



POLITECNICO
MILANO 1863

OPERATIONS MANAGEMENT COURSE INTRODUCTION

Alberto PORTIOLI STAUDACHER
Dipartimento Ing. Gestionale
Politecnico di Milano
Dep. Management, Economics and Industrial Engineering
alberto.portioli@polimi.it

This material and what the Professors say in class are intended for didactical use only and cannot be used outside such context, nor to imply professors' specific beliefs or opinion

General Information: People

Teachers:



Prof. Alberto Portioli Staudacher

alberto.portioli@polimi.it



Eng. Federica Costa

federica.costa@polimi.it



Eng. Stefano Frecassetti

stefano.frecassetti@polimi.it

Introductory YouTube channel: <https://www.youtube.com/channel/UCr839PrORHsqOYVp6gPs5-g/playlists>

Students meeting hours: Wednesday, 17.30-19.00 (book with an e-mail)

General Information

Teaching materials:

- Website webeep.polimi.it
- Operations and Process management. Slack, Brandon-Jones, Johnston, Betts. Ed. Pearson
- Metodologie e Tecniche per la Lean, J. Bicheno, A. Portioli Staudacher, ed, Pitagora 2009

Prerequisite: Fundamentals of Operations [About Fundamentals of Operations | POK \(polimi.it\)](http://About Fundamentals of Operations | POK (polimi.it))

Introductory YouTube channel: <https://www.youtube.com/channel/UCr839PrORHsqOYVp6gPs5-g/playlists>

Additional material

- Service Management (Fitzsimmons & Fitzsimmons, McGraw Hill)
- Service Operations Management (Johnston, Clark, Shulver, II ed. Prentice Hall)
- Manufacturing Strategy (T. Hill, ed. Palgrave McMillan)
- Operations Strategy (N. Slack & M. Lewis, II ed. Prentice Hall)
- Learning to see, (John Shook) spiral bound, ed. Lean Enterprise Institute

Related readings (discursive)

- The machine that changed the World, Womack, Jones, Ross,
- The Goal. Goldratt (multiple editors published it)
- Lean Thinking, Womack, Jones

On the left hand side of the first slide of each pack of slides there is the reference book/s for that part (in the slides there can be more than on the book, or slightly different aspects. Book is no substitute for slide and notes.

General Information

what to do / when to do / how and who

all of the company other than sales and marketing and finance

Home > Business & Finance > Other - Business & Finance > Resolved Question

Resolved Question

Why operation management important?

2 years ago

Report Abuse



ketia S

Show



Sandy

TOP CONTRIBUTOR

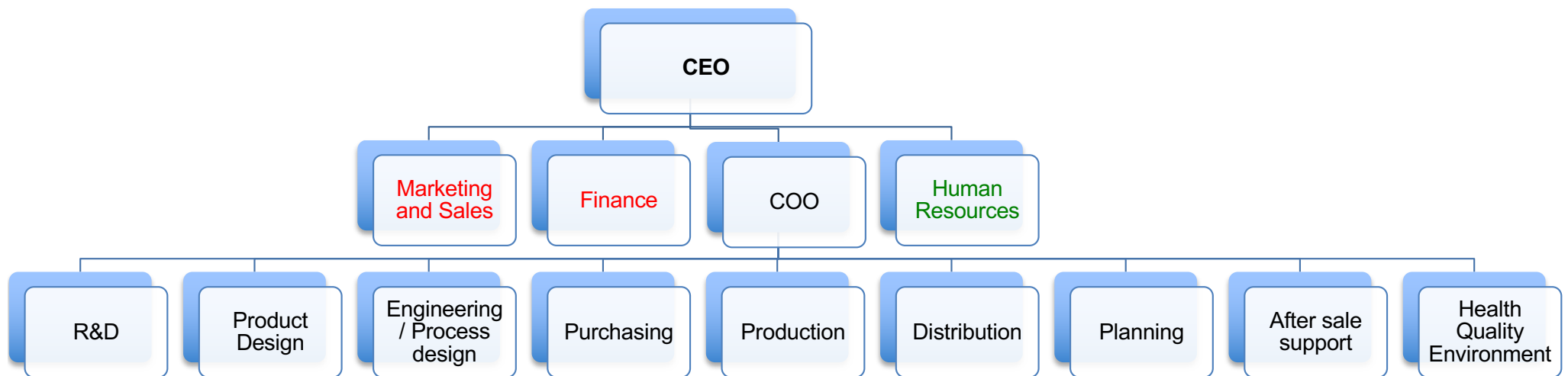
Best Answer - Chosen by Voters

Operations Management explores the way organizations produce and distribute goods and services. Everything you wear, eat, sit on, use or read comes to you courtesy of the operations managers who organized its production and distribution. Goods such as automobiles, airplanes, computers and houses, must be produced, as do the services provided by hospitals, ski resorts, trucks, and airlines. It's the job of an operations manager to make sure these activities occur when and how they are planned.

This explanation reflects the essential nature of operations management: it is the central activity in organizing things. Operations Management is the systematic development and control of the processes that transform inputs into goods and services. The operations function comprises a significant percentage of the employees and physical assets in most organizations. Operations Managers are concerned with each step in providing a product or service. They determine what should go into an operating system, such as equipment, labour, facilities, materials, energy, and information, to produce the output. Operations Managers are also responsible for critical activities such as materials management, capacity planning, purchasing, scheduling and quality.

The importance of Operations Management has increased dramatically in recent years. Significant competition, shorter product and service life cycles, better educated and quality-conscious consumers, and the capabilities of new technology have placed pressures on the operations function to improve productivity while providing a broader array of high-quality products and services.

Operations: Functions involved and the Chief Operating Officer



Operations and processes

Inputs that will be *transformed* within the operation or process

- Materials
- Information
- Customers

Inputs

Inputs that do the *transforming* within the operation or process

- People
- Facilities (technology, buildings, etc.)

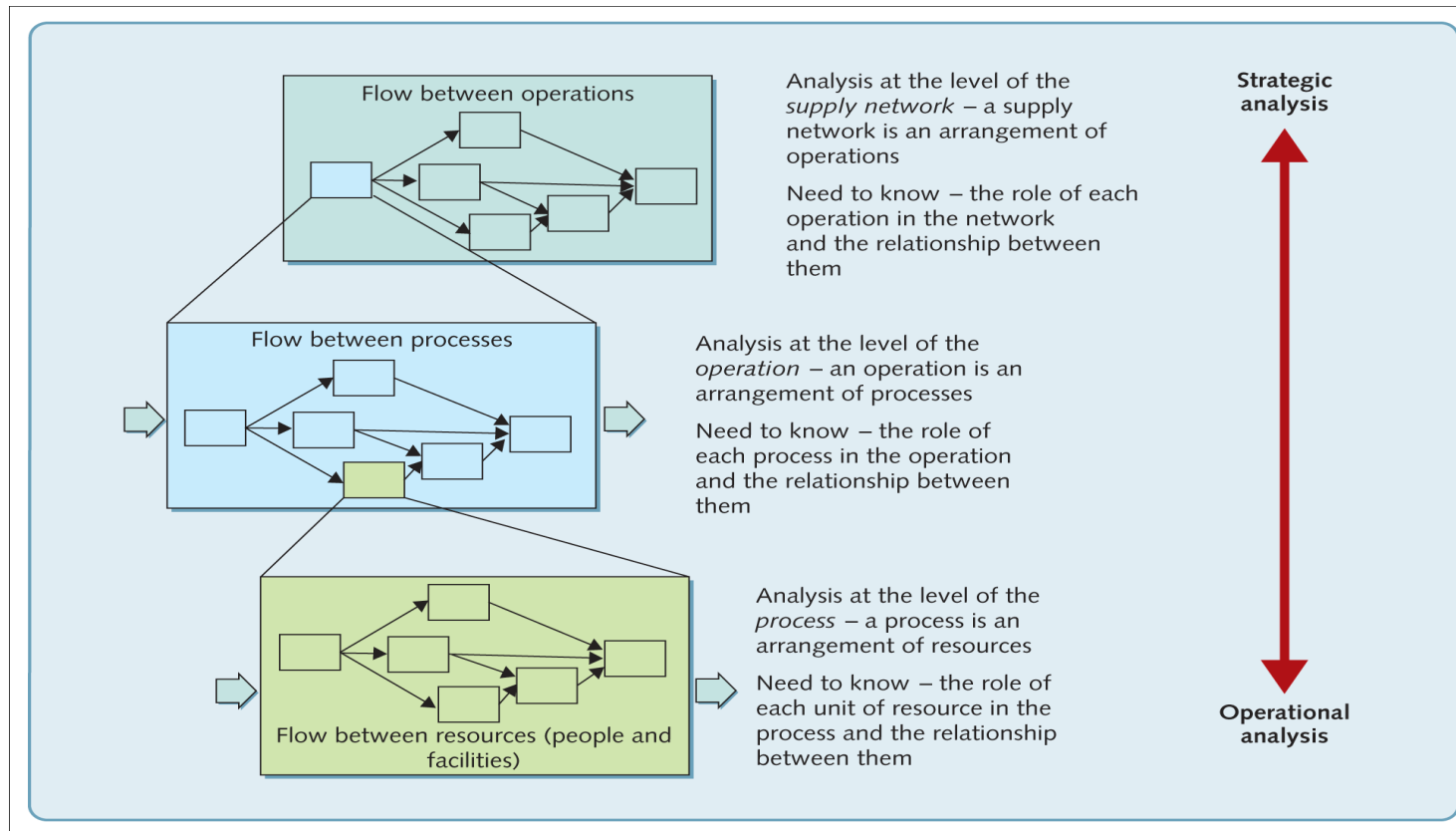
Operations and processes
transform inputs into
outputs

Outputs

Products and
services

All processes are **input–transformation–output** systems: they use ‘transforming’ resources to work on ‘transformed’ resources in order to produce products and services. Operations is a group of processes

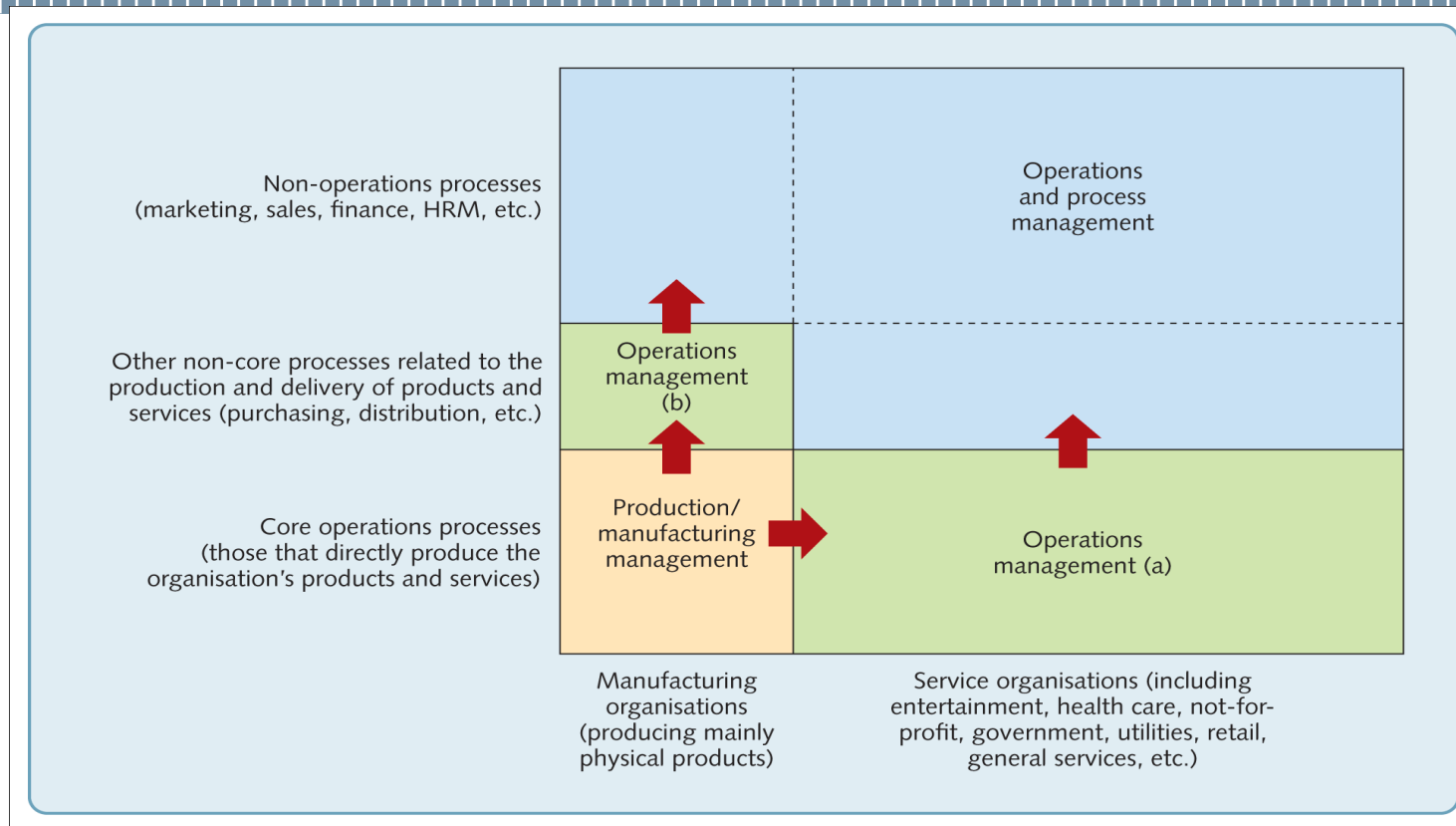
General Information



Operations and process management require analysis at **three levels**:
the supply network, the operation and the process

General Information

both manufacturing and Service



Operations management has expanded its focus:

from only the core production processes in manufacturing organizations to service organizations, non-core operations processes and processes in other functions such as marketing, finance and HRM

Why this course?

- 1. Operations are central to the company's business and mankind's sustainability!**

Operations: sustainability and the triple bottom line

improve without worsening the others

Triple bottom line:

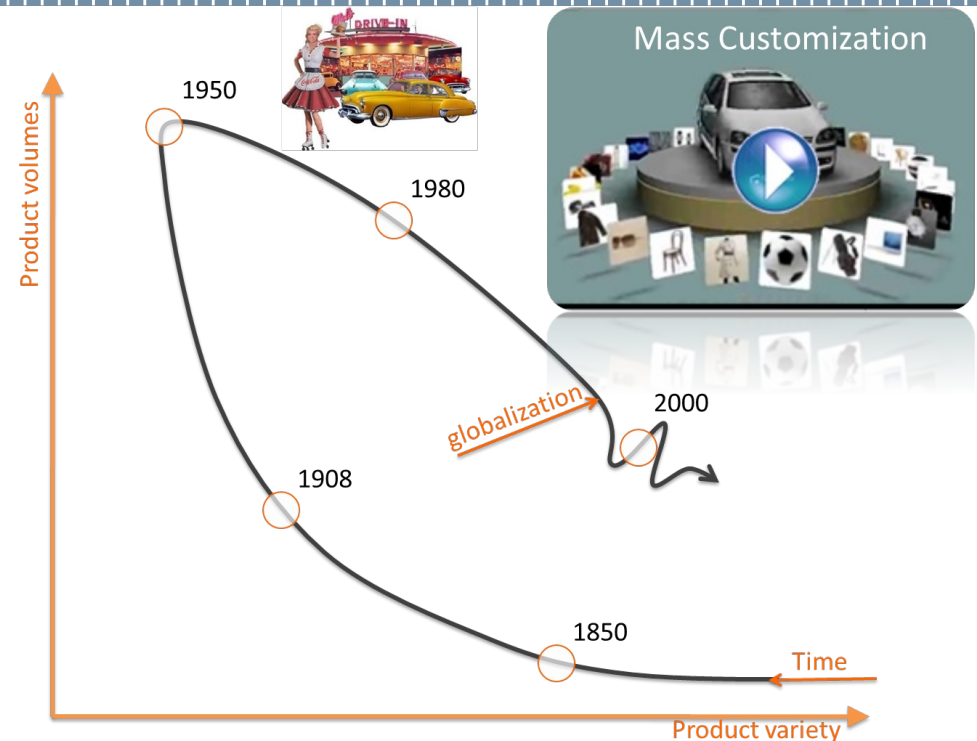
- **Profit**
- **People**
- **Planet**

decisions are hard to change

Triple bottom line: Profit

Operations' relevance in a Company

- Material expenses can be 50-80% of turnover/total cost
- Personnel expenses can be 30-50% of turnover/total cost (50-80 % in services)
- The annual cost of the facilities (resources, information systems, etc.) can be 30-40 % of turnover/total cost
- Investments are high and are binding for a long time, thus making the right choices is crucial:
 - a site can cost hundreds of millions and take 2 years to be built
 - develop distinctive competences can cost even more



**OPERATIONS IS THE KEY AREA
IN AFFECTING COMPANY'S
PERFORMANCES**

Why this course?

Why do people work?

Triple bottom line: People



Chief Operating Officer strongly affects **the way people work**, thus affecting their performances, their satisfaction, their realisation: their **happiness**

**OPERATIONS ARE KEY IN AFFECTING
EMPLOYEES' MOOD AND HAPPINESS**

Triple bottom line: People

Company operations and the society:

Employment

Services to the operating site

Direct and indirect (e.g. sponsorship) to social activities

Behavioral rules for internal and external (suppliers') operations. E.g. no children's work

OPERATIONS ARE KEY IN AFFECTING SOCIETY

Triple bottom line: Planet

Company operations:

Energy consumption

Pollution

Transportation (manufacturing and logistics footprint)

Reusable material

Recyclable material

...

**OPERATIONS ARE KEY IN
MAKING CIRCULAR ECONOMY REAL**

Why this course?

1. Operations are central to the company's business and mankind's sustainability!
2. **Companies are realizing that Operations are more and more a source of strong competitive advantage: i.e. an amazing strategic weapon.**

What is strategy?

Companies can choose the wrong strategy, but in the vast majority of cases the problem is in the ability to implement it.

Robert Kaplan

Strategic Importance of the Operations

Strategy has two aspects:

- Where to go
- How to get there

Strategic Importance of the Operations

McKinsey&Company

<http://www.mckinsey.com/client-service/operations/sectorinsight.asp>

Operations

Executive Insight

Just a few years ago, seduced by visions of limitless growth, many companies gave limited attention to operational excellence. Acquisitions, alliances, and Web-based strategies were far more alluring. Today, with a focus on fundamental strength and bottom-line results, 60 percent of CEOs surveyed by McKinsey say that achieving operational excellence is their top priority.

Learning to execute

Of course, manufacturers of steel, paper, and other basic materials have long stressed operations (even if the industry struggled to improve them). But for most service industries, including retail, telecom, insurance, and financial services, CEOs' attention to the nuts and bolts of their business infrastructure marks a turning point.

"A lot of companies made promises to customers during the dot-com era, and found they couldn't deliver," says Philippe Bideau, a director in the Paris office, "Those were failures of execution, not of strategy. What drives bottom-line performance in most industries is quality, cost, and service – and those are all operational issues."

Strategic Importance of the Operations



The screenshot displays the BCG (The Boston Consulting Group) website. At the top, the BCG logo and tagline "THE BOSTON CONSULTING GROUP" are visible. Navigation links include "Subscribe", "Alumni", "Contact Us", and "Se". Below the logo, a horizontal menu features "About BCG", "Expertise & Impact", "Careers", "Join BCG", and "Media Center". Under "Expertise & Impact", there are sub-links for "Industries", "Capabilities", "Impact Stories", and "Publications". A large banner image shows a landscape with a blue path leading towards a horizon. Below the banner, the breadcrumb trail reads "Home > Expertise & Impact > Capabilities > Operations". The main heading "OPERATIONS" is in large, bold, yellow letters. The introductory text states: "Today's fiercely competitive global economy raises the stakes in virtually every industry. To succeed, companies must cut fat and become lean, move faster, and grow more efficient. They must reinforce their core capabilities, find fresh sources of differentiation, and develop the capacity for ongoing change." To the right, an "Expert" section features a portrait of Harold L. Sirkin, Global Leader of the Operations Practice in Chicago, with a link to "View video interview". Below this, the "Operations Publications" section highlights "The Business of Sustainability: Imperatives, Advantages, and Actions" with a "MORE >>" link. On the left side of the main content area, a vertical sidebar titled "OPERATIONS CAPABILITIES" lists several key areas: "Cost Efficiency & Asset Optimization", "Lean", "Manufacturing", "Outsourcing/Business Process Outsourcing", "Program Management", "Service Operations", and "Sourcing & Procurement".

BCG
THE BOSTON CONSULTING GROUP

Subscribe | Alumni | Contact Us | Se

About BCG | Expertise & Impact | Careers | Join BCG | Media Center

Industries | Capabilities | Impact Stories | Publications

Home > Expertise & Impact > Capabilities > Operations

OPERATIONS

Today's fiercely competitive global economy raises the stakes in virtually every industry. To succeed, companies must cut fat and become lean, move faster, and grow more efficient. They must reinforce their core capabilities, find fresh sources of differentiation, and develop the capacity for ongoing change.

OPERATIONS CAPABILITIES

- Cost Efficiency & Asset Optimization
- Lean
- Manufacturing
- Outsourcing/Business Process Outsourcing
- Program Management
- Service Operations
- Sourcing & Procurement

Expert

 **Harold L. Sirkin**
Global Leader
Operations Practice
Chicago

 [View video interview](#)

Operations Publications

 ***The Business of Sustainability: Imperatives, Advantages, and Actions***

[MORE >>](#)

Why this course?

1. Operations are central to the company's business and mankind's sustainability!
2. Companies are realizing that Operations are more and more a source of strong competitive advantage: i.e. an amazing strategic weapon.
3. **Services are a special world, and a rapidly growing world. Service Operations are new: companies are struggling to find service-specific skills.**

GDP percentage in services

	'90	'00	'10	'19	'21
France	62	66,3	70,7	70	70,2
UK	64,9	63,6	62	64,7	65,7
Japan	62,9	66	70,5	69,4	69,5
Mexico	59,7	58,8	60,4	60	58,4
Bulgaria	35,2	54	59,5	61,4	60,2
India	37	42,7	45	50,1	47,7
China	32,4	39,8	44,2	54,3	53,3
Burundi	23	32,1	37	47,8	44,8

What's the difference between manufacturing and service?

-.....

-.....

-.....

What's the difference between manufacturing and service?

Co-design

Co-makership

Co-creation

This course is a service

Why this course?

1. Operations are central to the company's business and mankind's sustainability!
2. Companies are realizing that Operations are more and more a source of strong competitive advantage: i.e. an amazing strategic weapon.
3. Services are a special world, and a rapidly growing one. Service Operations are new: companies are struggling to find service-specific skills
4. **Improving is winning (Operational Excellence):**
 - **If you improve more than your competitors, you will win**
 - **Improving gives way more satisfaction than just doing**
 - **Improving is part of the human nature=>let's do it**

- LEAN: continuous improvement, and Respect for People
- Six Sigma: reduce variability and gain control, through a powerful (and sophisticated) set of tools
- Agile: be fast, be flexible, be Agile


LEAN is the main organisational revolution of the last 100 years, and the base of any serious and successful Operational Excellence System for the future

Strategic Importance of the Operations

McKinsey&Company

McKinsey.com ▶

McKinsey Model Factory



- ▶ Home
- ▶ The Model Factory
- ▶ Operations Practice
- ▶ Event program
- ▶ Agenda
- ▶ Application
- ▶ FAQs

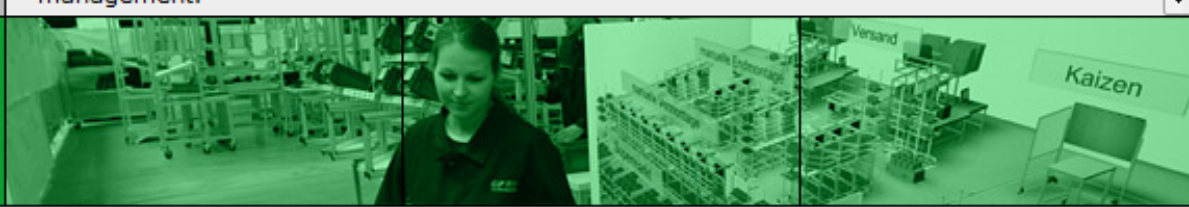
- ▶ Contact
- ▶ Tell a friend

Center for Industrial Productivity

The Model Factory (CIP – Center for Industrial Productivity) is an educational and research initiative that has been developed with support of McKinsey.

Located at the renowned Darmstadt University of Technology, the Model Factory is a real-scale industrial learning center built to the latest scientific requirements for modern production processes. It includes a realistic model of a shop floor, specifically designed for training and scientific purposes.

The goal of the model factory is to train people in the methods of Lean in a uniquely practical production setting by using real products. The CiP provides a hands-on environment to enable companies and interested parties to achieve sustainable productivity improvement along the value chain. This holistic transformation approach guarantees effective performance management and the right organization structure in order to foster a culture of continuous improvement by optimizing the operating system with the tools and methods of lean management.



© Copyright 2004 - 2009 McKinsey & Company. [Impressum](#). [Terms of Use](#). [Privacy Policy](#)

Strategic Importance of the Operations

[About BCG](#) [Expertise & Impact](#) [Careers](#) [Join BCG](#) [Media Center](#)

[Industries](#) | [Capabilities](#) | [Impact Stories](#) | [Publications](#)



[Home](#) > [Expertise & Impact](#) > [Capabilities](#) > [Operations](#) > [Lean](#) > [Publications](#)

LEAN PUBLICATIONS

Getting More from Lean: Seven Success Factors

Harold Sirkin , Pascal Cotte , Petros Paranikas , Adam Farber , Amy Merchant
September 2008



Why do some companies such as Toyota succeed at lean, while other companies struggle? What do companies with the best outcomes do differently than their less successful peers? To find the answers, BCG conducted extensive interviews with a wide range of companies with varying degrees of lean experience, and combined these insights with our own observations from helping clients achieve success in their lean initiatives. This article reveals the seven critical success factors we discovered.

[READ FULL PDF »](#)

Other Publications



Banking on Lean Advantage

[MORE »](#)



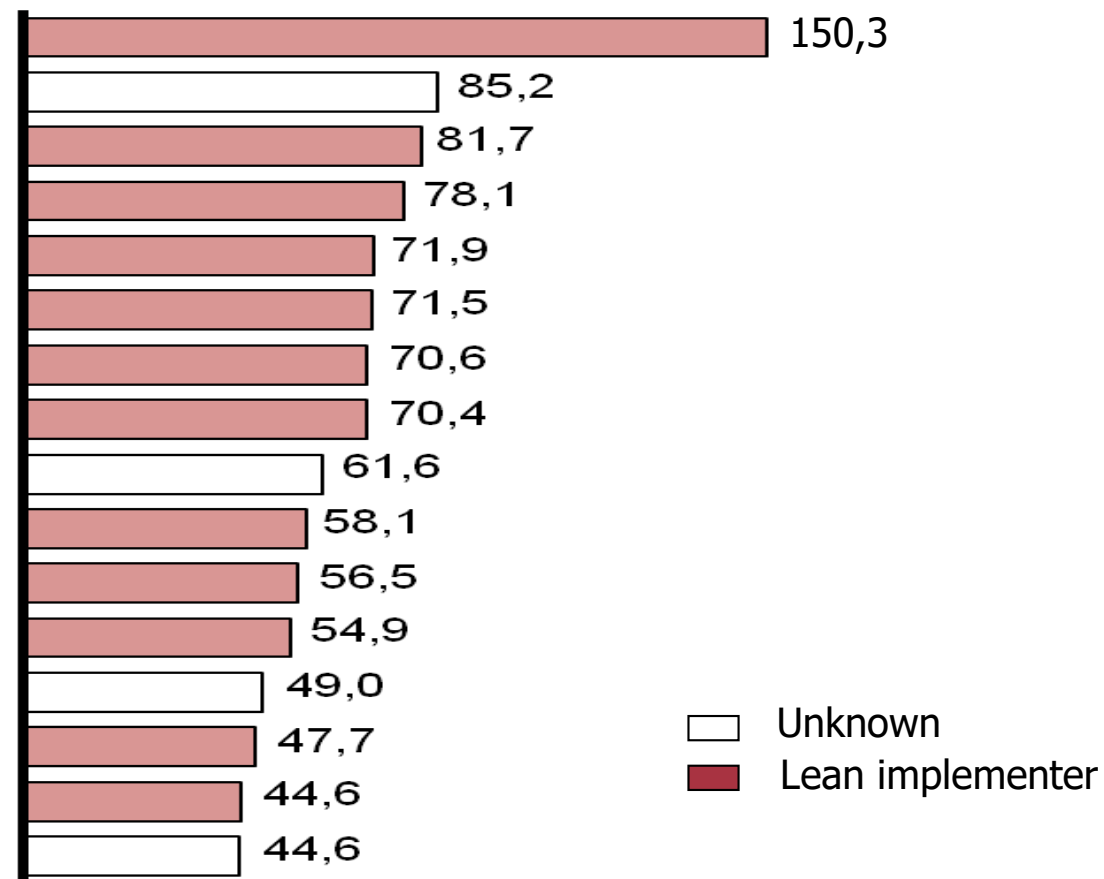
Lean and Active: A New Perspective on the Role of the Center

[MORE »](#)

[ALL LEAN PUBLICATIONS »](#)

Major banks are moving

Market capitalization of banks
Billion euro



Why this course?





1. Operations are central to the company's business and mankind's sustainability!
2. Companies are realizing that Operations are more and more a source of strong competitive advantage: i.e. an amazing strategic weapon.
3. Services are a special world, and a rapidly growing one. Service Operations are new: companies are struggling to find service-specific skills
4. Improving is winning (Operational Excellence):

Ind 4.0, YES!! But how?



Our research (2019) demonstrated the synergetic link between technological innovation (Industry 4.0) and organizational innovation (Lean management)

Table 2 – Chi-square test among levels of Industry 4.0 technologies adoption and LP implementation according to levels of operational performance improvement

Operational performance improvement	Industry 4.0 technologies adoption	Lean Production practices implementation				Total frequency
		LLP		HLP		
		Frequency	Adjusted residual	Frequency	Adjusted residual	
LPI	LTA	32	3.39***	8	-3.39***	40
	HTA	2	-3.39***	7	3.39***	9
	Total frequency	34		15		49
HPI	LTA	 12	1.74*	 24	-1.74*	36
	HTA	 3	-1.74*	 20	1.74*	23
	Total frequency	15		44		59

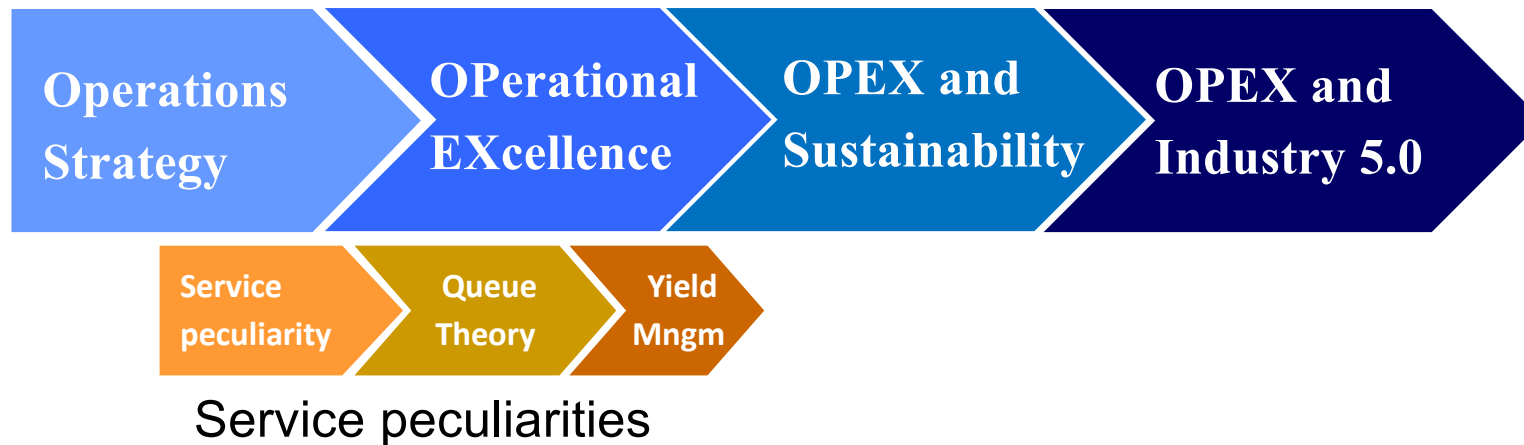
*Significant at 10% (Adjusted residual>|1.64|); **Significant at 5% (Adjusted residual>|1.96|); ***Significant at 1% (Adjusted residual>|2.58|)

The course will provide you with..

- Engineering Approach (attitude towards improvement, modeling and quantitative capabilities)
- Comprehensive picture and thus ability to exploit the strategic strength of Operations
- Understanding the role of Operations to better assess the value of the Company
- Ability to transform decisions into operative actions

The Course structure

Operations Management



Working hours



How many hours a year does a Manager work?

How many hours a year are you expected to study?

CEO Workload

***I work 16 hours a day, 7 days a week, for 52 weeks a year.
And people still say I'm lucky***

Elon Musk

Students Workload

60 ECTS / year = 1500 hours

30 ECTS / sem = 750 hours

30 ECTS mid Sept-> mid Feb = 40 hours/week average

Average student, average grade (25)

The student of Operations Management is:

- Paying attention
- Developing a Partnership: she/he gets involved
- Adopting a Positive and Critical attitude: [link](#)

The BIG question

Why coming to class rather than whatching on line the streaming or the recording?

Delivery of the Course: 2 possibilities, according to the student's choice

PROACTIVE PARTICIPATION (15-20 hours/week) finished by early Jan

- Coming physically to class
- Reading the assigned material
- Watching the assigned videos
- Working on the given assignments
- Participate to the discussion in class
- **Exam: 2 group assignments during the first part of the course (Sept-Nov) with oral discussion of the second one + a final written exam with theoretical part on the whole course, and exercises on the second part of the course only**

PASSIVE / ZERO PARTICIPATION (250 hours over 4.5 months)

- Coming in class or not
- Watching streaming and or recording (except for class discussion of Proactive participation and the discussion of assignments)
Reading books' chapters
- **Exam: single written exam with questions and exercises on all parts of the course**



POLITECNICO
MILANO 1863

