerful problem solving tools***

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Six Sigma roles

	BB-projects	GB-projects	Daily improvements
Sponsor/ Champion	Principal	Principal	Principal
Master Black Belt	Coach	-	-
Black Belt	Project manager	Coach	-
Green Belt	-	Project manager	Coach
Employees	Project member	Project member	Project manager/member

DMAIC

THE DMAIC METHODOLOGY				
DEFINE	MEASURE	ANALYZE	IMPROVE	CONTROL
Define the project goals and scoop	Define information need	Identify all possible causes	Generate possible solutions	Identify need for control
Define financial impact and business case	Identify Critical to Quality (y) and all inputs (x)	Identify root causes	Prioritize solutions	Standardize the process and new way of working
Develop high level process map (SIPOC)	Define and analyze demands and specifications	Analyze root causes and develop understanding	Validate and test solutions	Implement control and follow up
Identify customers and define voice of the customers	Develop a suitable data collection method	Validate results	Develop execution plan	Analyze results and benefits
Create project charter	Analyze and test measurement system		Implement solutions	Share experiences
	Establish baseline and collect data		Check results and effects	Finalize project report and presentation

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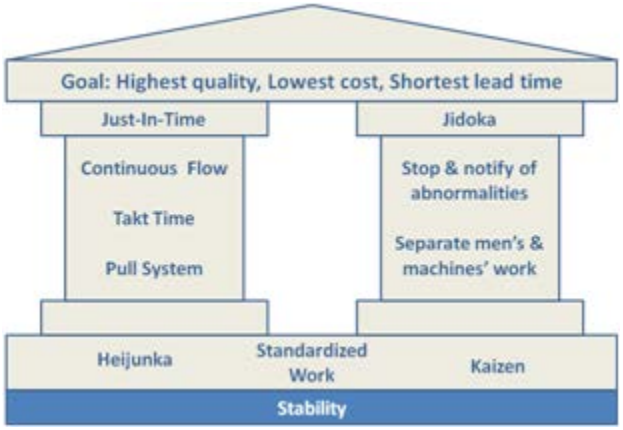
Lean is a *new way* to see, run and manage a business based on *effective, fast and flexible* processes that delivers nothing but a continuous flow of *value* controlled by the *customers needs*



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The way to a Lean

1. Specify the **customer value** of the product
2. Identify and **analyze the value adding process** and **remove waste**
3. Create a process with a **balanced continuous flow**
4. Let the demands of the customer "**pull**" the flow
5. **Mistake-proof** and **standardize** the process
6. **Continuous improvements** towards excellence

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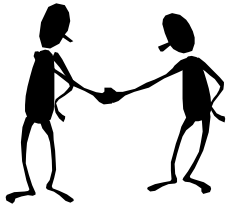
Similarities



- Management focus
- Process focus
- Customer focus
- Elimination of waste and failures
- Continuous improvements
- Development of competence and learning

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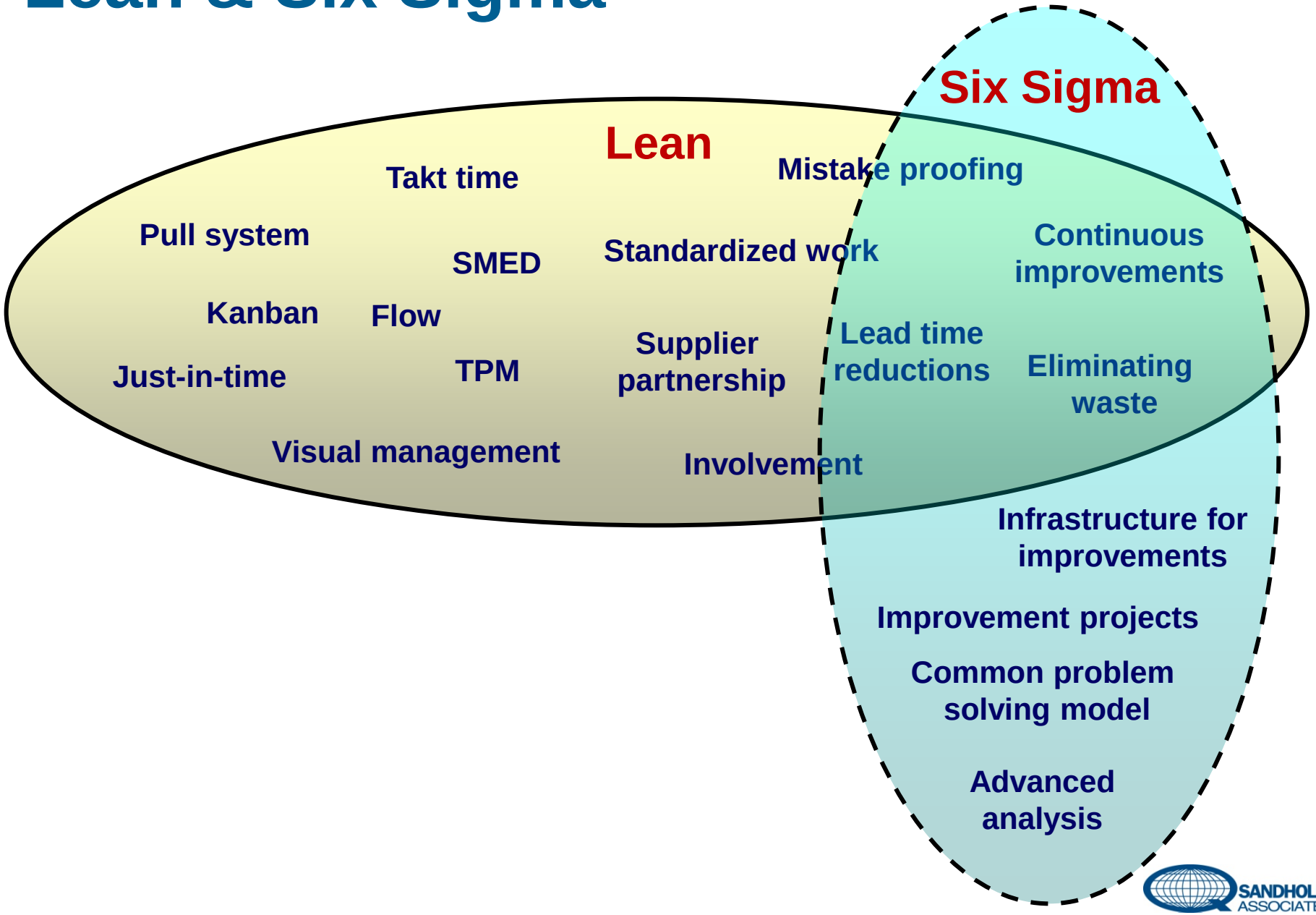
Strong sides of Lean and Six Sigma

Lean	Six Sigma
+ Flow and process development	+ Problem solving
+ Employee participation	+ Distinct leadership
+ Cultural change	+ Strategic result focus
+ Strong philosophy with resolute principles	+ Clear role structure, common methodology and many tools
+ Focus on quality	+ Financial focus
+ Local improvement teams	+ Cross-functional improvements

Lean & Six Sigma



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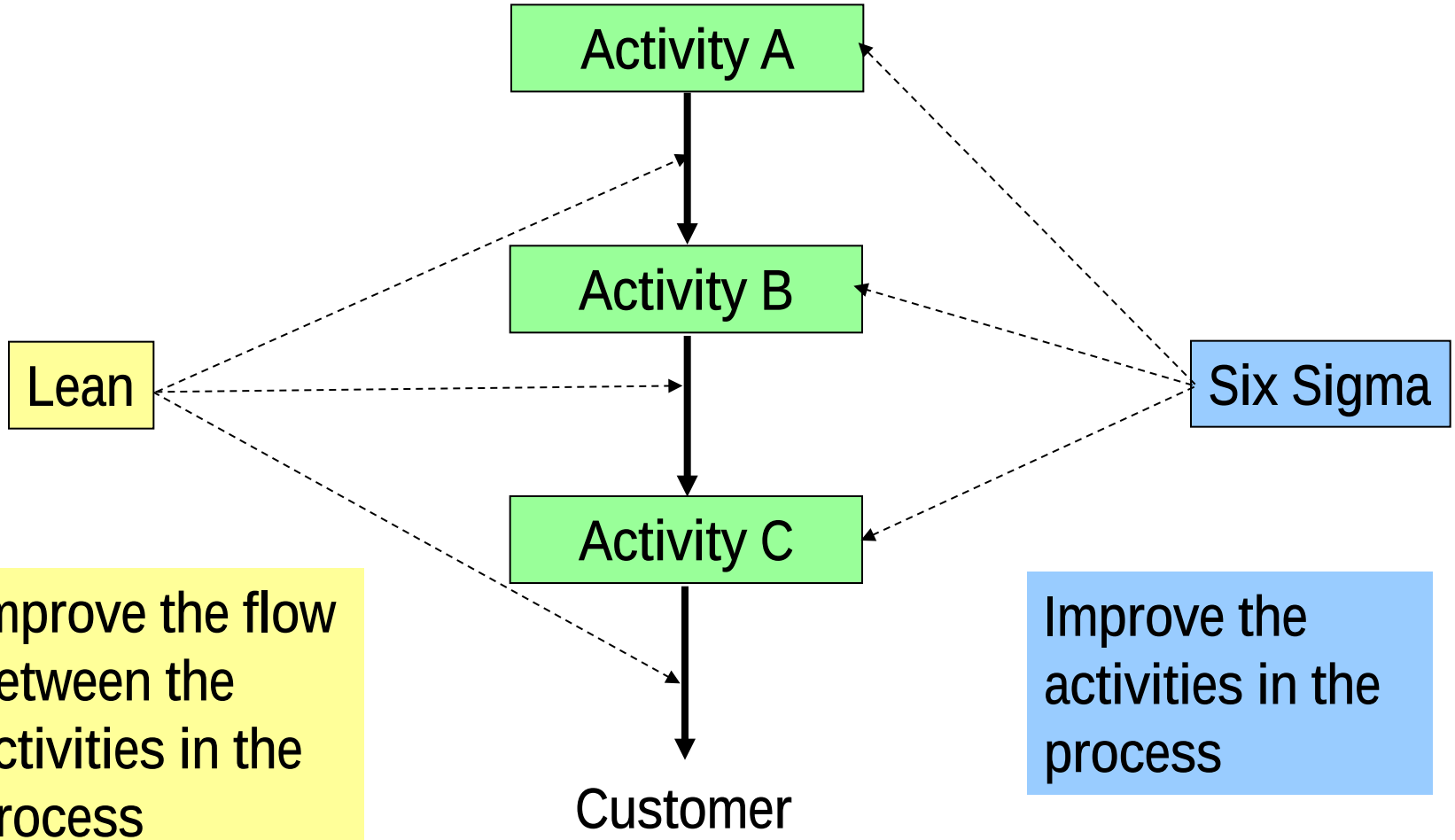
Lean & Six Sigma



Inspired by Ronald Snee

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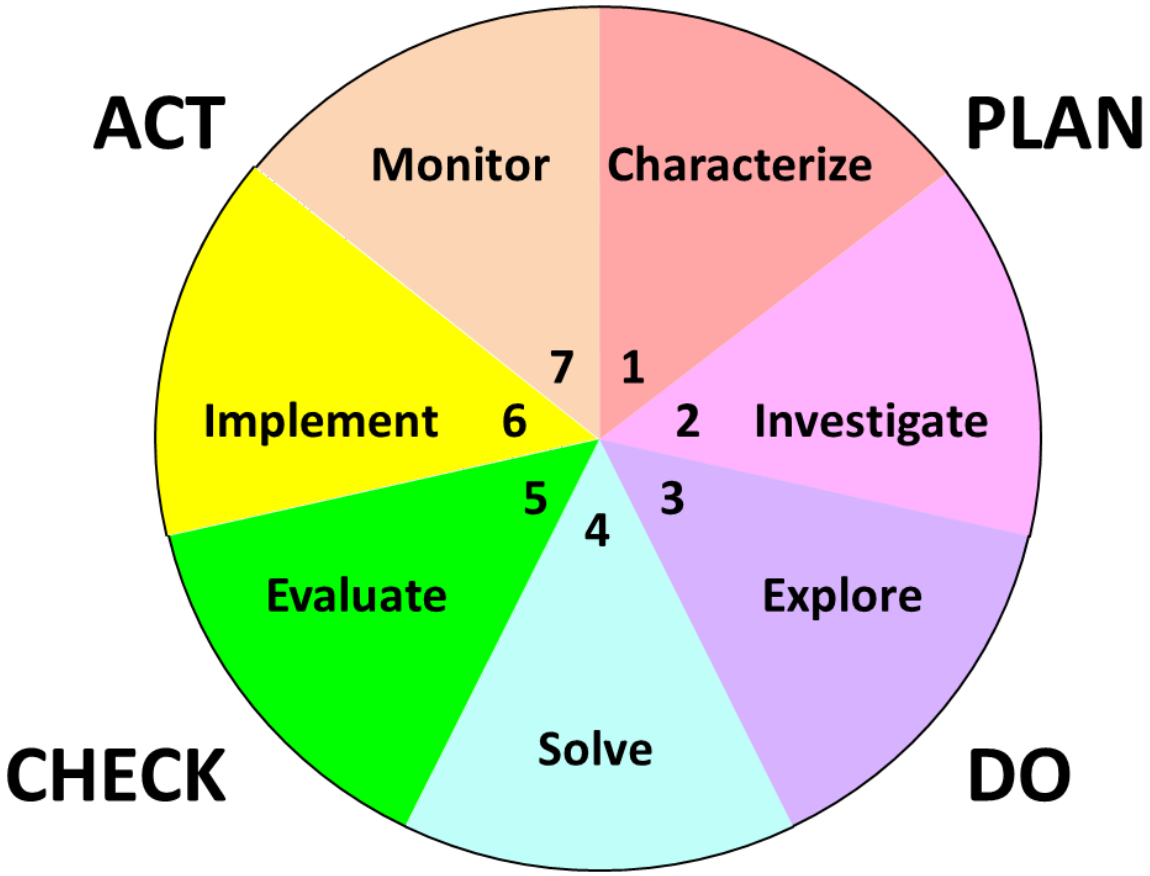
What does Lean give Six Sigma?

- Improvements based on a cross functional perspective
- Value stream mapping for process development
- Process thinking and focus on lead time
- Fool-proofing
- 5S and standard work
- Focus on cultural change and participation

What does Six Sigma give Lean?

- An infrastructure for problem solving and improvements
- Focus on results
- Focus on verifying results
- Problem solving based on facts
- Tools for problem solving
- Management perspective on improvements
- Process stability and control of variation

Structured Improvement for the 21st Century:
A New Model from Europe



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