

An aerial photograph of a dense green forest. A white, curved path or clearing runs diagonally from the top left towards the bottom right. Along this path, several bright orange spheres of varying sizes are scattered, some appearing to be on the path and others slightly off to the side. The background is a solid white color.

# **Business-oriented Product Development**

**Dr. Tero Juuti**

**Dr. Timo Lehtonen**

**Dr. Jarkko Pakkanen**



An aerial photograph of a dense green forest. A bright yellow path winds through the trees from the top left towards the bottom right. Along this path, several orange, 3D-rendered spheres of varying sizes are scattered. The title text is overlaid on the right side of the image.

# **Business-oriented Product Development**

**Dr. Tero Juuti**

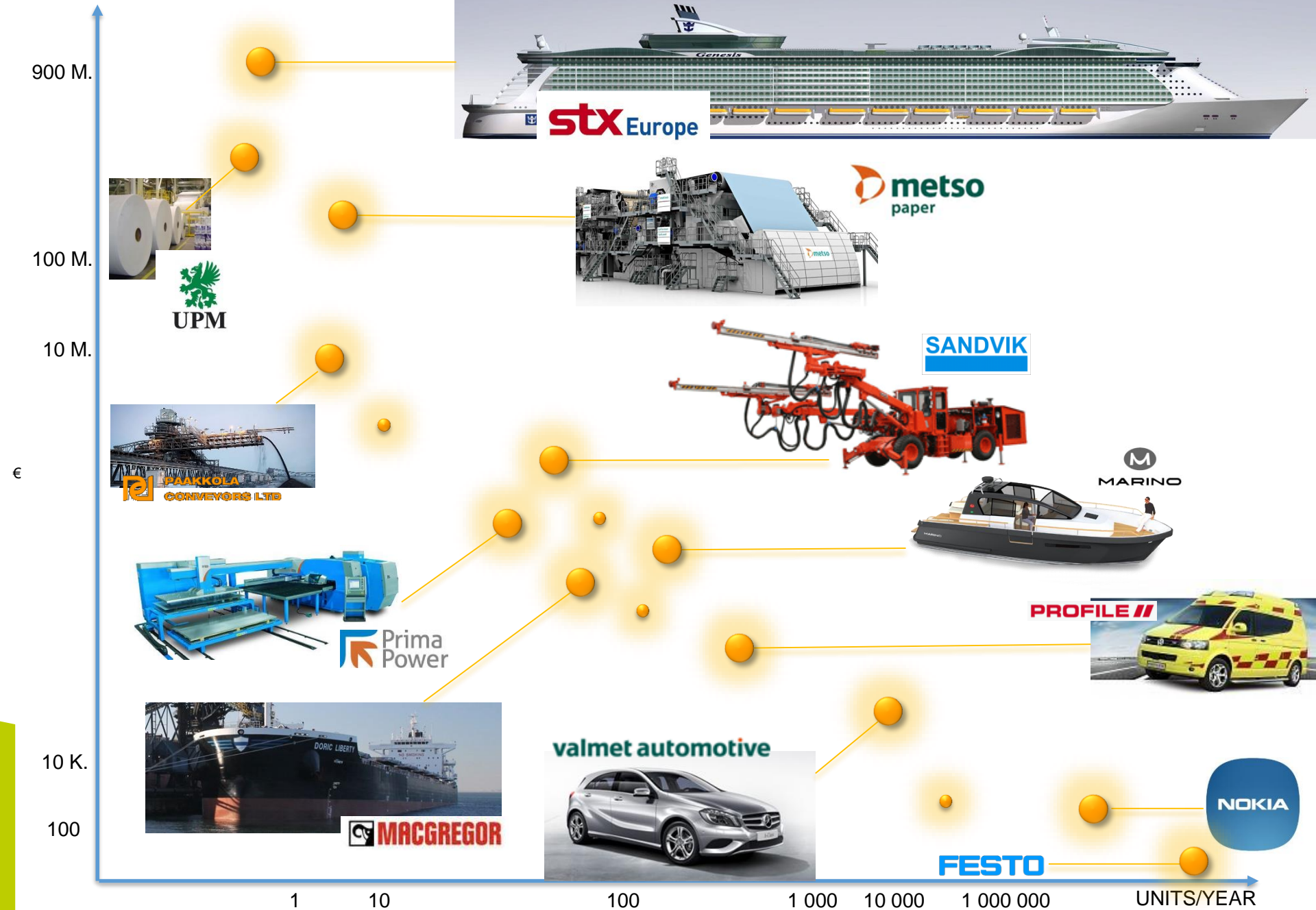
**Dr. Timo Lehtonen**

**Dr. Jarkko Pakkanen**

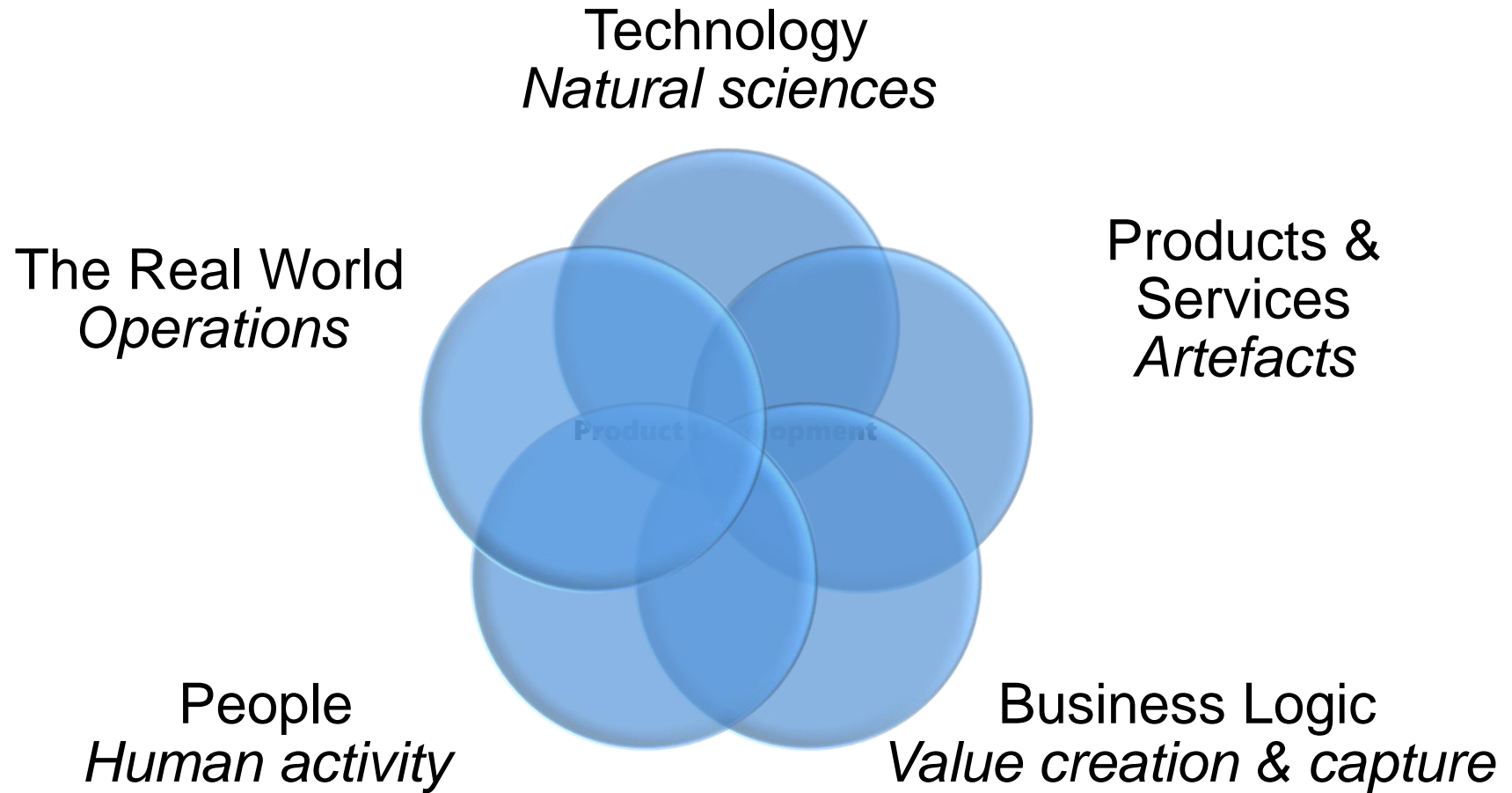
# Business-oriented Product Development

63 CASES IN INDUSTRY





***we are dealing with***



***To understand and to improve.***

# Business-oriented Product Development

## PRODUCT STRUCTURING



### Product Structuring Knowledge



# Business-oriented Product Development

## PRODUCT STRUCTURING



### Product Structuring Knowledge



## VALUE CHAIN STRUCTURING



# Business-oriented Product Development

## PRODUCT STRUCTURING



Product Structuring Knowledge



## VALUE CHAIN STRUCTURING



## STRATEGY STRUCTURING



Value chain tactics



Product Structuring Strategy



Business model



# Business-oriented Product Development

## PRODUCT STRUCTURING



Product Structuring Knowledge



## VALUE CHAIN STRUCTURING



## STRATEGY STRUCTURING



Value chain tactics



Product Structuring Strategy



Business model



# Business-oriented Product Development

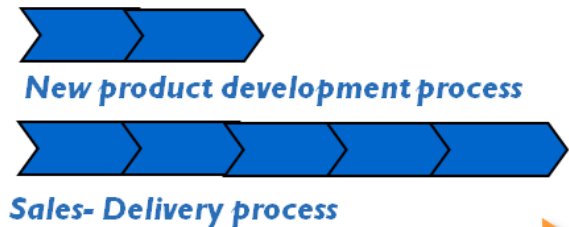
## PRODUCT STRUCTURING



## VALUE CHAIN STRUCTURING



## STRATEGY STRUCTURING



## OPERATIONAL STRUCTURING



## ORGANISATION STRUCTURING

# Business-oriented Product Development

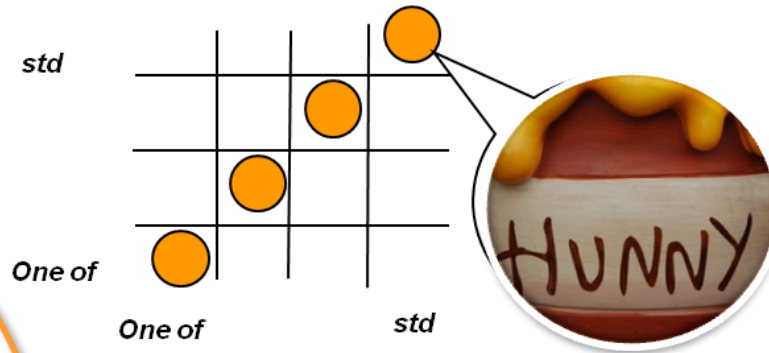
## PRODUCT STRUCTURING



## VALUE CHAIN STRUCTURING



## STRATEGY STRUCTURING

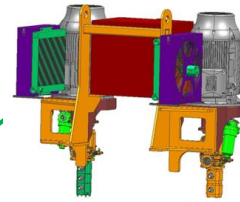


## OPERATIONAL STRUCTURING

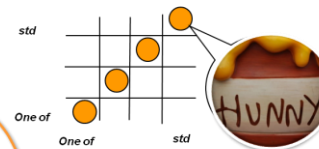
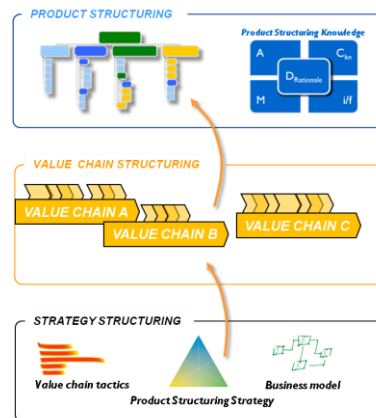


## ORGANISATION STRUCTURING

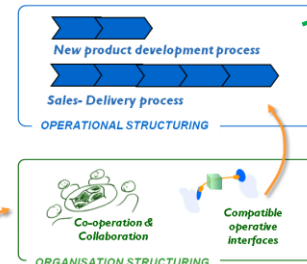
## TECHNICAL SYSTEM



## BUSINESS SYSTEM



## OPERATIVE SYSTEM



The properties of the technical system enables particular behaviour in operative system and creates value in business system



# Company Strategic Landscape

- is tool for developing product structures that correspond the needs arising from the business and manufacturing environment
- Strategic tool where design office, sales and production are co-operating under direct authority of the executing management.

**“How to create such a product structure that corresponds the business needs and enables the company strategy?”**

# Why to focus on product structures?

- A product has always some kind of physical and functional structure and there exists a dependency between these entities.
- Some of the dependencies emerge in a more abstract level which makes it challenging to view and model them (e.g. component decoding, work distribution among suppliers)
- To achieve sustainable business the product structure should fit the business environment to which it is intended in.

**Product structure enables and limits  
the ways of making business and  
determines the possibilities of  
implementing the company strategy**

# Creating the overview

- design tools and practices concentrate on narrow sector of the design field which leads to partial optimization
- CSL is based on 20 years of the design research at Tampere University of Technology and Nokia Oyj
- Conclusions are based on over 60 industrial cases in Nordic countries
- CSL is used to sketch the general view of product design requirements
- CSL:n ensures that the critical and “hidden” requirements are regarded in an early stage of the design process

# Simple guiding principles

- 1. Focus on Value creation and Cost**
- 2. Focus on Customer and Business and the Value network**
- 3. Co-create with the experts**
- 4. Re-use value adding, known solutions**
- 5. Go for the 51<sup>st</sup> solution concept**
- 6. Embrace the diversity and resistance**

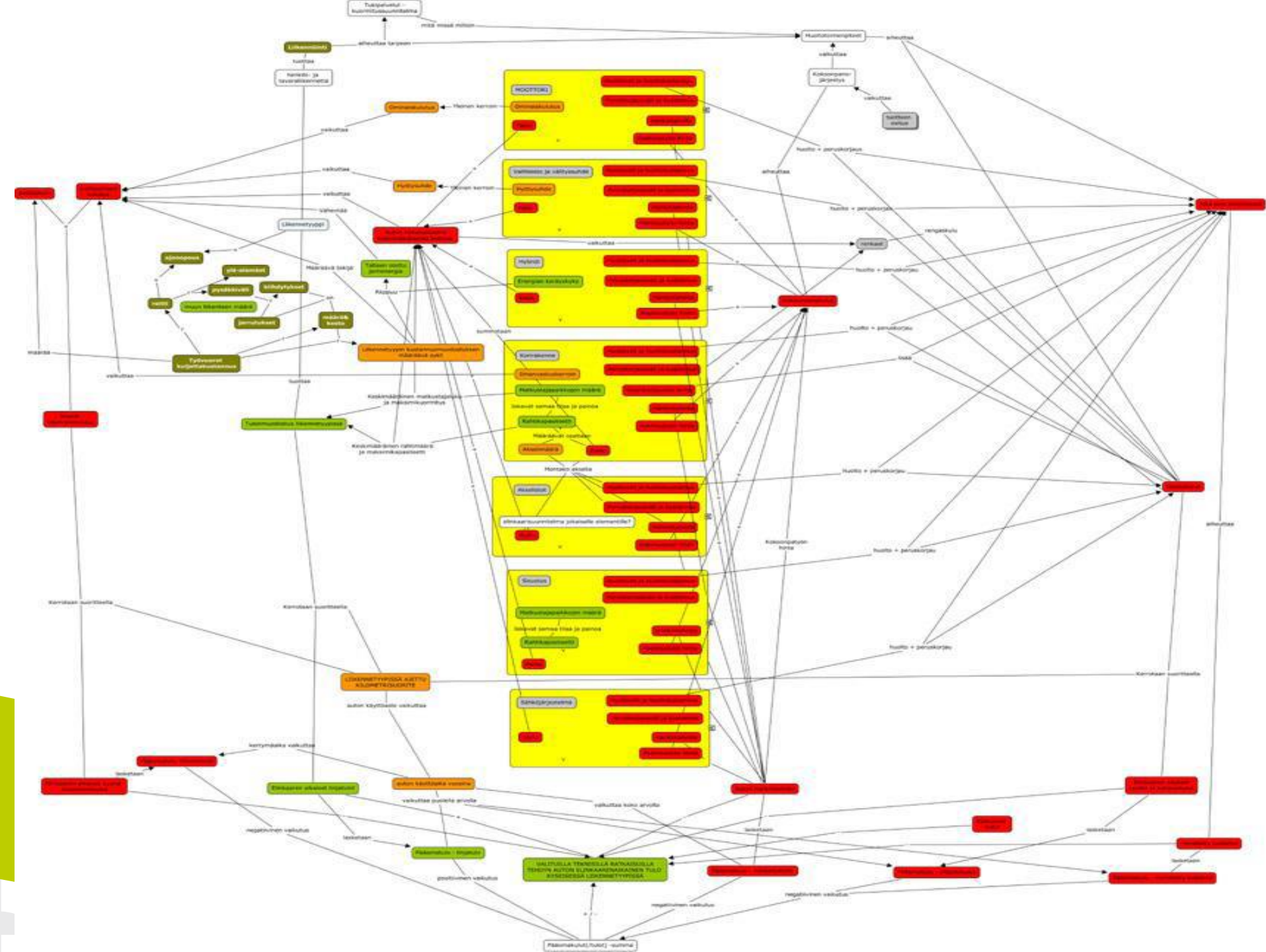




# **CASE A**

## **HYBRID BUS**

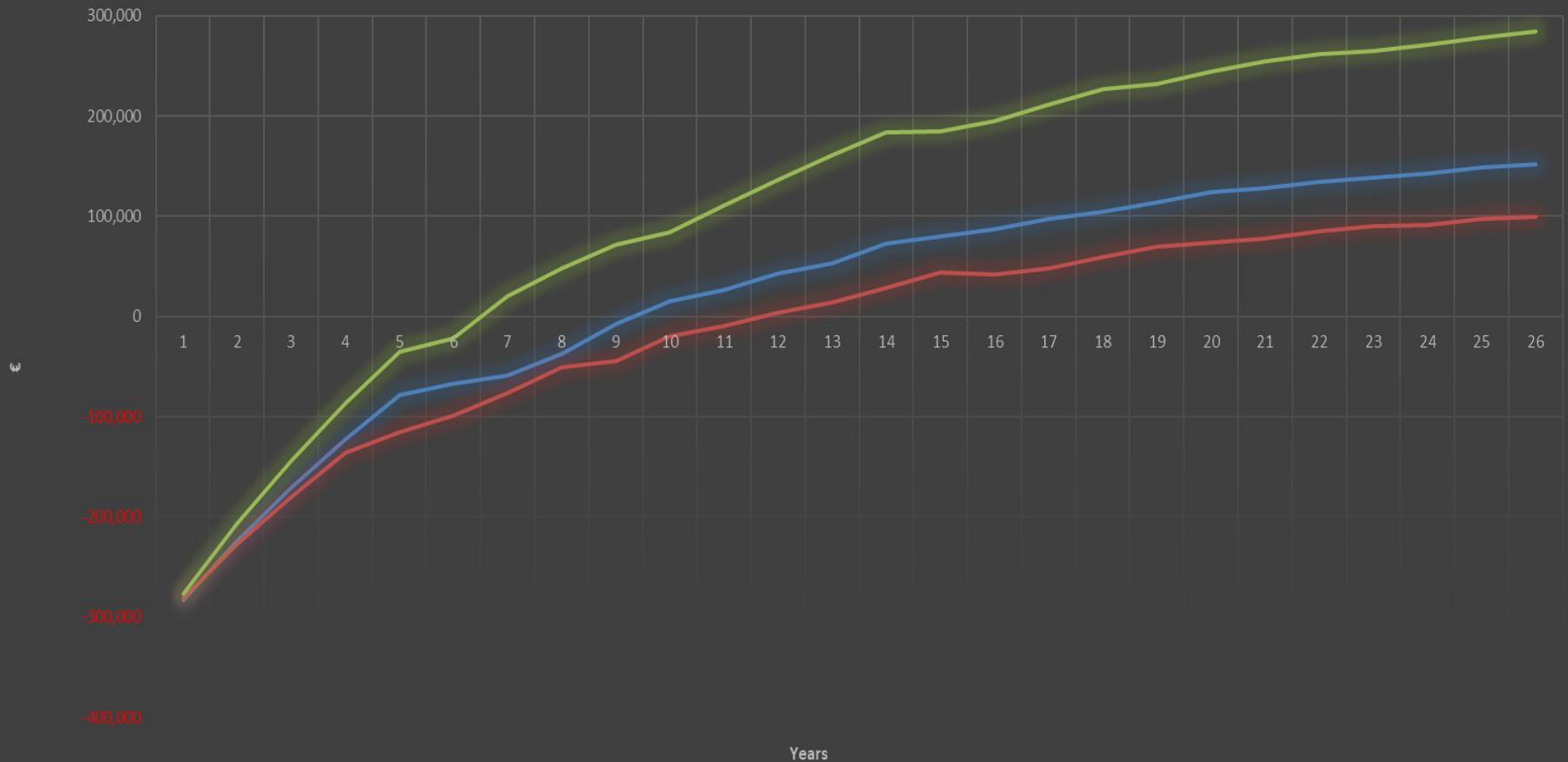
### **LIFECYCLE VALUE CREATION**



# Kaupunkiliikenteen operointi kevytrakennehybridibussilla

Auton elinkaariotto(NPV)

Auto Auto2 Auto3





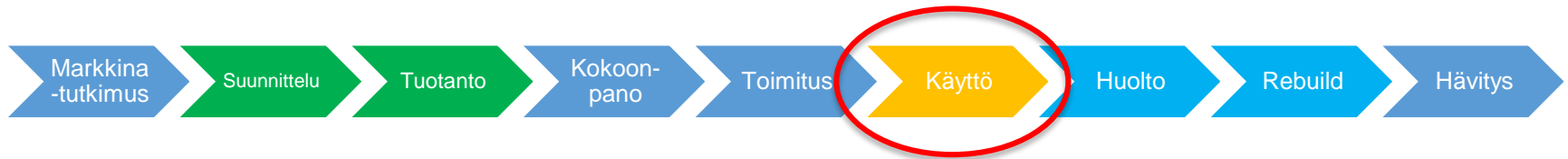


# **CASE C**

## **ADDITIVE MANUFACTURING FEASIBILITY STUDY**

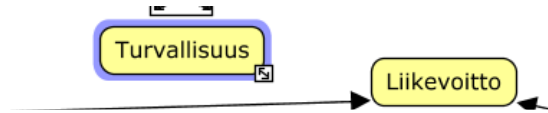


# Tavoitteet

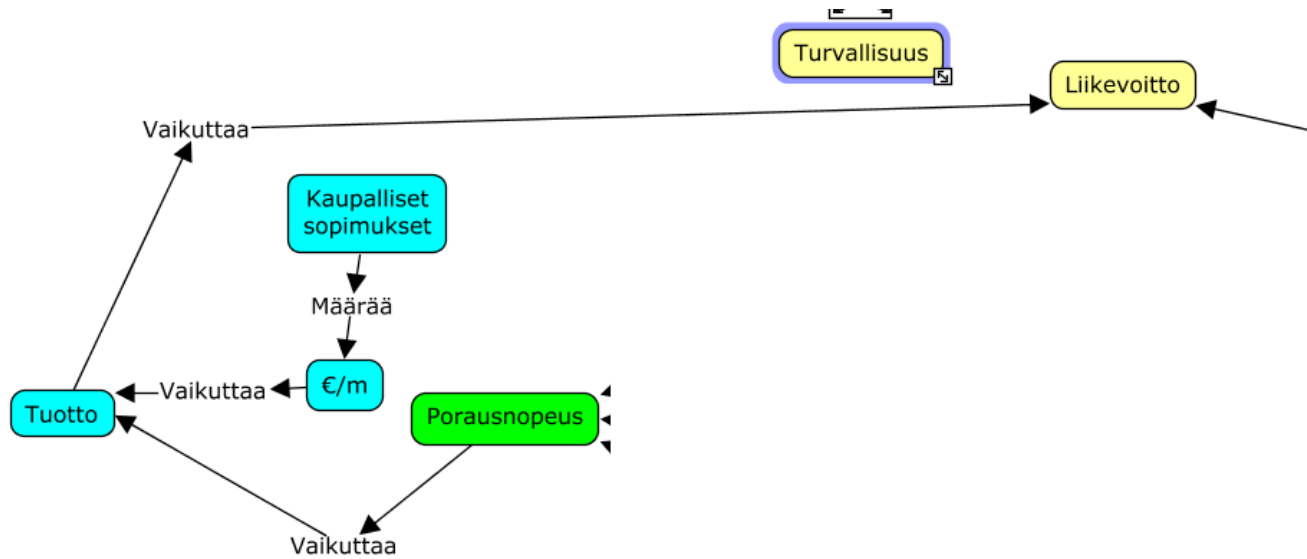


- Käyttövaiheessa porakoneelle valittiin tärkeiksi ominaisuuksiksi
  - porausnopeus
  - hyötysuhde

# Design Reasoning Pattern



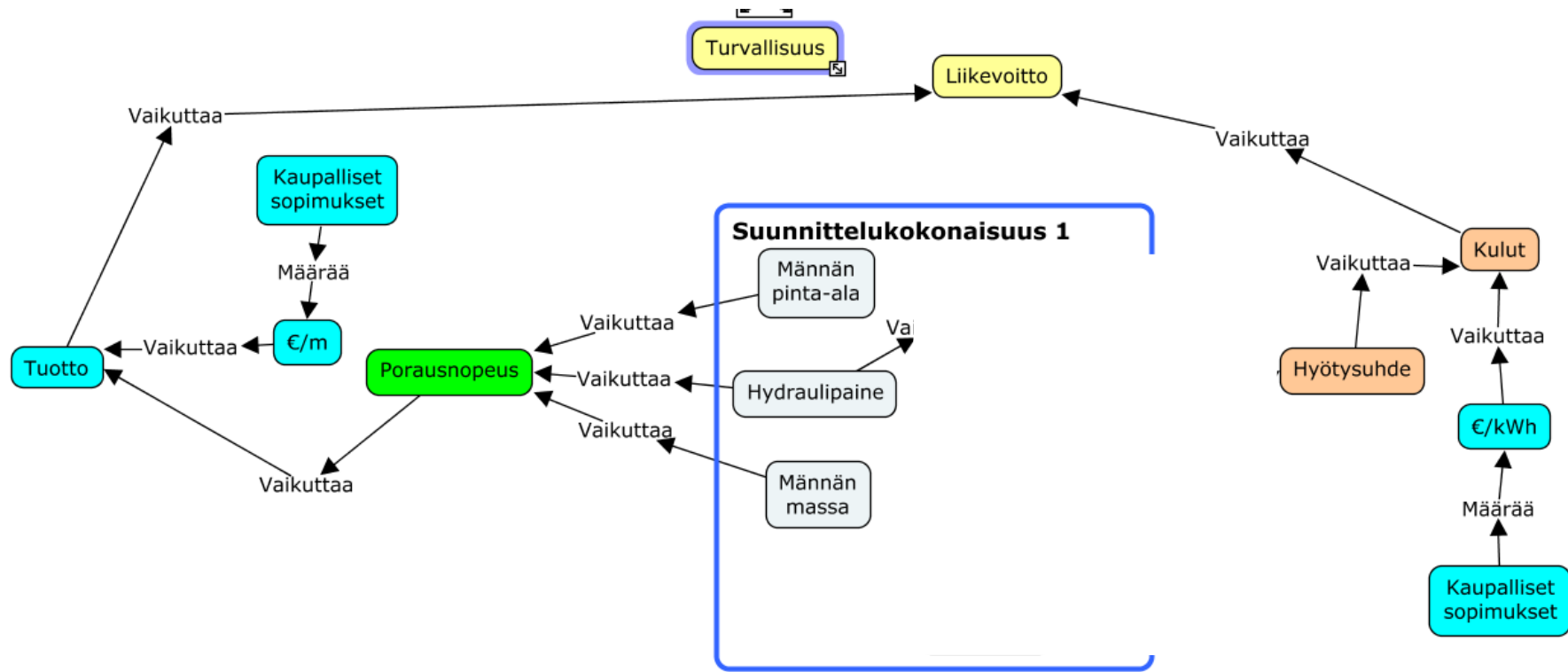
# Design Reasoning Pattern



1. *Journal of the American Medical Association*, 2000; 283: 2689-2694.



# Design Reasoning Pattern





# **Business-oriented Product Development**

**Thank You!**

**Contact: [tero.juuti@tut.fi](mailto:tero.juuti@tut.fi)**