



Tablet course

Chapter 1

Introduction to lean concept

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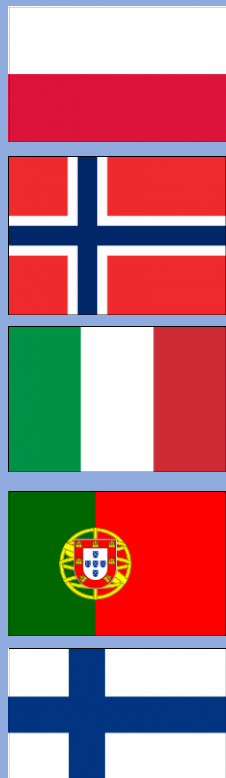
Chandima Ratnayake, *University of Stavanger*

„Innovative Learning Approaches for Implementation of Lean Thinking to Enhance Office and Knowledge Work Productivity”

ILA-LEAN Project No 2016-1-PL01-KA203-026293

2016-2018

2018



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Project Title

Innovative Learning Approaches for Implementation of Lean Thinking to Enhance Office and Knowledge Work Productivity

Project Number: 2016-1-PL01-KA203-026293

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Objective

The objective of this chapter is to introduce the lean concept and justify the necessity of its implementation.



1 of 4
Content

Content

1. What is lean?
2. History of lean concept development
3. Why do we need to learn „lean“?
4. Lean Principles

Chapter 1.1. What is „lean“?

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1.1 What is Lean?

- ‘Lean thinking’ is a set of principles which emphasize an organization actions towards creating a value for a customer through the continuous improvement
- Lean is a cultural change which focuses on utilizing people
- Lean is NOT:
 - A “manufacturing thing”
 - A tool set
 - A one-time project
 - Easy or fast
 - A ‘Top-down’ approach (arguably)



Chapter 1.2.

History of lean concept development

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LEAN: PRINCIPAL CONTRIBUTORS

1850

American
Civil War

Eli Whitney

Interchangeable parts

Drawing conventions

Tolerances

Modern Machine Tool Development

1900

Great War



F. W. Taylor

Standardized work

Time study and Work standards

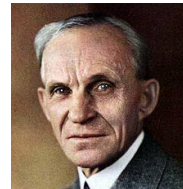
Worker/Management Dichotomy



Frank Gilbreth

Process Charts

Motion study



Henry Ford

Assembly lines and flow lines

Manufacturing strategy

2° W. War

Edwards Deming, Juran

SPC - TQM

1950



Taiichi Ohno

Toyota Production System

Just in time - Stockless production

World Class Manufacturing



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LEAN: PRINCIPAL CONTRIBUTORS

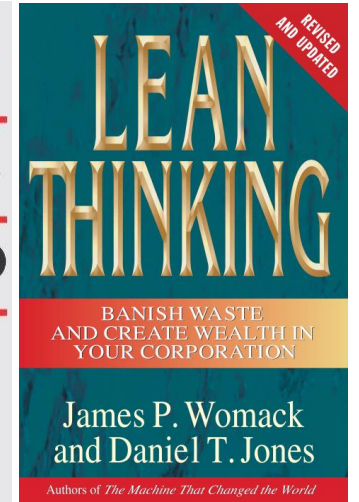
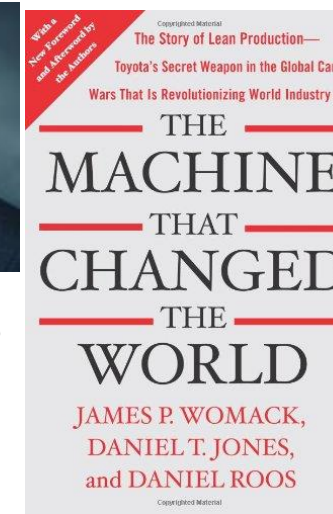


Erasmus+

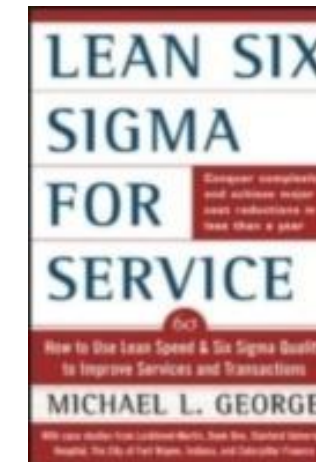
Womack - Jones
Lean Manufacturing



J. P. Womack D. T. Jones



M. L. George
Lean for services
Pull system
Setup reduction



2000

2018

Chapter 1.3.

Why do we need to learn „lean“?

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WHY DO WE NEED TO LEARN «LEAN»?



Figure 1. Motivations for lean projects

*Lean Implementations in Hungary - István Rendesi, Audi Hungaria Motor Llc. , Hungary and researchers from the University of Pannonia

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Chapter 1.4. Lean Principles

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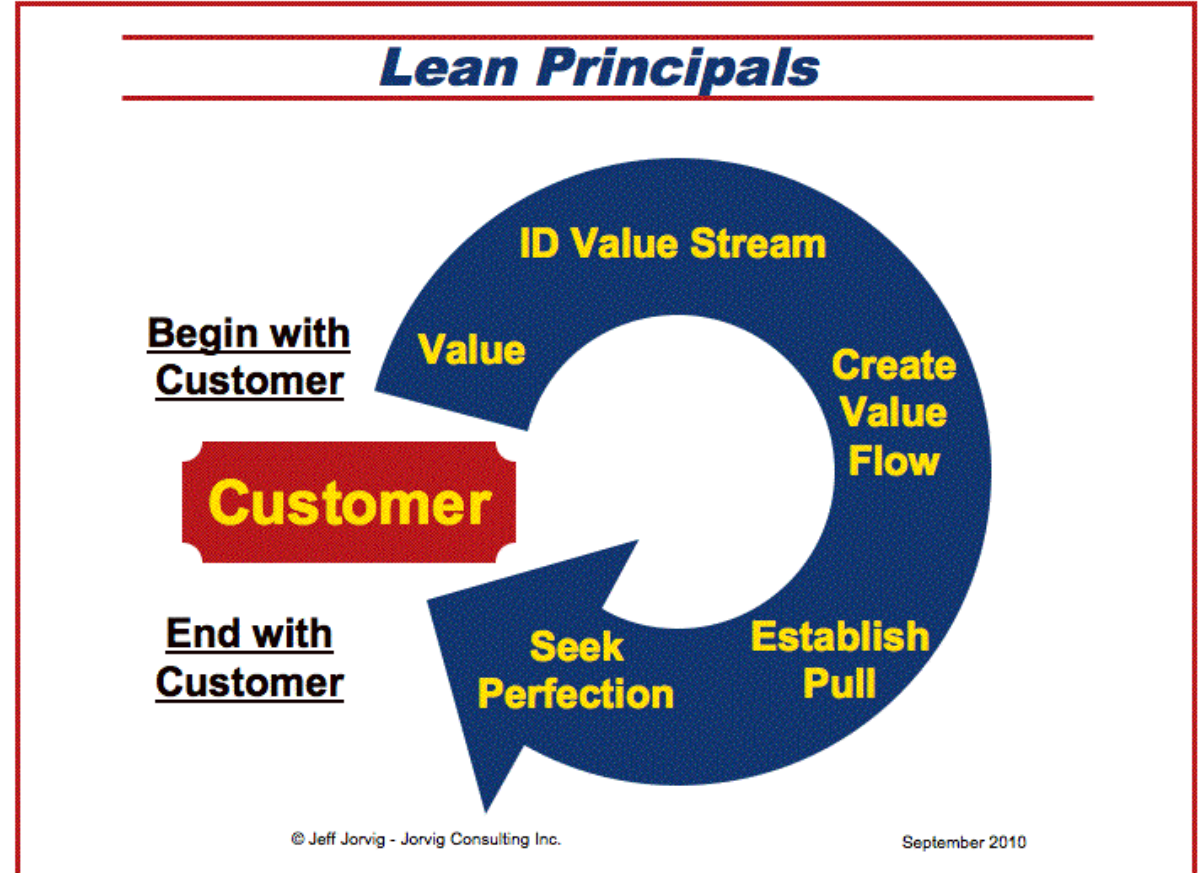
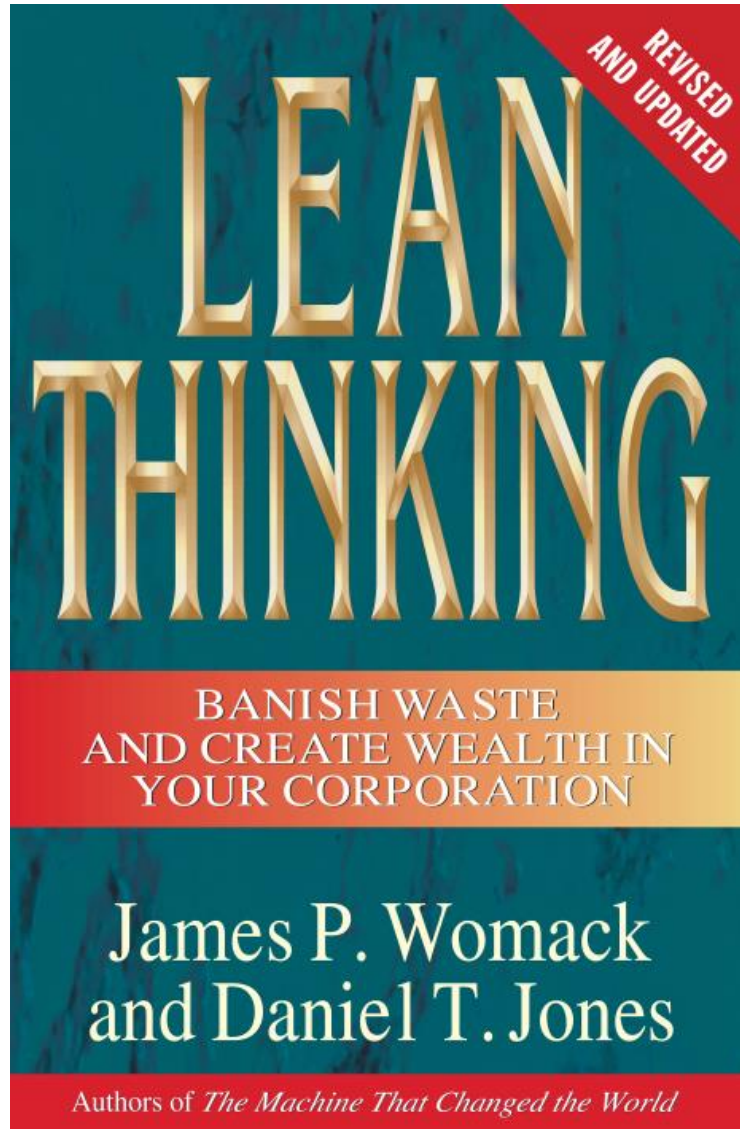


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1.4. Lean Principles





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LEAN NEEDS A STRONG FOUNDATION!



VALUE

NON VALUE
BUT NEEDED

7+1
WASTE

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1.4. Lean Principles

IDENTIFYING VALUE

- The focus in all processes should be put on creating a customer value through the whole supply chain.
- Tasks should be looked at from the customer's viewpoint to see if they provide any value to them.
- Tasks can be:
 - Value-adding (VA)
 - Non-value adding, but necessary (NNVA) (Type two Waste)
 - Non-value adding (NVA) (Type one Waste)
- Within Lean principles, all the tasks that do not create customer VA are Waste.

Starting point:



Traditional intuitive approach:



Lean approach:

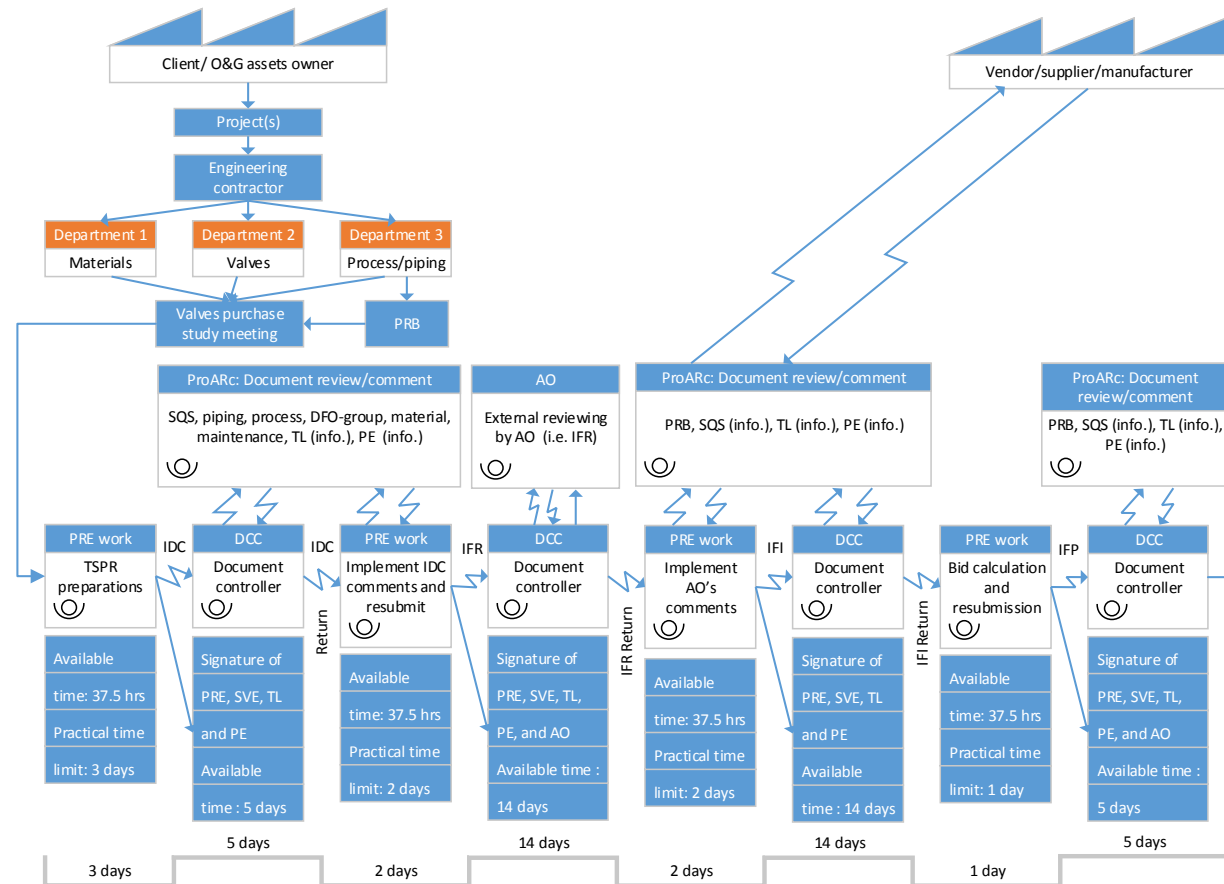


Figure: Harri Kaikkonen, University of Oulu

1.4. Lean Principles

The value has to be presented in the form of a map to see through which processes the value flow.

VALUE STREAM MAP



Source: R.M. Chandima Ratnayake, Osman Chaudry, (2017) "Maintaining sustainable performance in operating petroleum assets via a lean-six-sigma approach: A case study from engineering support services", International Journal of Lean Six Sigma, Vol. 8 Iss: 1, pp.33 – 52.

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1.4. Lean Principles

FLOW

- Make the value-adding activities flow each after another, adding maximal value at each point of the value stream
- Eliminate inventories, waiting, rework and stoppages.
- Example:
Think of yourself in a hospital or at a doctor's appointment: How much of your time are you getting actual treatment?



1.4. Lean Principles

PULL

- Pull scheduling
 - Produce only when there is an expressed need to do so from the customer (internal or external)
- This means that the customer's voice, customer's demand should schedule the work tasks, not the system schedule based on internal requirements.



1.4. Lean Principles

PERFECTION

- Strive towards perfection
- Continuous Improvement
 - *Kaizen (small improvement)*
 - *Kaikaku (big improvement, e.g. a process change)*



Navigation



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