

The aim of the course is to give students a basic proficiency in production economic thinking, argumentation and analysis. Upon completing the course, the student masters the basic concepts and key dynamics of production as an economic activity, and is through these able to understand and evaluate business-opportunities, design and evaluate business-processes, and analyze the financial state of a business. Further, throughout the course, the student learns basic skills of engineering work, such as project planning, organizing and management.

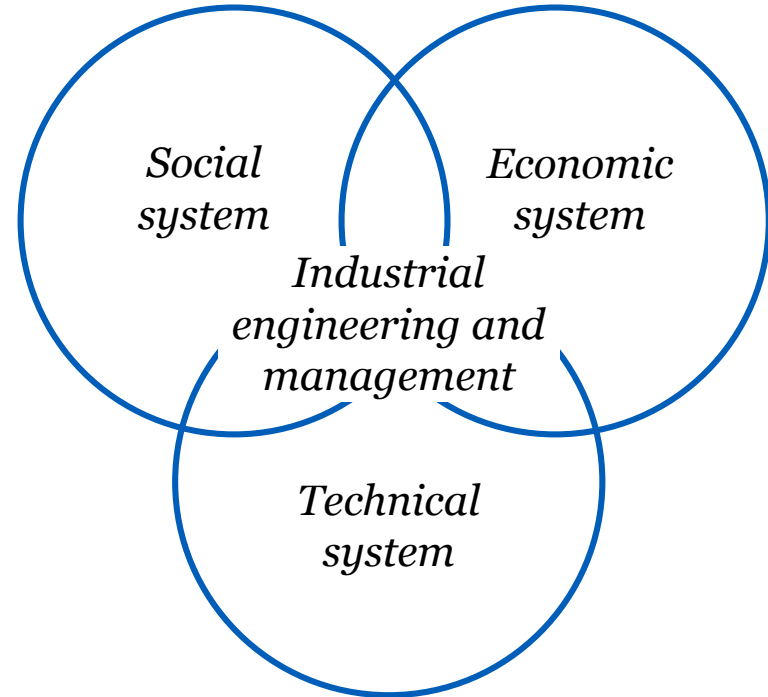
TU-A1300

Introduction to Industrial Engineering and Management

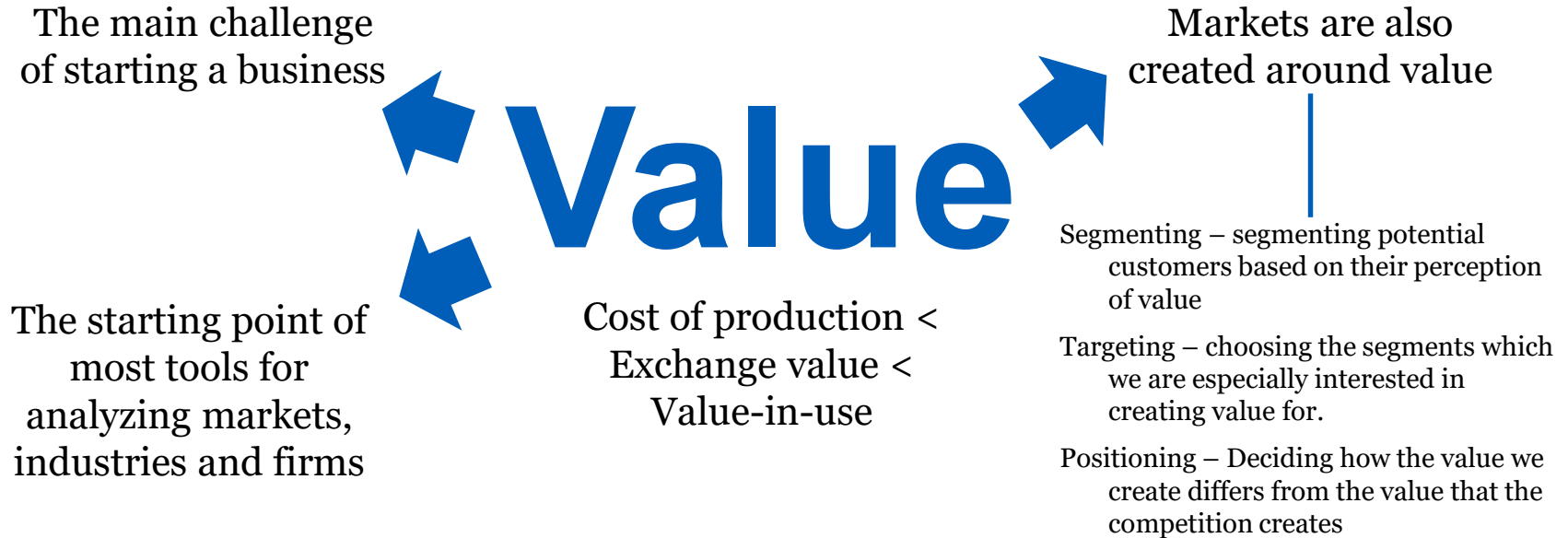
Recap and preparation for midterm exam I
Mikael Öhman

Industrial engineering and management as a science

- The necessary prerequisites for economic activity
- Production is about transformation
- Technology as more than gadgets
- Industrial engineering and management is a science of the artificial.



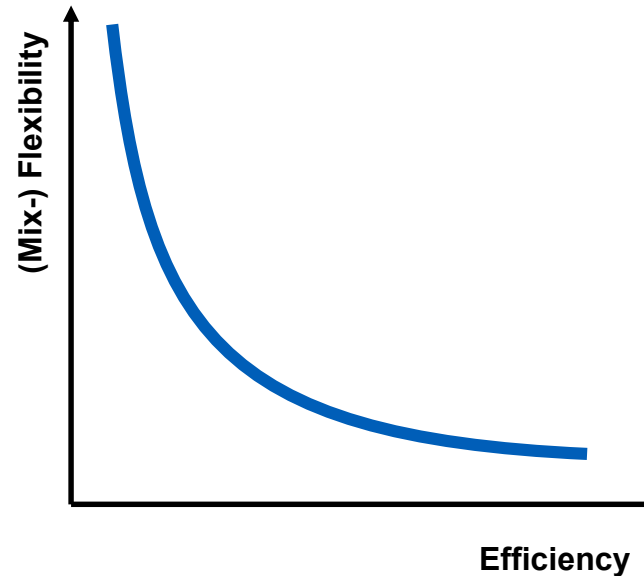
Value as the foundation of business



Production systems and organizations

Production systems

- The connection between efficiency and standardization
- Different production systems for different products
- How to push the tradeoff between flexibility and efficiency
- Effect of customer interaction (OPP)



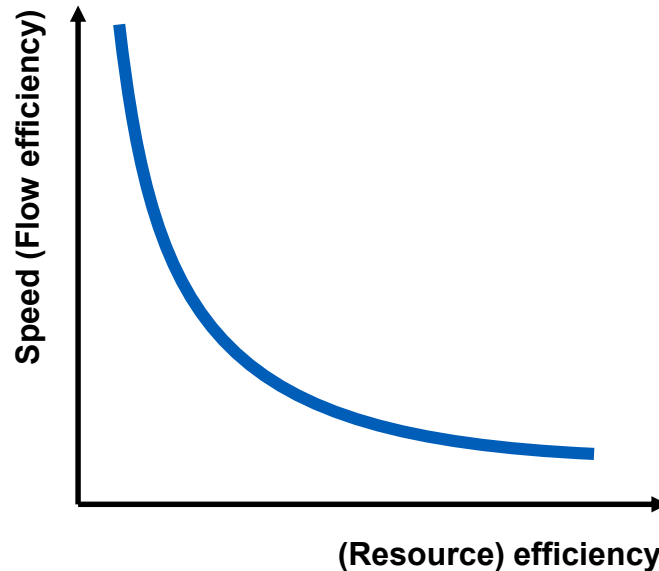
Organizations

- Organizations are about people
- Organizations can be understood through structure and culture
- The difference between management and leadership

The production process and production control

Production process

- The connection between standardization and process
- Relationship between the speed/efficiency tradeoff and production layout
- Why are setups crucial
- The role of buffers in production



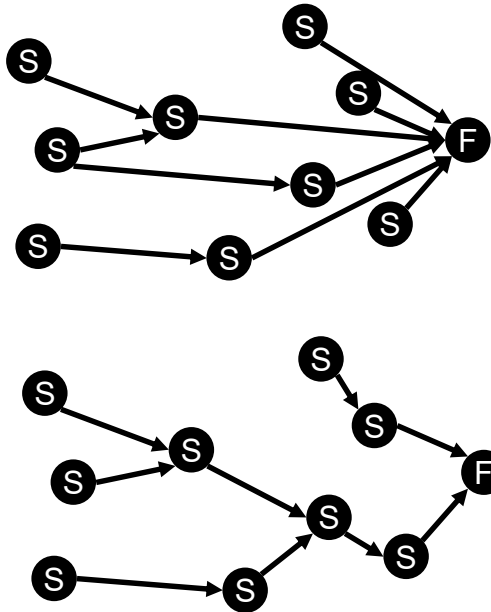
Production control

- Two basic logics, push and pull – and their relationship to the OPP
- Coping with variety: the relationship between batch size, WIP, lead time and setup time
- The role of quality control

Production as part of the supply-chain

Procurement

- What a core competence is
- Specialization drives the importance of procurement
- Procurement controls a lion's share of costs in today's firms
- Moving from price-focused procurement to total-cost-of-ownership thinking



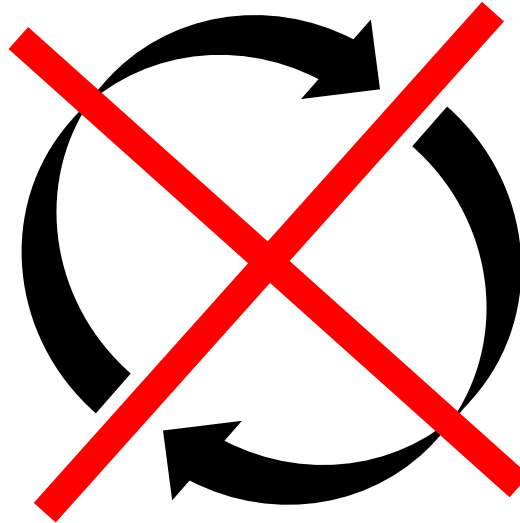
Supply-chain management

- Downstream and upstream, tiers
- Supply-chain structure, and its management implications
- Tradeoff between responsiveness and effectiveness, and its relation to OPP
- Demand forecasting

Projects

Projects

- Implications of the uniqueness of a project
- The tradeoff between project objectives and their interdependence
- Keeping your eye on the future while managing the present



Midterm exam I

When: Tuesday 20.10.2020, 13:00-16:00
Where: MyCourses

Midterm exam

- **The exam will be done in MyCourses 20.10.2020**
 - It opens at 13:00 and closes at 16:00.
- **You can use all the course materials, and any additional information sources that you feel are appropriate**
 - We have formulated the exam questions based on the assumption that you have all the information in the world at your fingertips.
 - You can and should refer to sources – but do it appropriately.
- **The exam consists of two essay questions**
 - One questions is more theory-oriented, the other is more practice-oriented
 - You will write your answer in a word file (or similar).
 - One file per question, two files in total.
 - The answer-files are submitted to corresponding Turnitin-boxes in MyCourses, before the exam closes.
 - Reserve time for making the submission.

This is still an individual exam!

- **Answers are submitted to Turnitin**
 - Plagiarism will be detected.
 - You can avoid being flagged
 - *by writing your answer yourself*
 - *by not sharing it with anyone*
 - *by making appropriate references to all sources*
- **The essay questions will be drawn from a pool of questions**
 - It is not probable that you will have the same questions as your friend.
 - Question scores will be adjusted (up), in order to compensate for any differences in the difficulty of the questions.

How should you prepare for the exam?

- **Exactly as you would prepare for a normal exam**
 - The exam tests to what extent you've understood course concepts and to what extent you are able to related them to each other.
 - You might want to map good additional sources of information beforehand
- **If you're not confident in your essay-writing skills, work on them**
 - Lack of structure and emphasis often reveal lack of understanding
 - This most important thing is to answer the question
- **If you are poorly prepared you will most likely run out of time**
 - You do not have time to learn the course contents during the exam
- **If you have a certificate which grants you additional time, contact Kiri for more information**
 - kiri.huhtanen@aalto.fi

How should you act during the exam?

- **Maximize your performance**
 - Be on time, submit on time
 - Take at least one break, get some air, reserve some snacks, coffee? etc.
- **Any problems and questions during the exam can be addressed to the exam supervisor(s) via email: tu-a1300@aalto.fi**
 - Any exam-related announcements and notifications will be delivered via email..
 - If sh*t hits the fan -> expect instructions via email.
- **This is not the first time we do this kind of exam**
 - We will prepare for all problems that we can realistically think of
 - If there are problems during the exam, be patient, we are on it...

Good luck with the midterm exam!

Perfection is achieved, not when there is nothing more to add,
but when there is nothing left to take away.

Antoine de Saint-Exupéry