



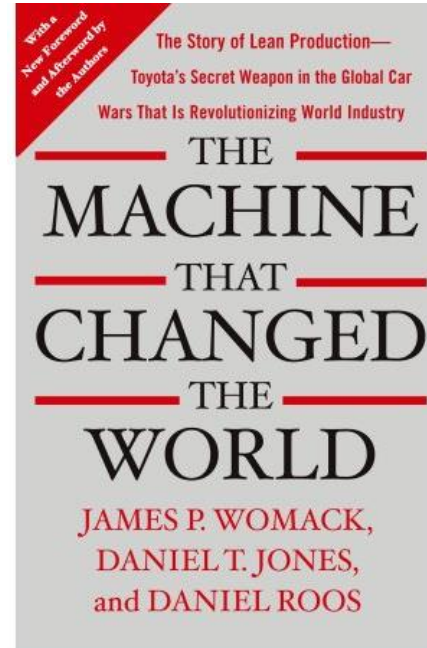
# Lean Thinking & Practice for China

**John Shook**  
**Lean Enterprise Institute**  
**Lean Global Network**  
**Spring 2019**



# “LEAN”

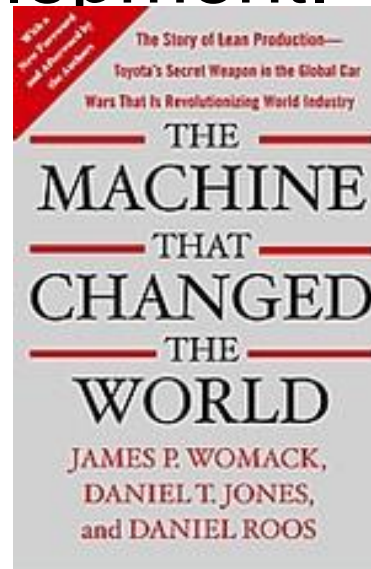
- MIT Global Research – “Machine That Changed the World”
- Lean Production
- Toyota Production and Management System





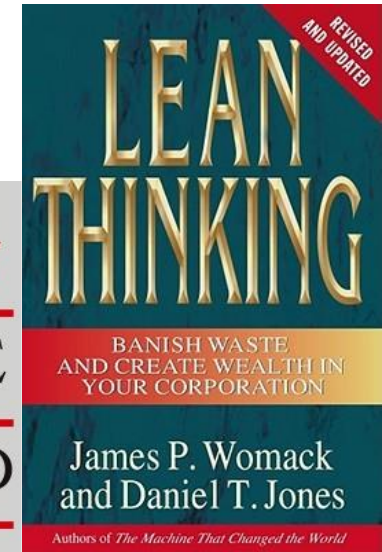
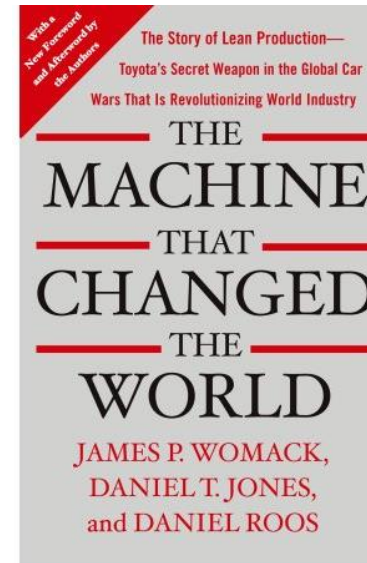
# Interlocked Management Innovations

- Product and process development.
- Supplier management.
- Customer management.
- Fulfillment, order through production to delivery.
- General management.



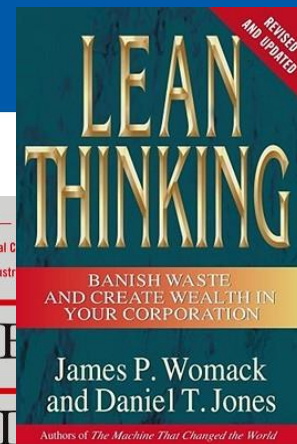
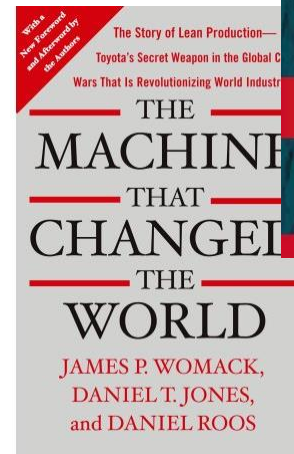
# Since “Machine” and Lean Thinking

- Global Auto Industry
- Discrete Manufacturing
- Process Industries
- Healthcare
- Service Sectors
- Construction
- Knowledge Work

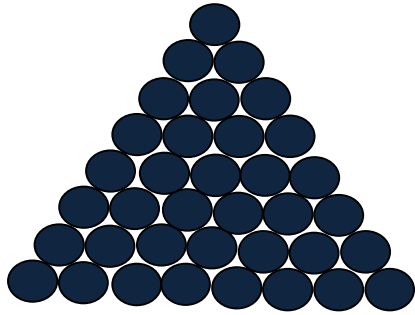


# China Business Climate in 2019

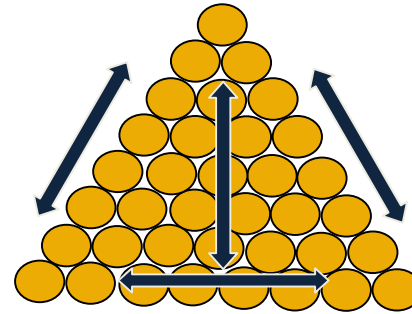
- Changing Global Conditions
    - Political Instability
    - Trade Friction
    - Competitiveness
  - Changing Domestic Conditions
    - Local Market Growth
    - Maturity of Organizations
      - Growth requires more than “business as usual”
- The need for complete Lean Business Systems
- Stability
  - Innovation



# Transforming Your Organization – How?



**FROM TODAY'S  
AS-IS CONDITION...**

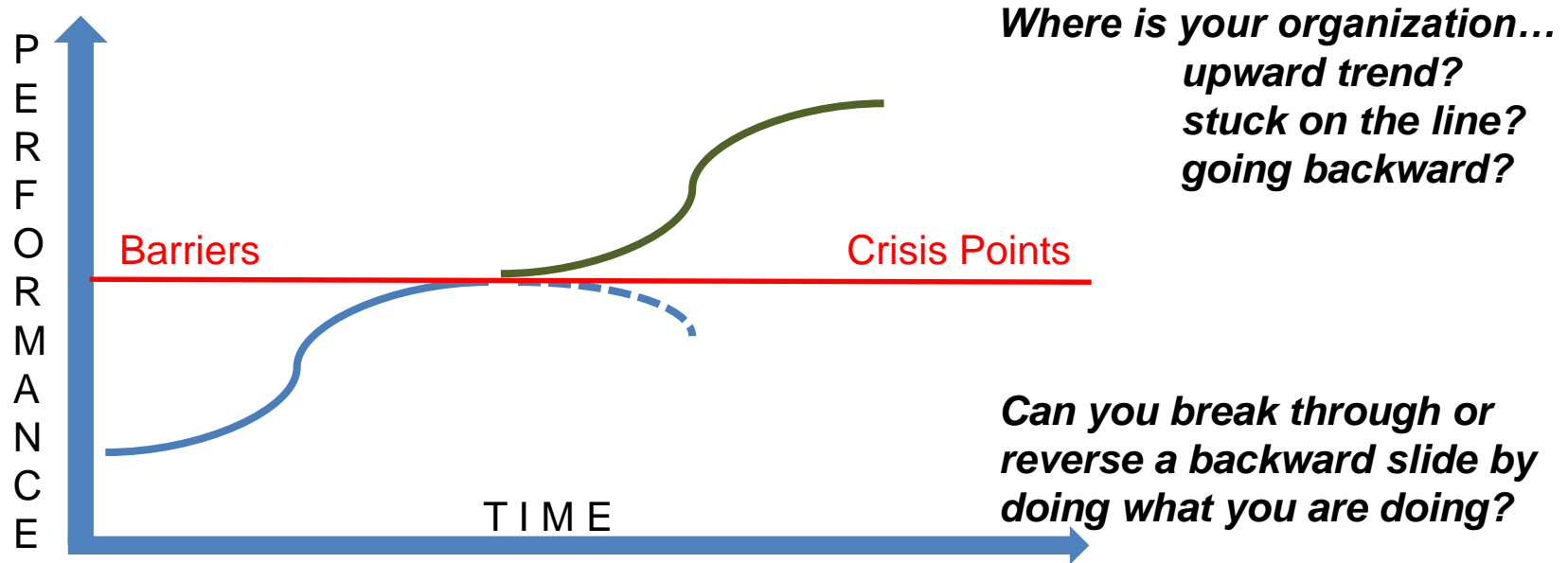


**TO TOMORROW'S  
SHOULD-BE**



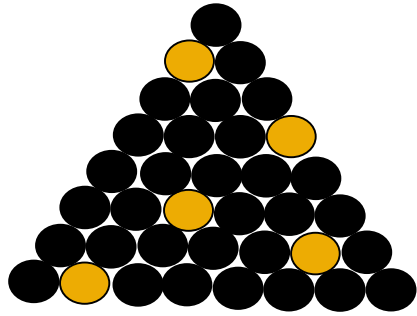
**From Van Harrison, Pd.D  
University of Michigan  
Michigan Medicine**

# As difficult as it may sound, it's not impossible to transform

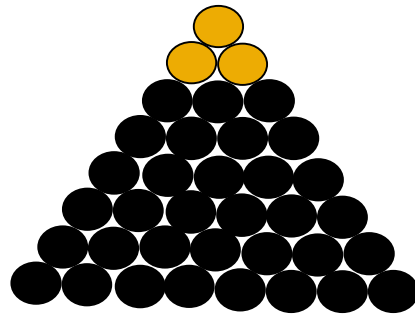


# Transforming Strategies...

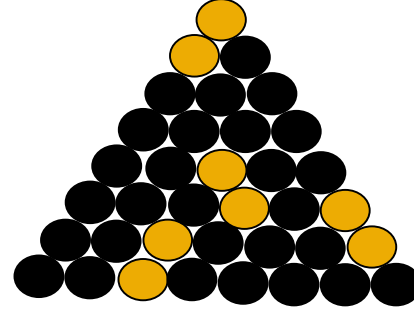
U of Michigan  
Health System  
Van Harrison



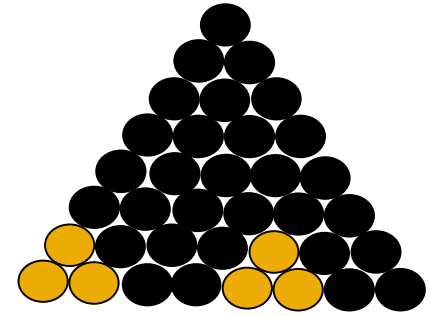
Individuals



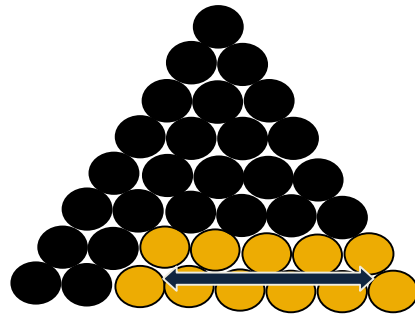
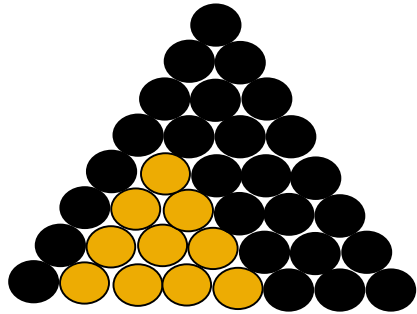
Top Leaders



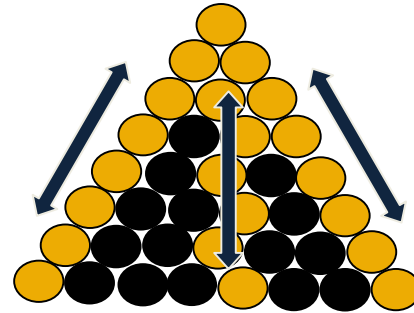
Supervisors-Mentors



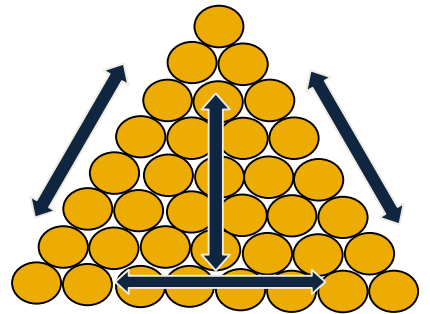
Work Groups



Across Units



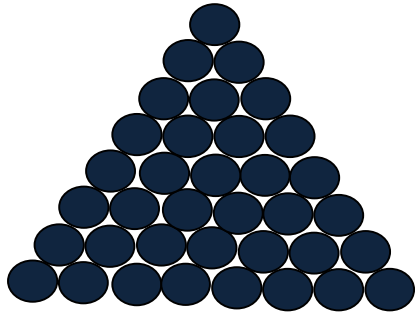
Strategy Deployment



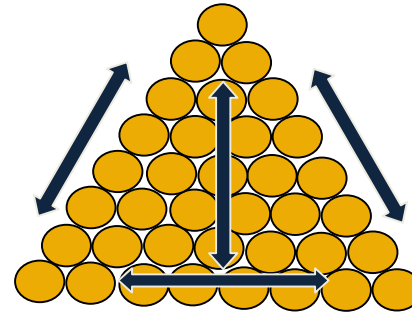
Transformed  
Organization



# But first...What is Your "Should-be"?



FROM TODAY'S  
AS-IS CONDITION...



TO TOMORROW'S  
SHOULD-BE



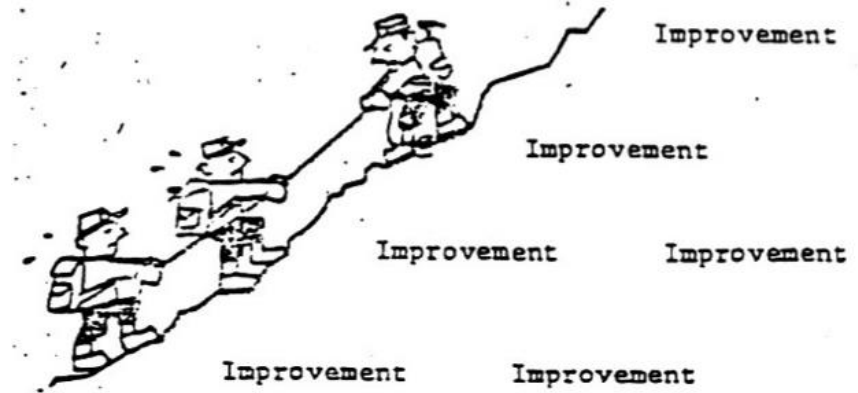
From Van Harrison, Pd.D  
University of Michigan  
Michigan Medicine

# What is Your Transformation Problem?



# Lean Leaders Aim for Two Things

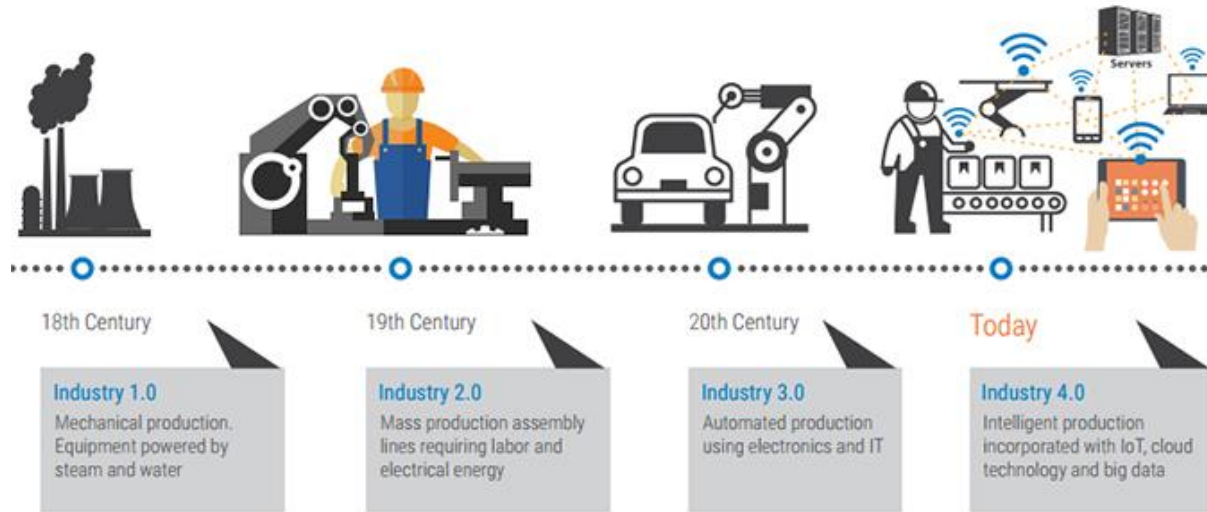
- Each person solving problems to continuously improve his or her job
- Each person's job aligned to create value for the customer and co-prosperity with the company



**Get the work done and Develop People**  
**- We each begin with ourselves!**



# Industry 4.0 vs Lean



**POLITECNICO**  
MILANO 1863

# Industry 4.0 vs Lean 4.0?

- If *Industry 4.0* is a matter of technology...
- Lean thinking starts first with the purpose or problem to be solved, then to the work to be done to address it.
- Then, we think of how technology can be used to support the work to be done to solve the problem.
- 50 years ago in the auto industry, robots were a disruptive new technology.
- Then and now, Toyota was and is a cautious adopter, always mindful of purpose, process and people.



# Start from Theory or Empirical Reality?

- **Industry Conventional Thinking**
  - Often tries to go from theory to practice
- **Lean Thinking**
  - From practice to theory



# Start from Theory or Empirical Reality?

- **Industry Conventional Thinking**
  - **Often tries to go from theory to practice**
- **Lean Thinking**
  - **From practice to theory**  
→ **Action learning to address unknowns and questions**



# Lean Thinking and...

- **Lean Startup**
- **Design Thinking**
- **Agile/Scrum**
- **Digital Innovation for these times of extreme uncertainty**

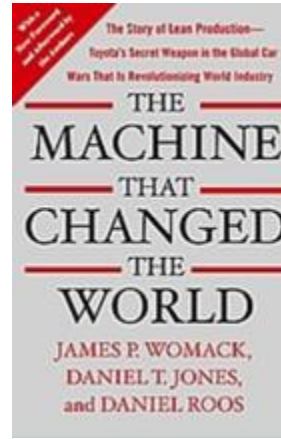




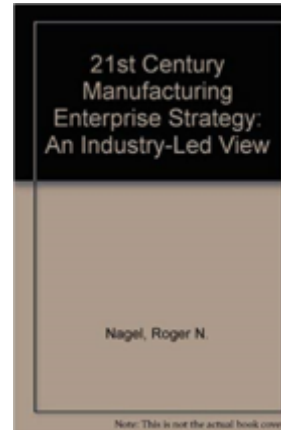
# Lean Production & Agile Manufacturing

MIT IMVP research  
and naming of Lean  
Production

Lehigh University  
Iacocca Institute  
"research" and  
articulation of Agile  
Manufacturing



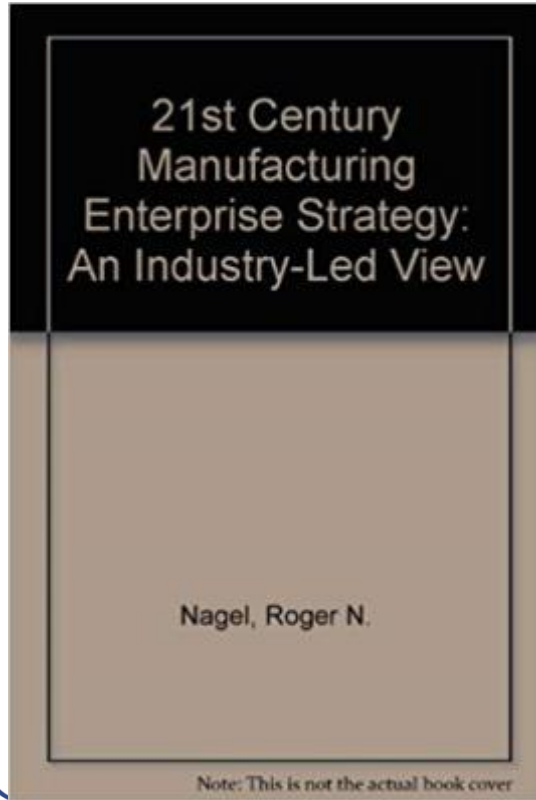
Produce Value,  
not Muda



Produce Value,  
not Waste



# Lots of Theory...

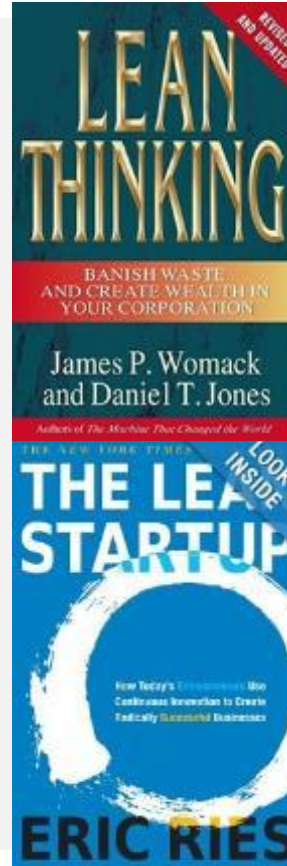


VISION	FOCUS AREAS	AGILE INFRASTRUCTURE ENABLERS
<b>DRIVERS</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Continuous Change</li> <li><input type="checkbox"/> Rapid Response</li> <li><input type="checkbox"/> Evolving Quality Journey</li> <li><input type="checkbox"/> Environment Responsibility</li> </ul>	<b>Business Environment</b>	<div> <ul style="list-style-type: none"> <li><input type="checkbox"/> Continuous Education</li> <li><input type="checkbox"/> Customer Interaction</li> <li><input type="checkbox"/> Database Structures and Methods</li> <li><input type="checkbox"/> Empowerment</li> <li><input type="checkbox"/> Energy Productivity</li> <li><input type="checkbox"/> Enterprise Integration</li> <li><input type="checkbox"/> Evolving Standards</li> <li><input type="checkbox"/> Factory America Network</li> <li><input type="checkbox"/> Global Broad-Band Network</li> <li><input type="checkbox"/> Global Business Systems</li> <li><input type="checkbox"/> Groupware Systems</li> <li><input type="checkbox"/> Human-Technology Interface</li> <li><input type="checkbox"/> Integration Methodology</li> <li><input type="checkbox"/> Intelligent Sensors</li> <li><input type="checkbox"/> Knowledge-Based Artificial Intelligence</li> <li><input type="checkbox"/> Legal Streamlining</li> </ul> </div> <div> <ul style="list-style-type: none"> <li><input type="checkbox"/> Modular &amp; Reconfigurable Process Hardware</li> <li><input type="checkbox"/> Organizational Structures and Practices</li> <li><input type="checkbox"/> Performance Metrics and Benchmarks</li> <li><input type="checkbox"/> Rapid Cooperation Mechanisms</li> <li><input type="checkbox"/> Representation Standards</li> <li><input type="checkbox"/> Simulation and Modeling</li> <li><input type="checkbox"/> Software Prototyping and Productivity</li> <li><input type="checkbox"/> Supportive Accounting Metrics</li> <li><input type="checkbox"/> Technology Adoption and Transfer</li> <li><input type="checkbox"/> Waste Management and Elimination</li> <li><input type="checkbox"/> Zero Accident Methodology</li> </ul> </div>
	<b>Communication And Information</b>	
	<b>Cooperation &amp; Teaming Factors</b>	
	<b>Enterprise Flexibility</b>	
	<b>Enterprise-Wide Concurrency</b>	
	<b>Environmental Enhancement</b>	
	<b>Human Elements</b>	
<b>CHARACTERISTICS</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Concurrency</li> <li><input type="checkbox"/> Continuous Education</li> <li><input type="checkbox"/> Customer Responsiveness</li> <li><input type="checkbox"/> Dynamic Multi-Venturing</li> <li><input type="checkbox"/> Employees Valued</li> <li><input type="checkbox"/> Empowered People/Teams</li> <li><input type="checkbox"/> Environmentally Benign</li> <li><input type="checkbox"/> Flexible Re-Configuration</li> <li><input type="checkbox"/> Information Accessable</li> <li><input type="checkbox"/> Knowledgeable Employees</li> <li><input type="checkbox"/> Open Architecture</li> <li><input type="checkbox"/> Optimum First-Time Design</li> <li><input type="checkbox"/> Quality Over Product Life</li> <li><input type="checkbox"/> Short Cycle Time</li> <li><input type="checkbox"/> Technology Leadership</li> <li><input type="checkbox"/> Technology Sensitive</li> <li><input type="checkbox"/> Total Enterprise Integration</li> <li><input type="checkbox"/> Vision-Based Management</li> </ul>	<b>Subcontractor &amp; Supplier Support</b>	
	<b>Technology Deployment</b>	



# Lean Thinking & Lean Startup

- Womack and Jones articulation of Lean Thinking
- Reis and Blank articulation of Lean Startup



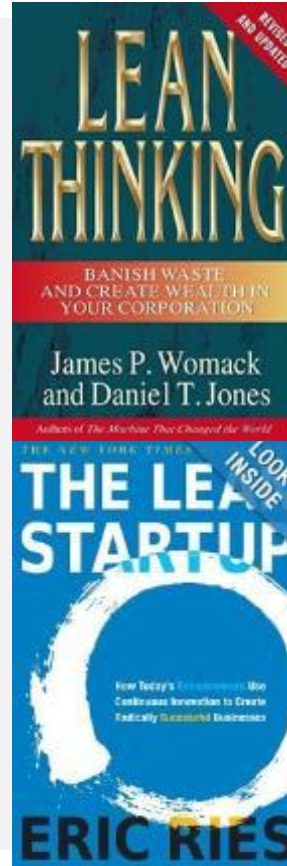
Go to the  
GEMBA

Get out of the  
building



# Lean Thinking, Lean Startup

- Womack and Jones articulation of Lean Thinking
- Reis and Blank articulation of Lean Startup



NOT JUST  
THE  
FACTORY!

NOT JUST  
THE  
PRODUCT!



# What is a Startup?

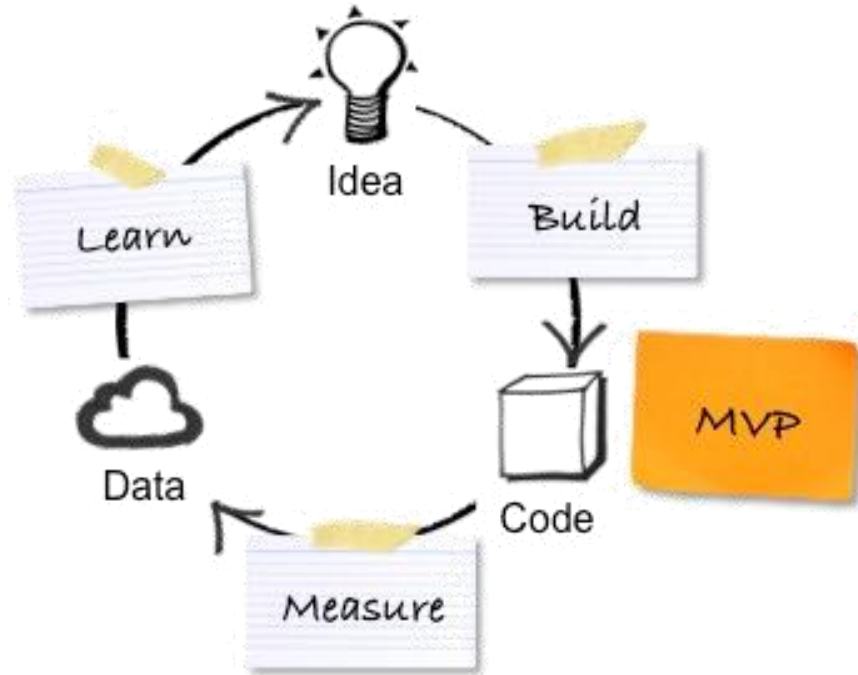
A **startup** is a **human institution** designed to deliver a **new product or service** under conditions of extreme **uncertainty**.

*Eric Ries*



**POLITECNICO**  
MILANO 1863

# The Lean Startup Method



# Plan-Do-Check-Act Cycle

From pDpD (try, fail, try, fail)  
to PDCA cycle





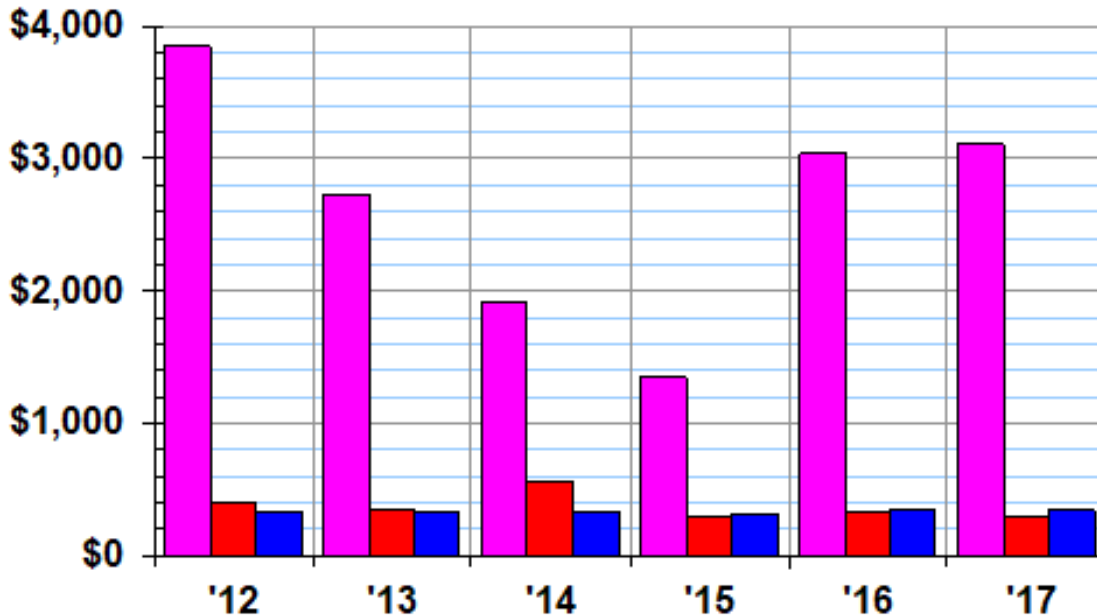
# IIC Auto Industry W

US \$

Tesla

GM

Ford



Source: Warranty Week



Last year we saw a few [Tesla Model 3 bumpers fall off](#) after going through shallow puddles. An interesting note is that he mentioned this is no longer covered by Tesla and all previous repairs were done under goodwill.



Rithesh Nair  
@rithesh



1/2 hr, bringing Model 3 home, run in to heavy rain on the streets & bumper comes off [#devastated](#) [@Tesla](#) [#help](#)  
[@elonmusk](#)

768 8:26 AM - Aug 12, 2018

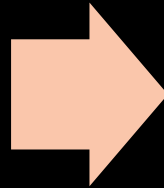
565 people are talking about this





# Anyway, Start with Value...

**Value**

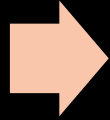


**Design**

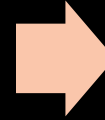


# Then, you have to make the “thing...”

**Design**



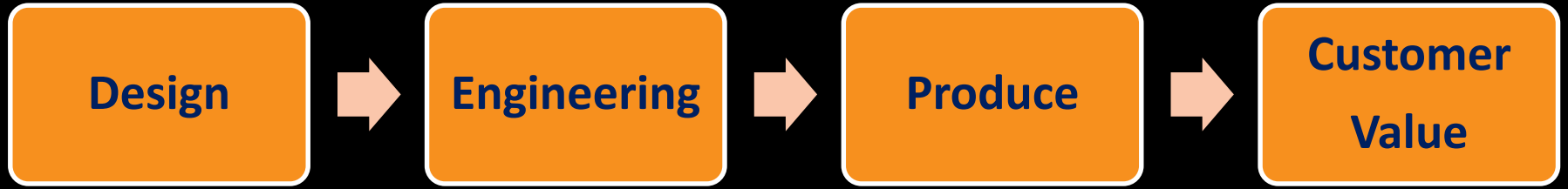
**Produce**



**Customer  
Value**



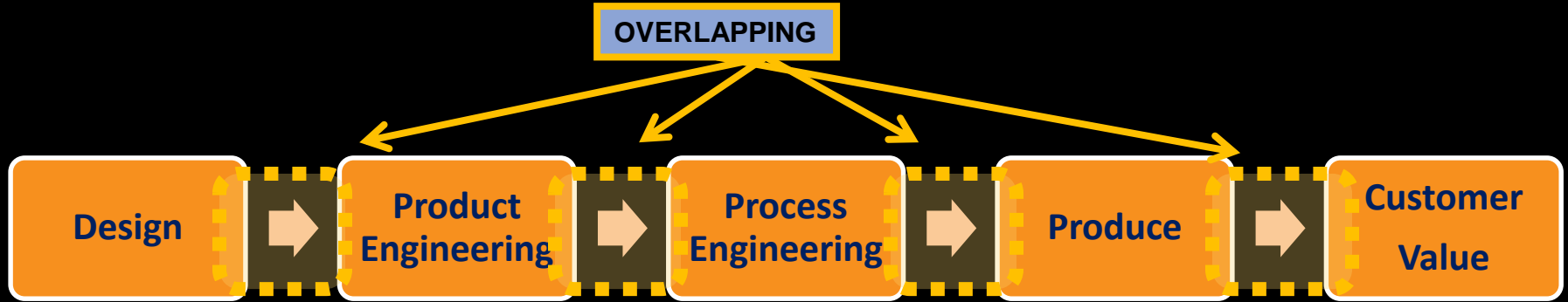
# And you have to engineer the thing...



# And engineering isn't just “product”

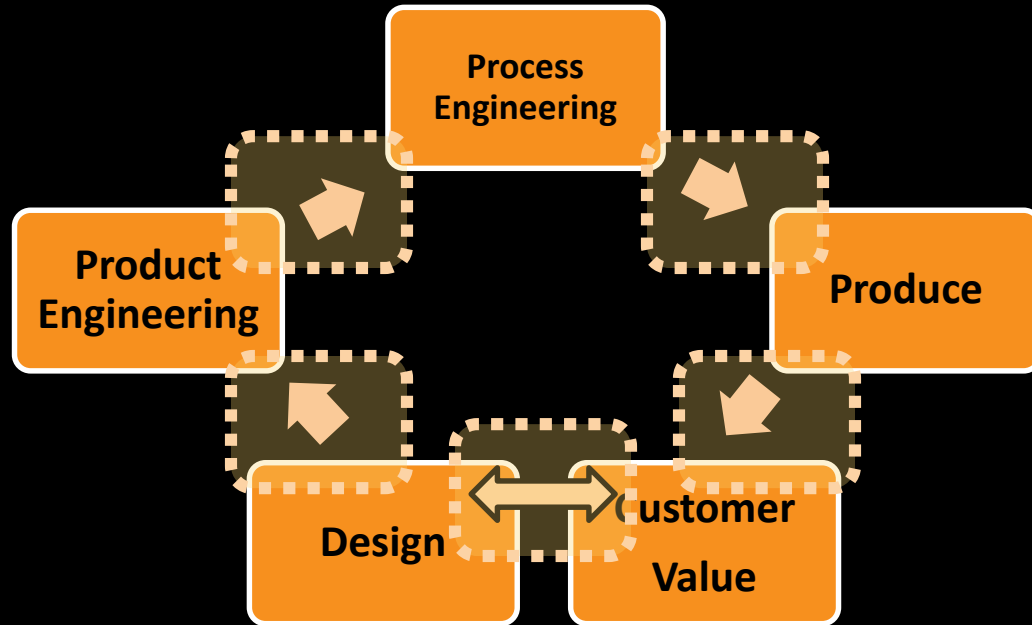


# And it all needs to fit together



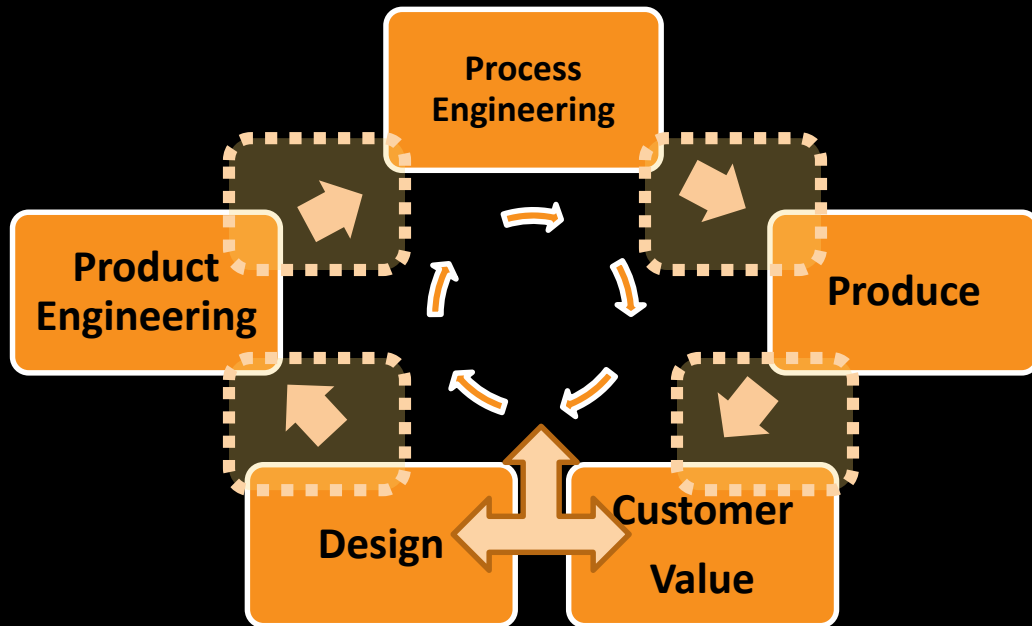
# Continual Loops

Development – Production – Sales – Development...



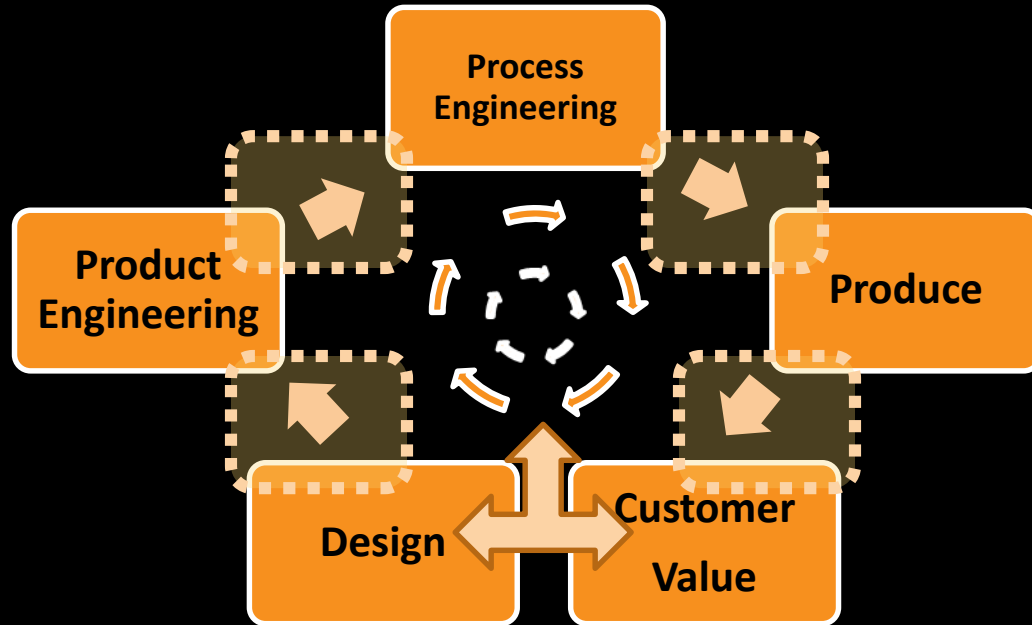
# Continual Loops

## Development – Production – Sales – Development...



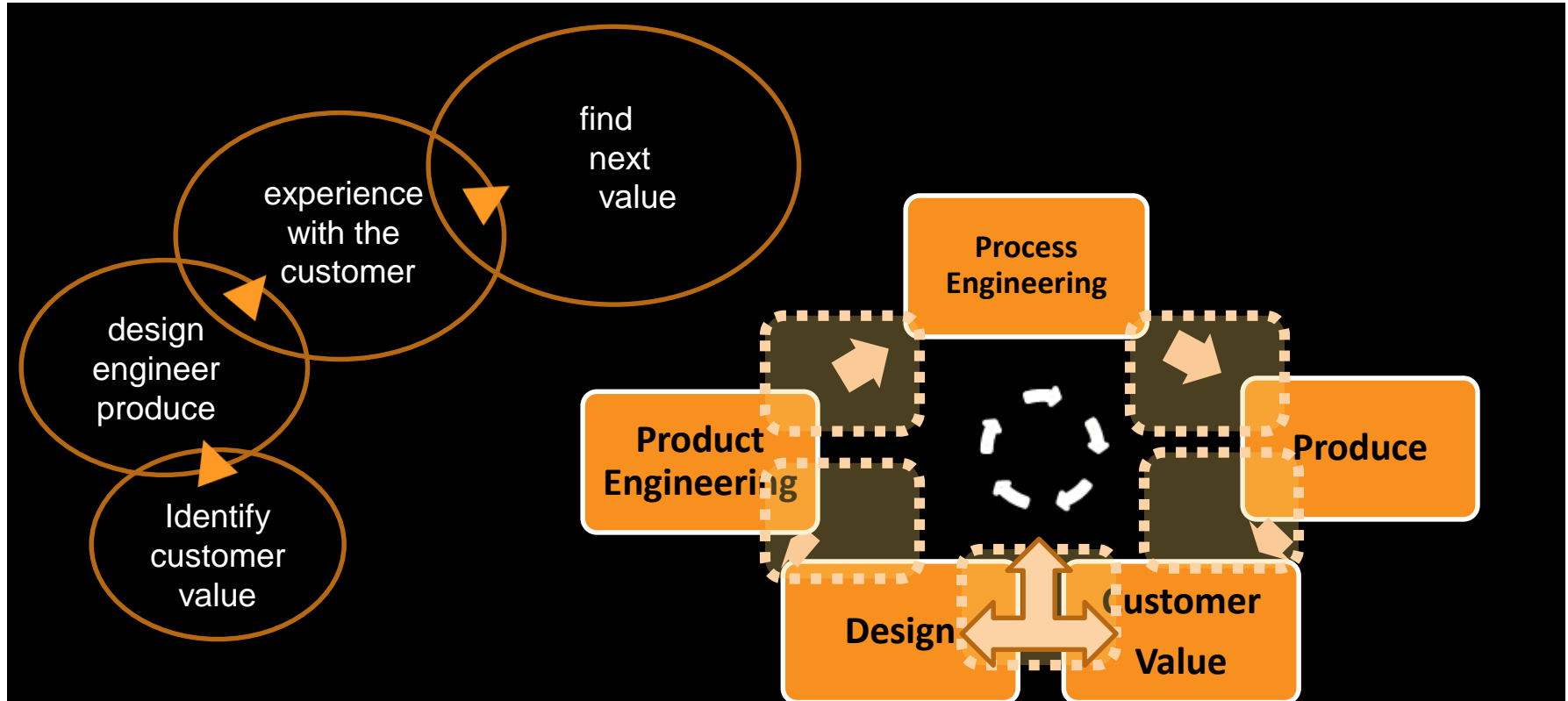
# Continual Loops

Development – Production – Sales – Development...



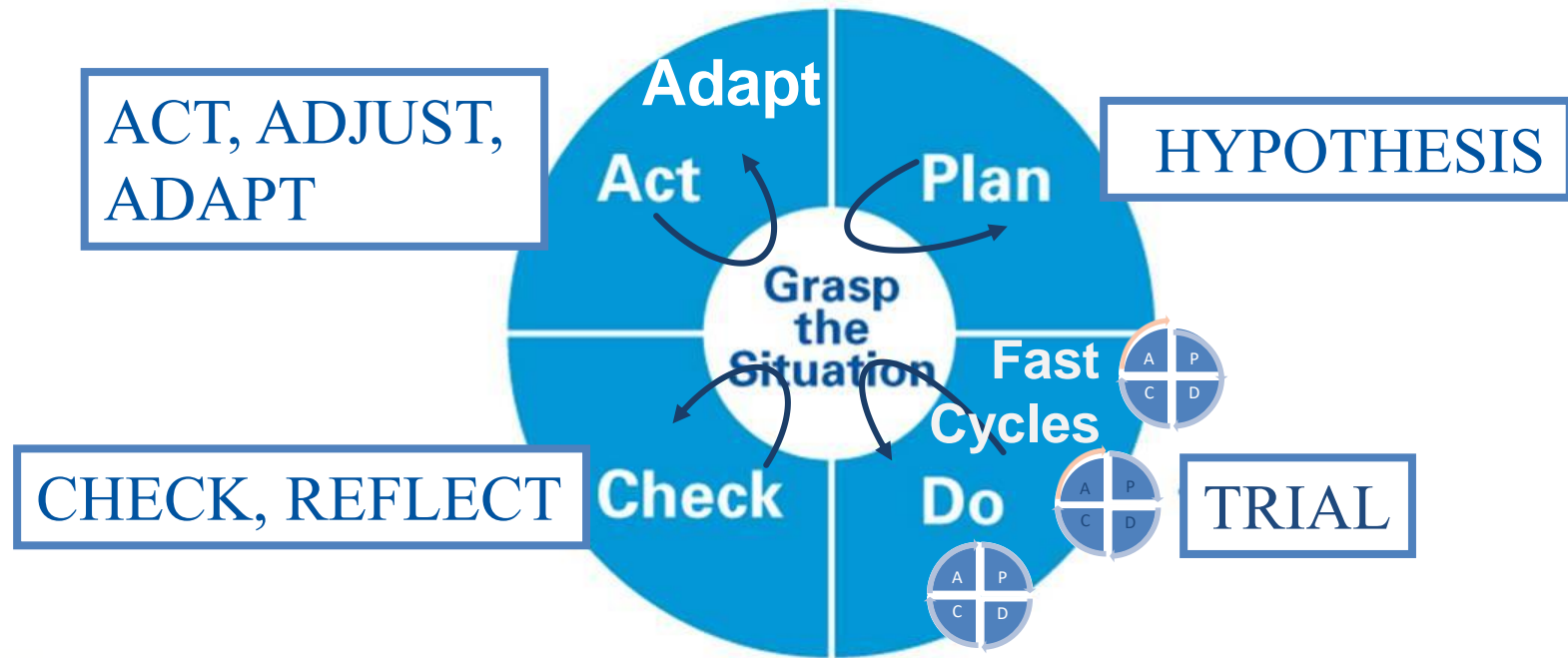


# Deep Capability in All Phases

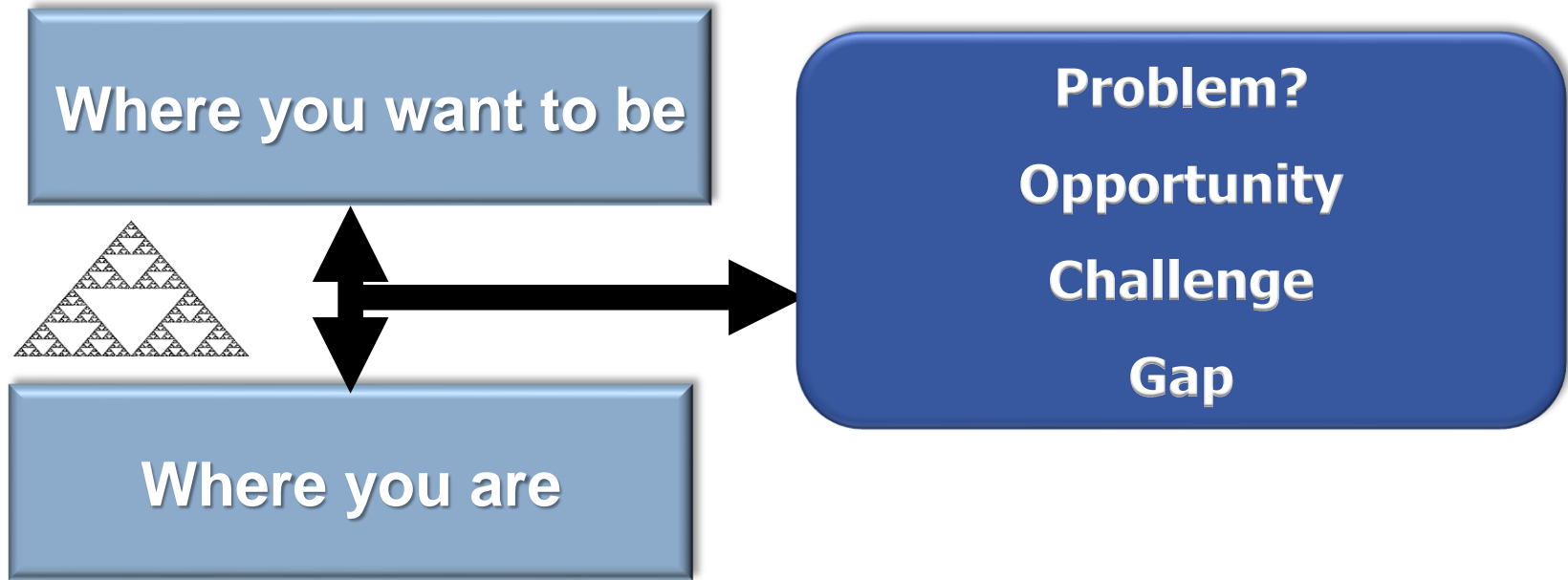


# A PROCESS for Science and Art in the Real World:

## Plan-Do-Study-Adapt Cycle



# Where Does PDCA Start? Define Your Problem.



# Digital or Physical: The Lean Transformation Questions Apply

**WHAT is our PURPOSE?**

What situational problem do we need to address?

How to design,  
do and  
improve  
the work?

What  
management  
system and  
behavior do  
we need?

How to  
develop  
capability?

**What is our BASIC THINKING??**



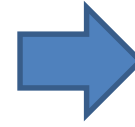
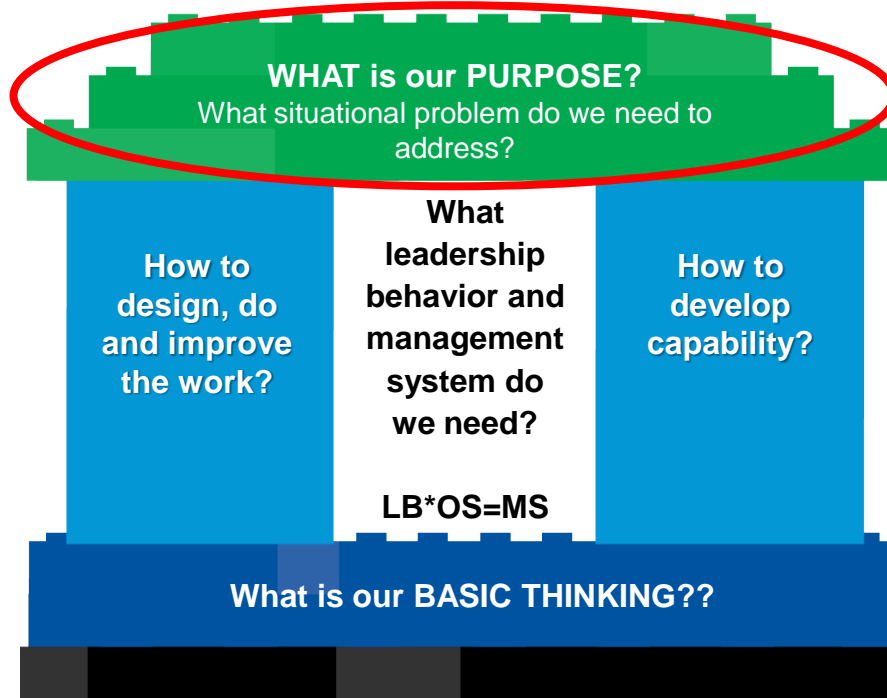
# Lean Transformation as a Process of Endlessly Addressing a Set of Fundamental Questions

1. What is our *purpose*, what *value to create*, or what *problem* are we trying to solve?
2. How do we *design, do, and improve* the *actual work*?
3. How do we identify and *develop the capabilities* we need?
4. What *management system* and *leader behaviors* are required to support the new way of working?
5. What *basic thinking, mindset* or *assumptions* underlie this transformation?

**What to do, why,  
and how to do it**



# Lean Transformation Questions and Problems



Not just what lean tool can I use?

Nor how many kaizen events do I conduct...

Nor how much training do I need...

Etc...





WHAT  
IS  
THE  
PROBLEM?





WHAT  
IS  
THE  
PROBLEM?







① \$3000

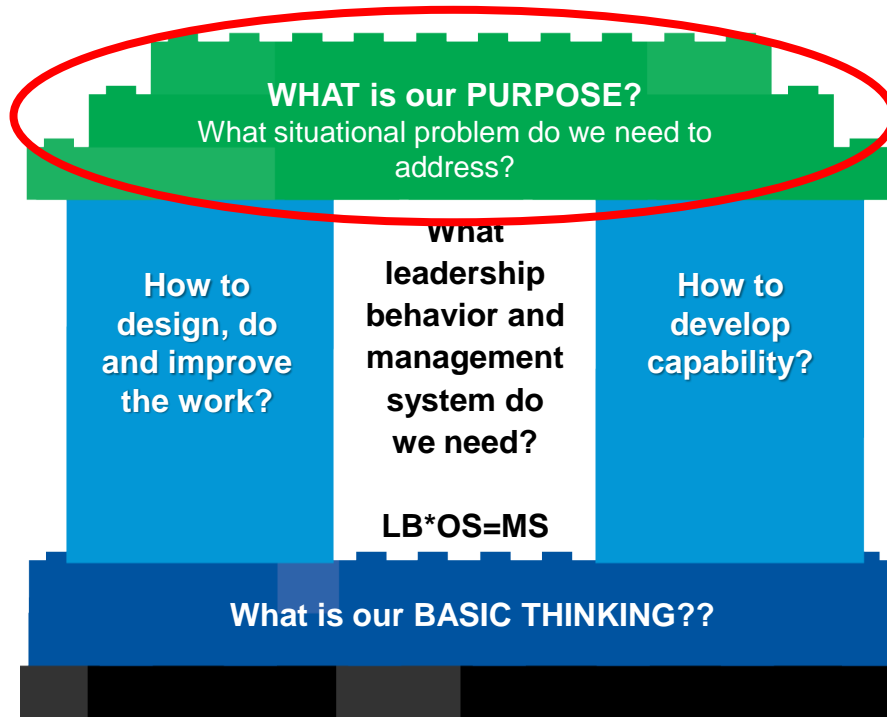
② Spring '87

③ Technology - Best

⑦ Budget 7-KM



# Problems and the Need for Digital Information that is Valuable and Learning that is Reusable



**What problems...?**

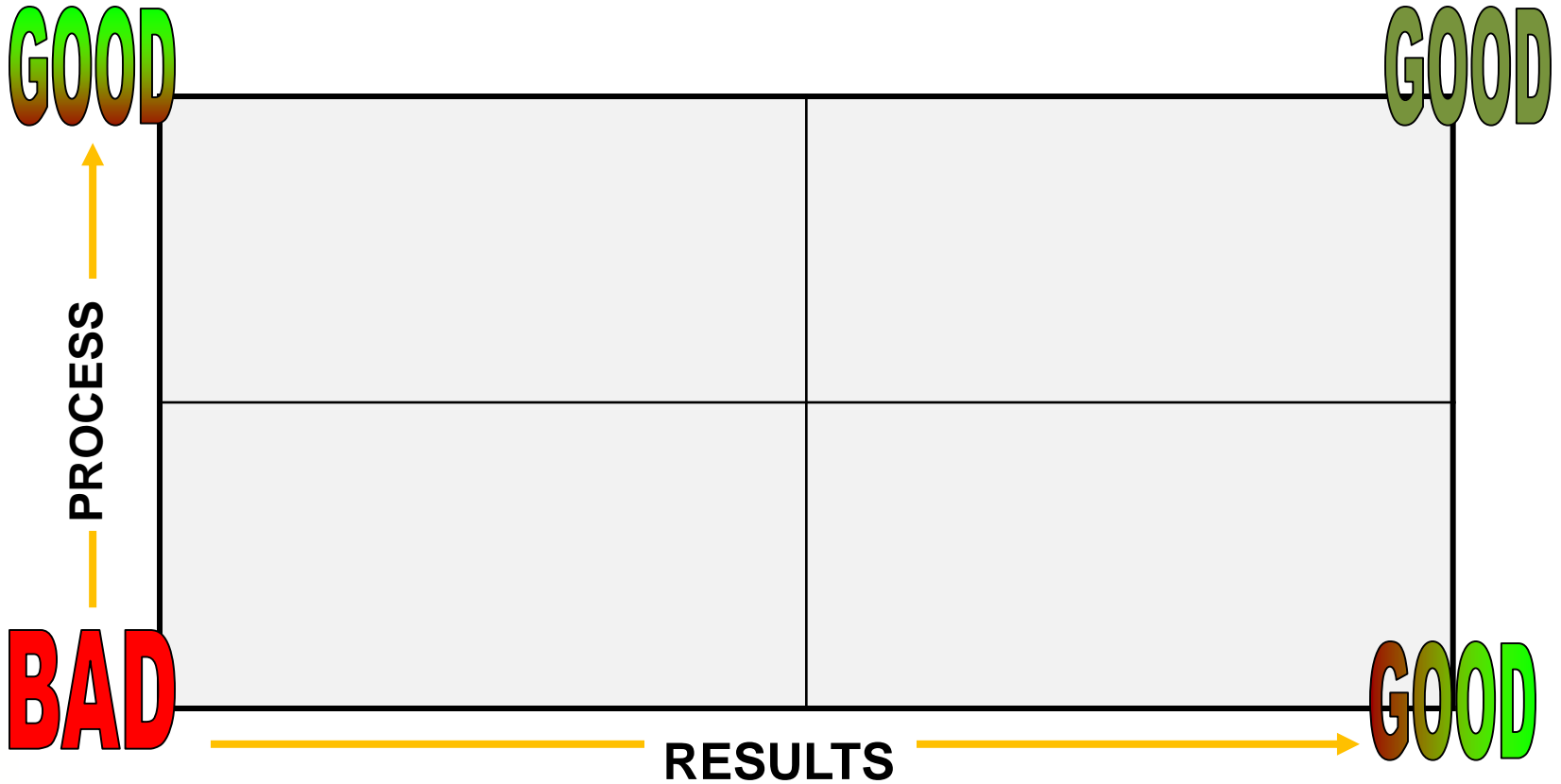
**What approaches...?**

**Where to innovate...?**

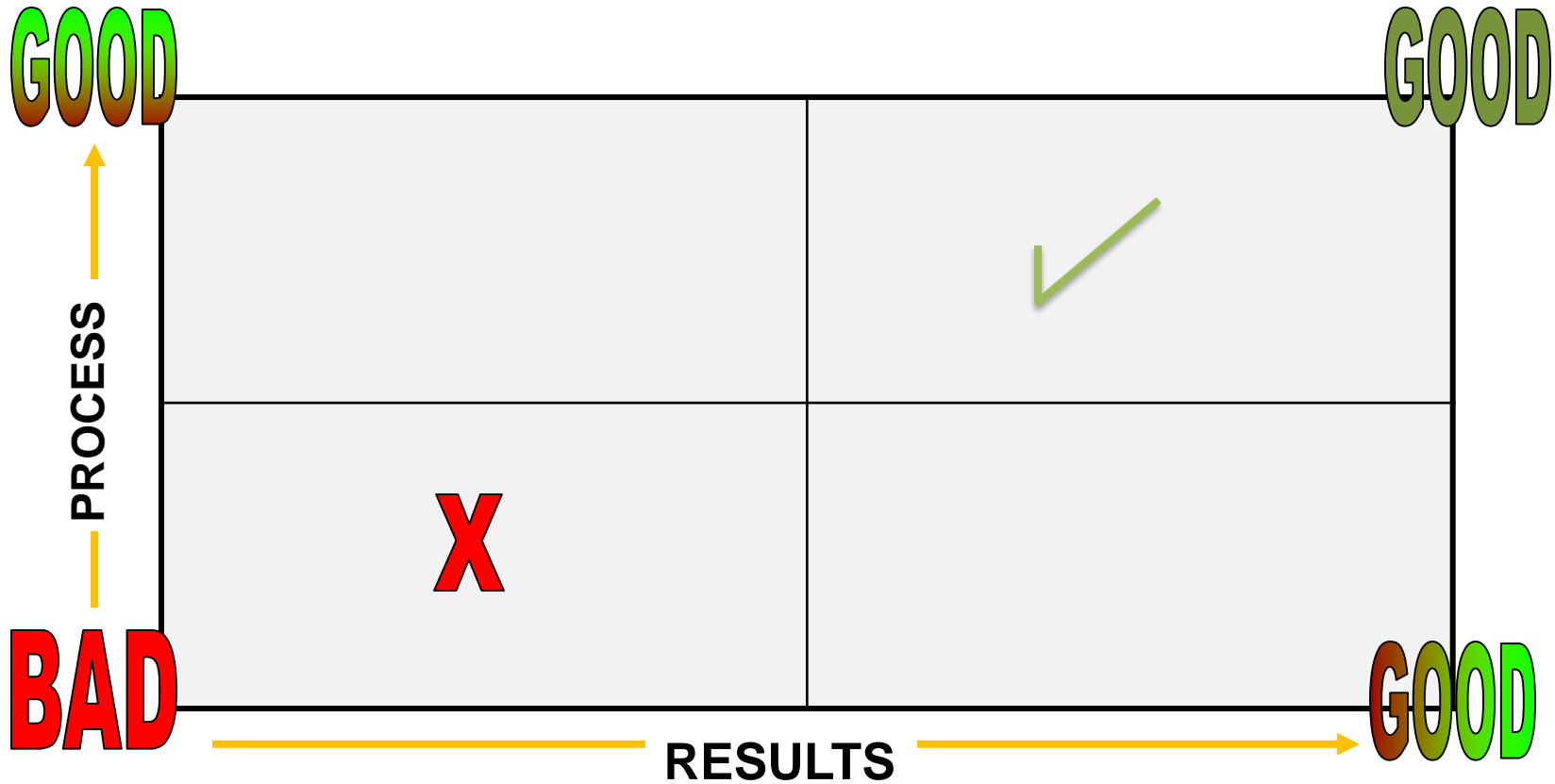
**Etc...**



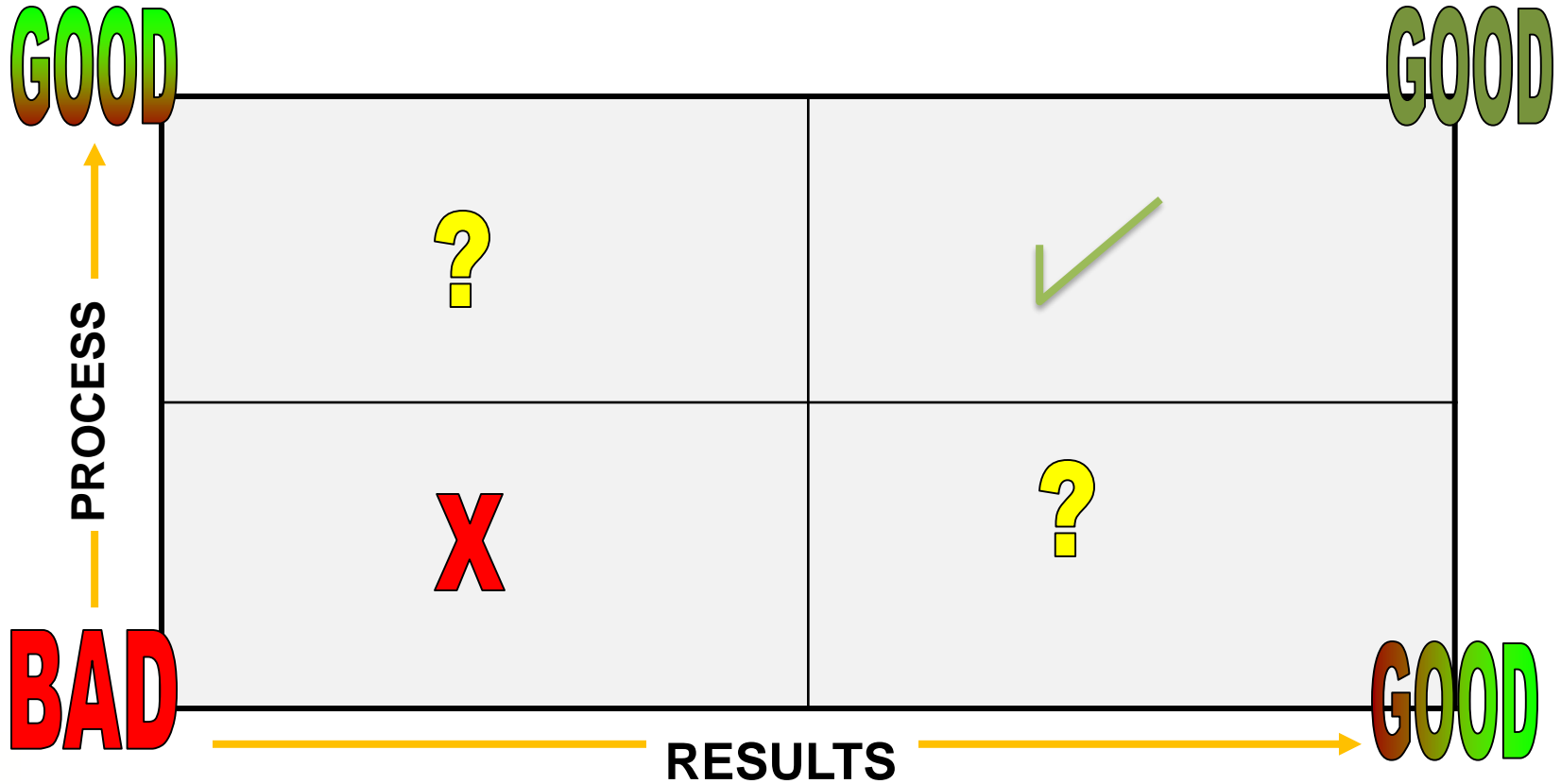
# Results and Process (Science and Art of PDCA)



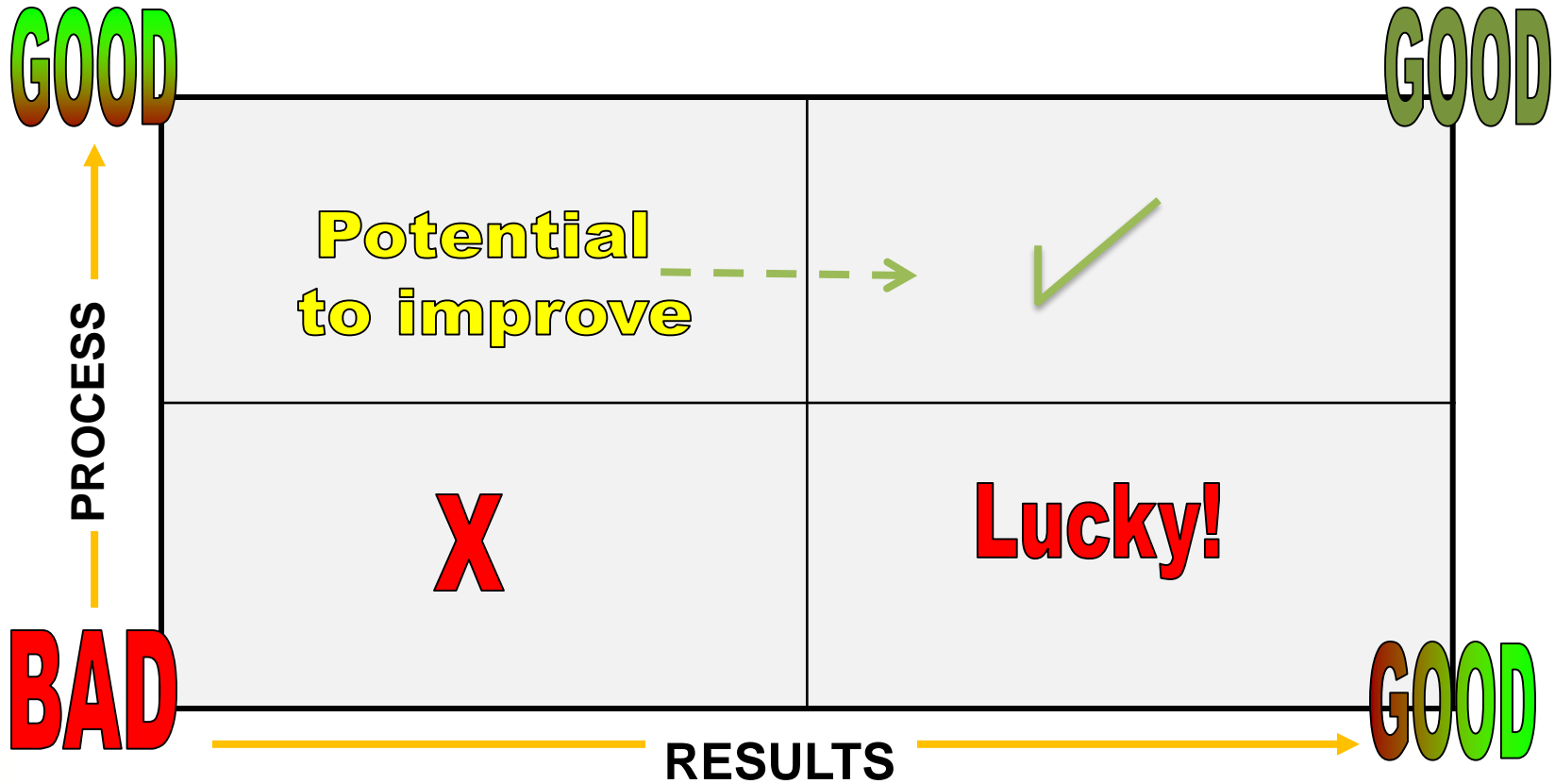
# Results and Process (Science and Art of PDCA)



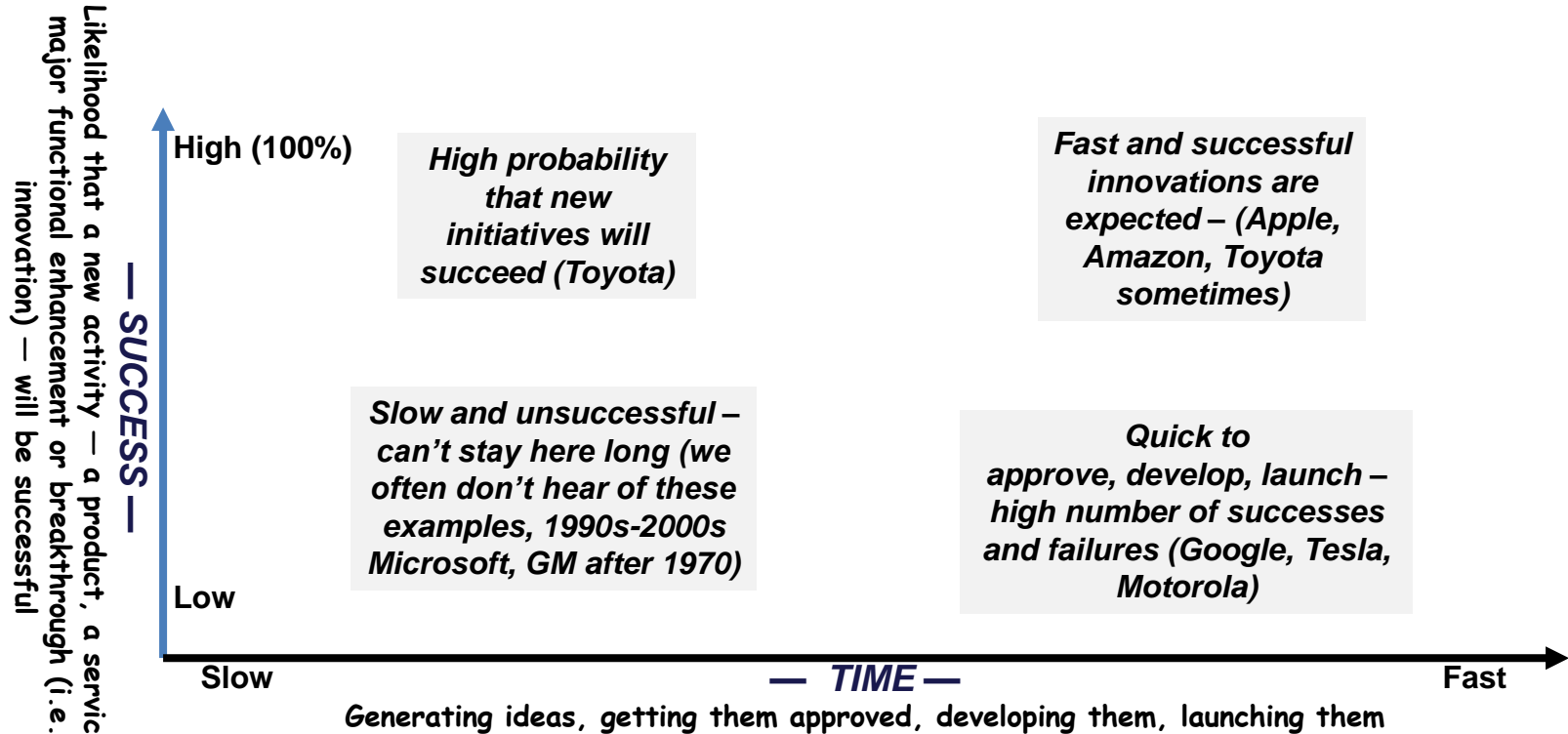
# Results and Process (Science and Art of PDCA)



# Results and Process (Science and Art of PDCA)



# Innovation: Speedy and Successful?



# The Spread of Lean Continues!

## 精益传播正在持续发展中!

Inspiration from a real story with practical hints for anyone 灵感往往来自一个真实的案例, 对任何人都有实用的提示

- From mass acting to lean thinking 从大批量到精益思考
- Stop! 停止!
- Rethink everything! 重新思考!
- Change the work – a revolution! 改变工作方式, 一场革命!
- From central bakery to dozens of shops 从中央面包烘焙拓展房到几十家商店
- From direct operations (bake, transport, sell – sell, bake, transport) to support – HR (recruit, hire, develop) 从直接生产(烘焙, 运输, 销售-销售, 烘焙, 运输)到人事职能(招聘, 雇佣, 发展)



## The Lean Bakery

*Removing waste to get closer to your customer*

by **Juan Antonio Tena and Emi Castro**

with Roberto Priolo

Follow the Learner







精益管理

微软管理大师和精益实践者向全世界推荐的“精益管理圣经”

# 精益

陈明 刘宗昌 等著



精益管理丛书

陈明 著 刘宗昌 译 陈明 校

*Managing to Learn*  
Using the A3 Management Process to Solve  
Problems, Gain Agreement, Monitor, and Lead

## 学习型管理

培养领导团队的A3管理方法

珍藏版

[美] 约翰·舒定 著  
John Shook

郭宏 武萌 汪小帆 等译  
赵克通博士 审校

一本有关精益管理与精益领导的书  
构建学习型组织范本

阐释了丰田管理体系的核心之一——“A3”是什么，以及如何通过不断创建A3来  
培养精益管理人才。

机械工业出版社  
China Machine Press

AUTHORS OF *The Machine That Changed the World*

1. Background 背景	3. Proposed Condition 建议的状态
2. Initial Condition 初始状态	4. Plan 行动计划
	5. Follow-up 后续跟踪

## ① PLAN STATEMENT 背景

Actually it can be supplied in a wrong way to the client / shop → It is not reliable.  
When something cannot be supplied, the note is modified. But client / shop does not know, just receive less.  
Lost time searching items, rework orders and express shipping.  
January '11: 5.3 mistakes/ day (max 8)

Objective: to reduce 80% rework errors...

## ② INITIAL SITUATION 初始状态

January 2011	occurrence			
	Buy food	no food	Production daily	Non daily
Quality			8	
No stock	20	7	31	13
Admin error	1			1

8  
71  
2

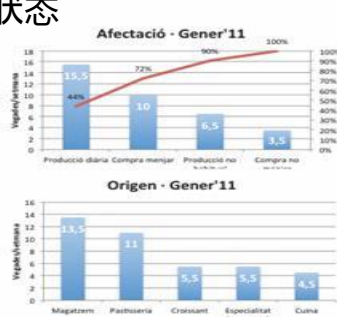
2

65% of the cases in PRODUCTION  
• 40% DAILY production → THIS IS BAD!  
• 25% non-daily production.

1

35% of the cases in WAREHOUSE  
• 10% no food  
• 25% is food → THIS IS BAD!

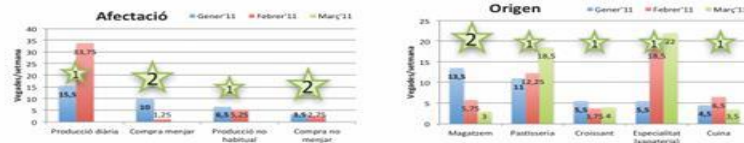
In 10 days:  
• 4 sugar  
• 3 tea bags  
• 2 jam  
• 2 milk  
• 2 butter  
• 2 candy  
• 2 cleaning pad  
• 2 cacao  
• 2 toilet paper  
• 7 Others



## ③ PROPOSED SITUATION 建议的状态

1 Pastry: create a milk-run, rather than point-to-point for every order.  
Pastry: add number of boxes on excel sheet  
Bakery: Check number of products on delivery

2 Vallhonrat → 5S  
Juroge  
Novell  
Pascual  
Campofrio → change supplier  
Juroge  
Obrador  
computer.  
→ talk with supplier  
→ change supplying day  
→ change supplier  
→ check every shipment.  
→ change SKU's in the computer.



## ④ PLAN 行动计划

Action	Responsible	Date	Ok	NO k
5S in Vallhonrat warehouse	Agustín Tena	21-2-11		
Check every order when delivering	Joel	21-2-11		
Change conflicted supplying days	Agustín Tena	8-3-11		
Change supplier (Pascual-Campofrio)	Agustín Tena	8-3-11		
Change SKU's in the computer	Agustín Tena	15-3-11		
Temporary 100% quality control	Josep	15-3-11		
Establish milkrun	Josep	15-3-11		
Add number of boxes in spreadsheet	Josep	15-3-11		

## ⑤ FOLLOW UP & NEXT STEPS 后续跟踪

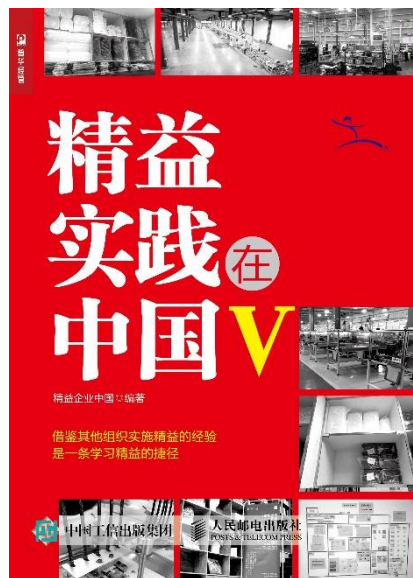
	Initial Gn	Target	Mar'11	May'11
Rework daily average	5.3	3	0	2
Max reworks in a day	8			

# PDCA experiments PDCA练习

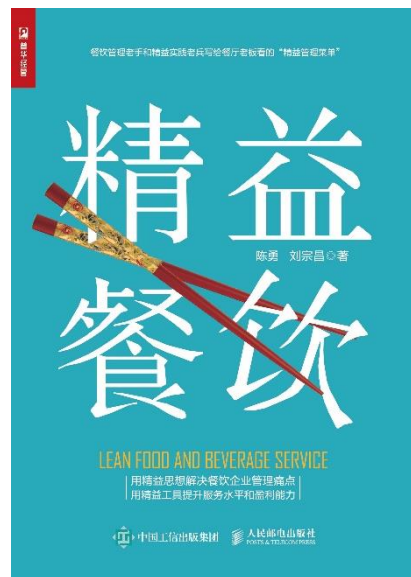
Initial condition 初始状态	Your idea 你的想法	What you tried 你的尝试	What happened 发生了什么	What next? 接下来
Round 1 第一轮				
Round 2 第二轮				
Round 3 第三轮				



# Four New Lean Books for China!



《精益实践在中国V》



《精益餐饮》



《精益转型：医院精益实践指南》

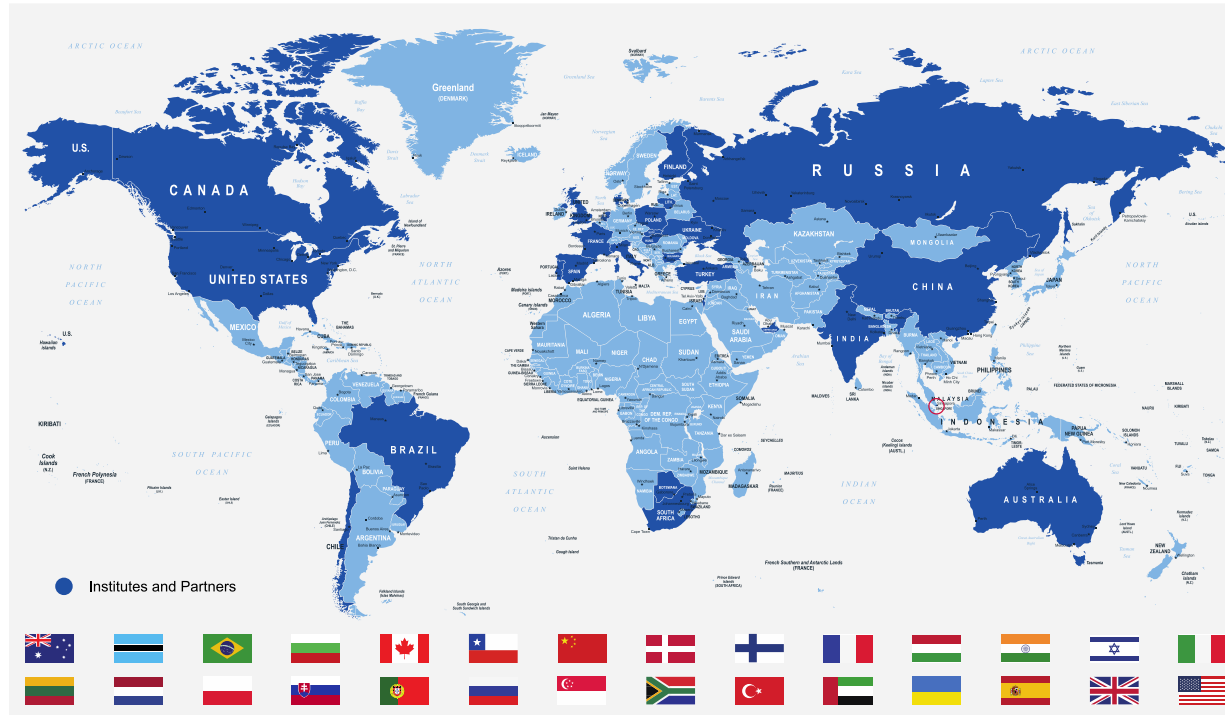


《成为解决问题的高手》





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