

# Buskerud University College: Program Systems Engineering

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## Abstract

The focus of the Systems Engineering program of Buskerud University is on multi-disciplinary design fitting in the market and application needs and usable in industrial engineering processes. The research agenda focuses on reliability in rough circumstances and on innovation or agile architectures. As application domains the research will focus on system and supply industry as present in Kongsberg, such as sub-sea.

*This is a rather preliminary agenda, under discussion with the Buskerud stakeholders.*

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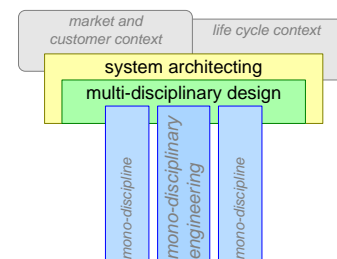
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June 5, 2018

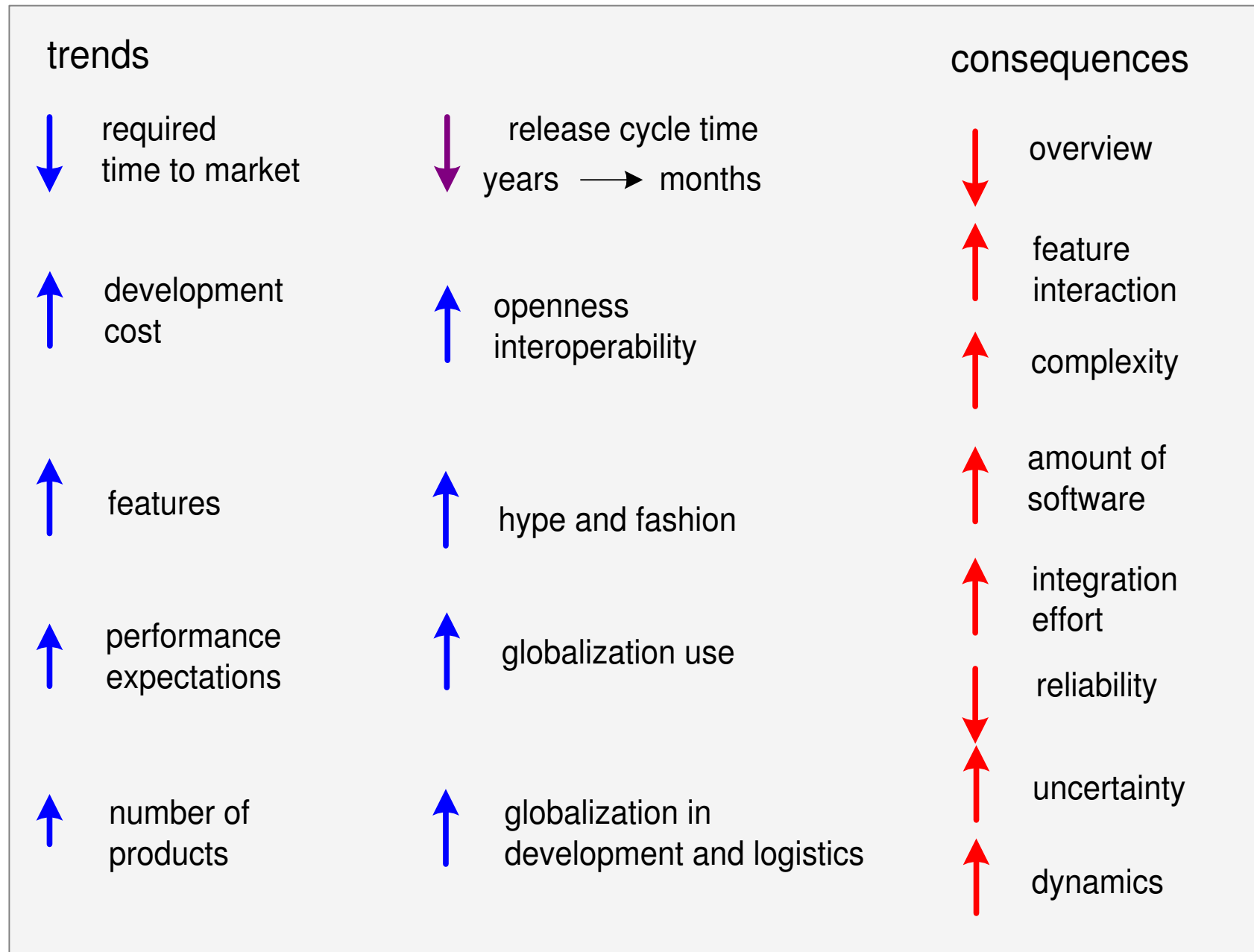
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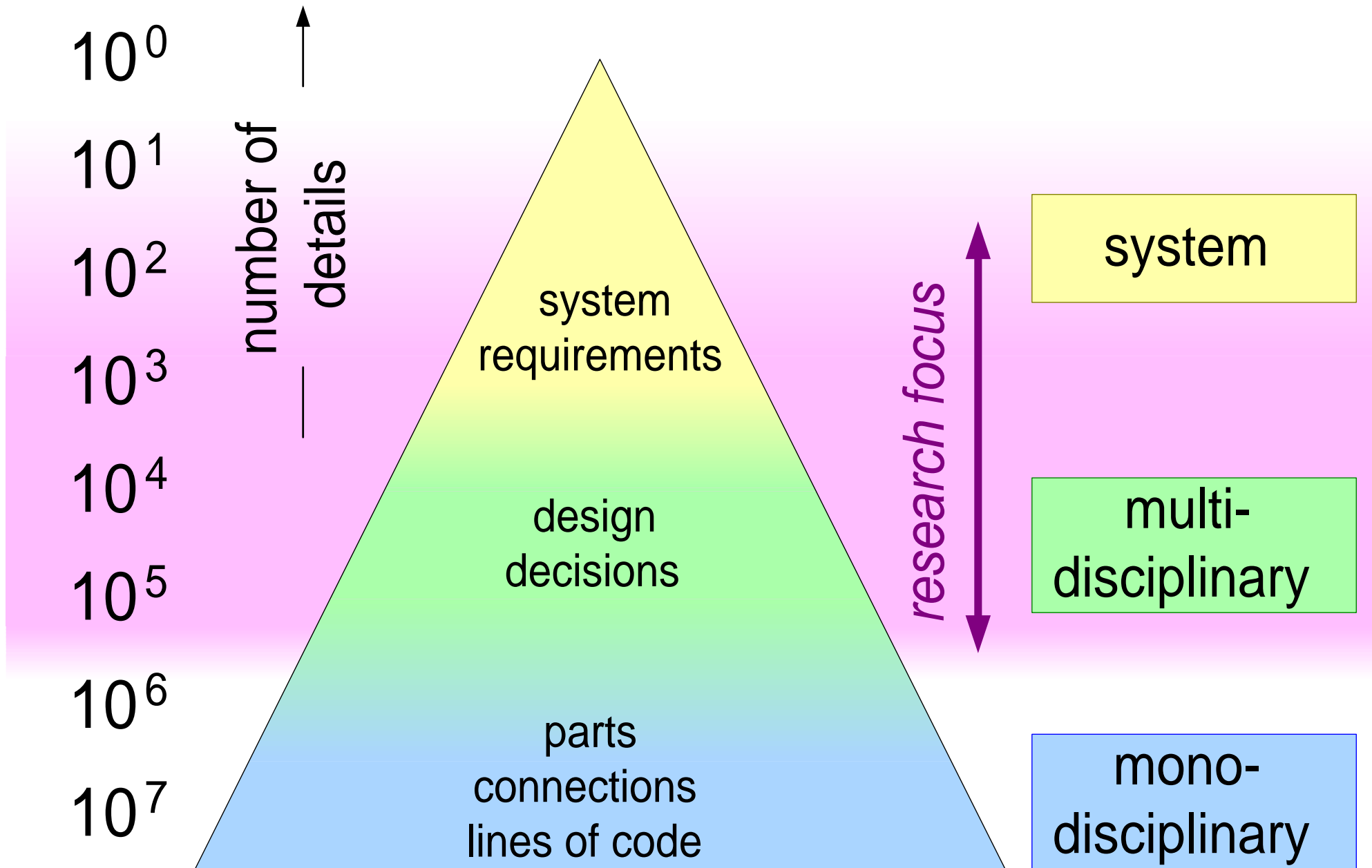
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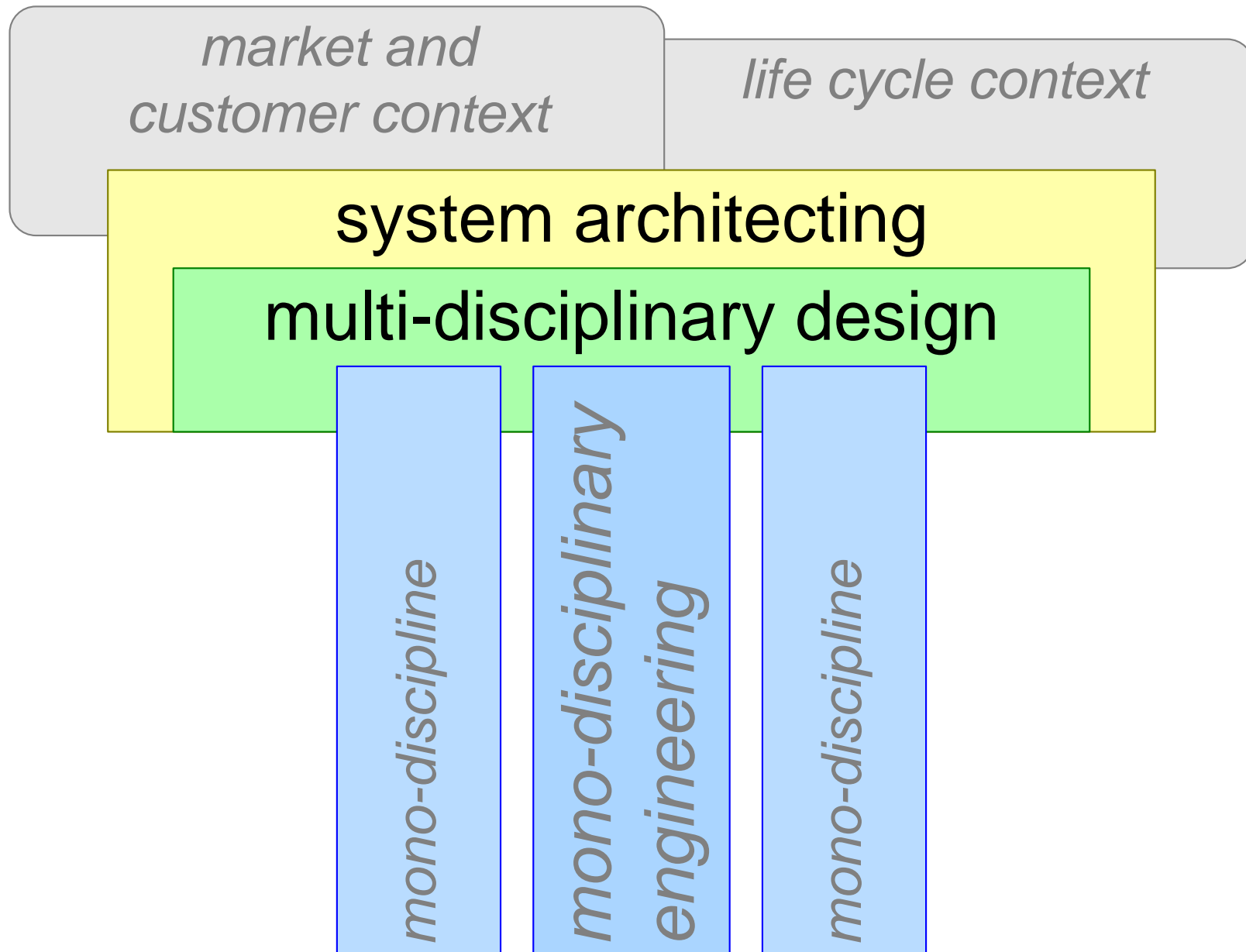
# Today's Industrial Trends



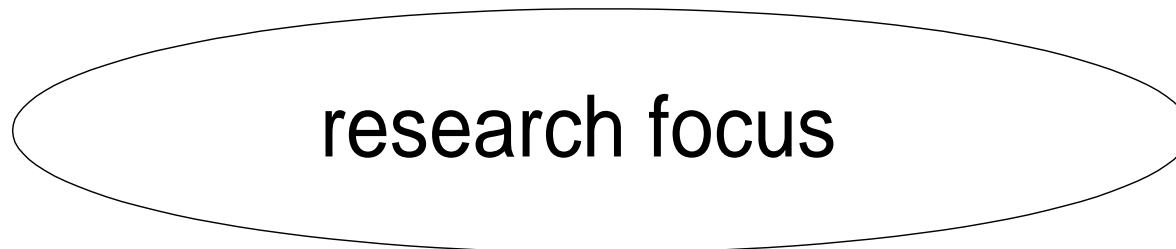
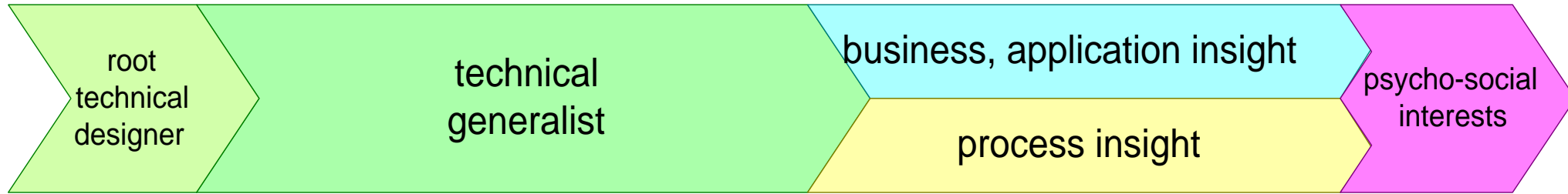
# SE: address the gap between System and Realization



# SysEng = SysArch + Multi-Disciplinary design

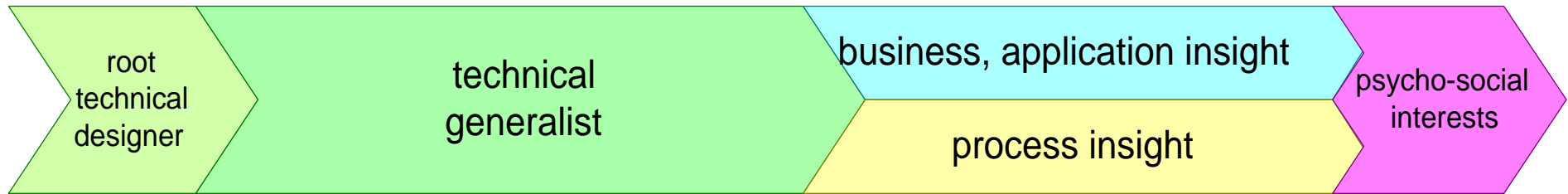


# Focus of Buskerud SE program



how much "depth" technical research and education do we want to offer;  
How do we want to position *embedded* and *mechanical* engineering?

# Educational Focus



Buskerud, ESI course offerings

third party offerings for technical electives

third party offerings for leadership electives

Buskerud technical course offerings (embedded, mechanical engineering)

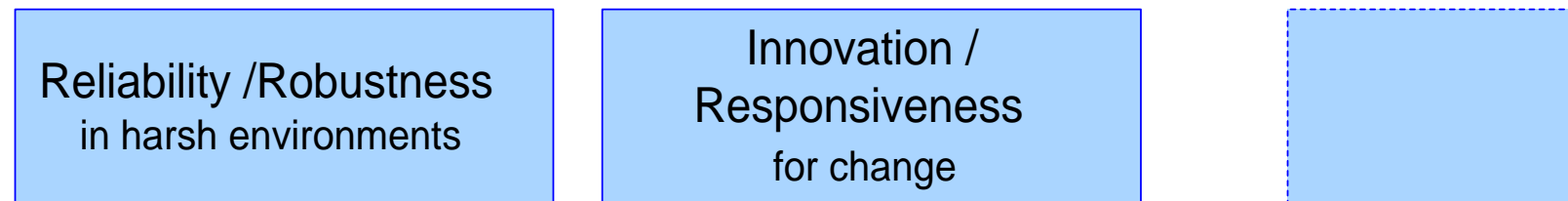
Stevens course offerings

# Preliminary Buskerud Research Agenda

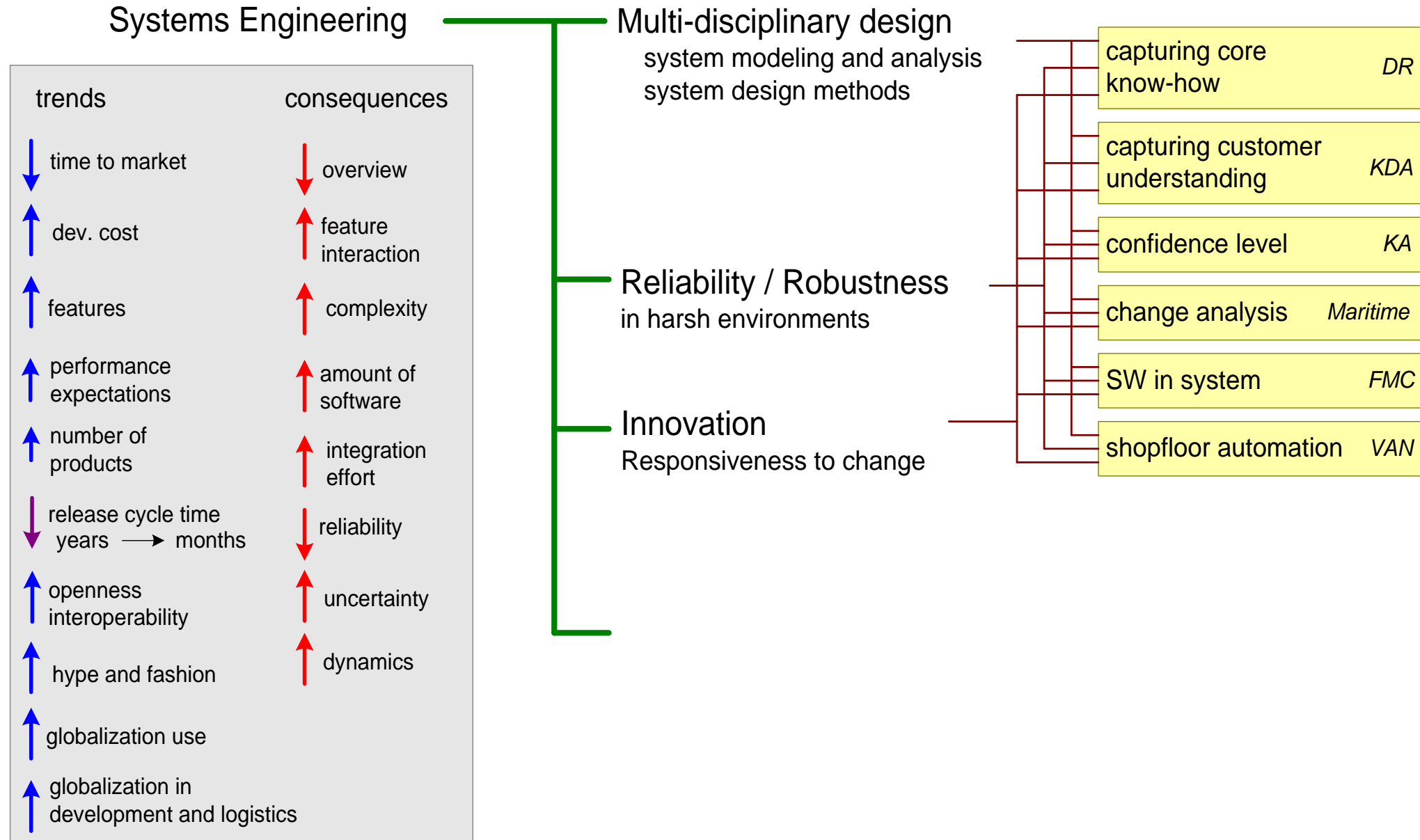
intended  
dissemination  
and research  
partners



multi-domain  
research and  
expertise

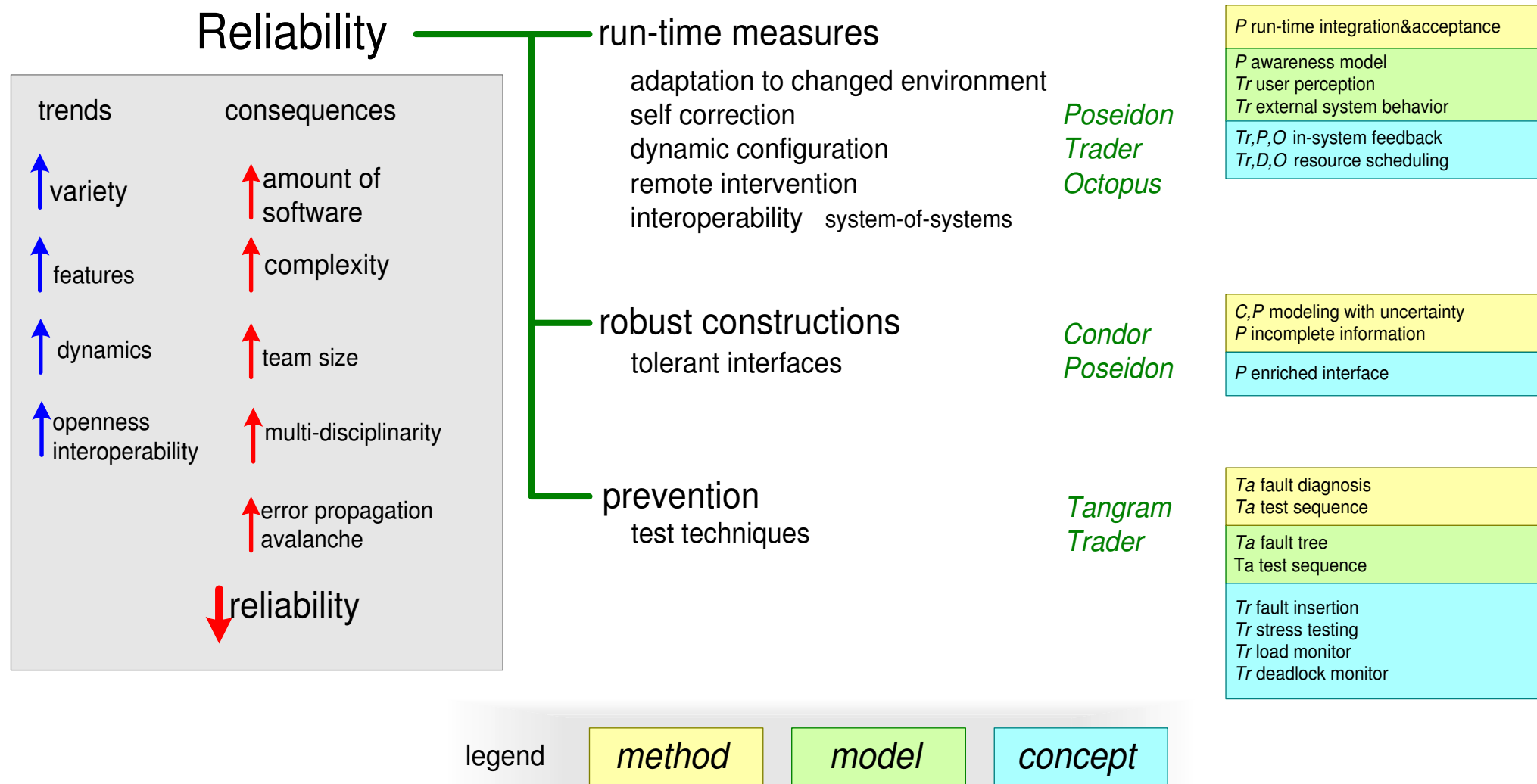


# Buskerud research agenda as graph



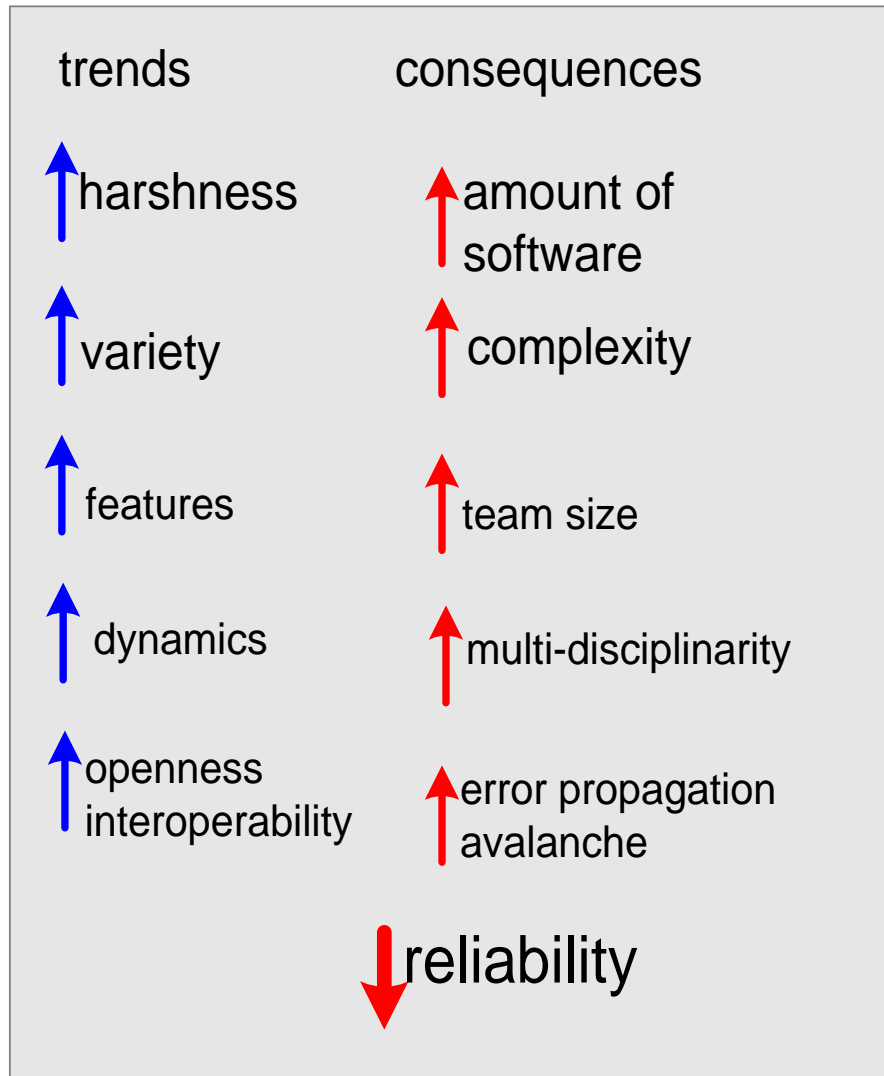


# Example of ESI research agenda



## Reliability / Robustness

in harsh environments



## *potential research subjects*

state of practice:

methods, techniques

patterns

life time testing:

shorten duration

confidence level

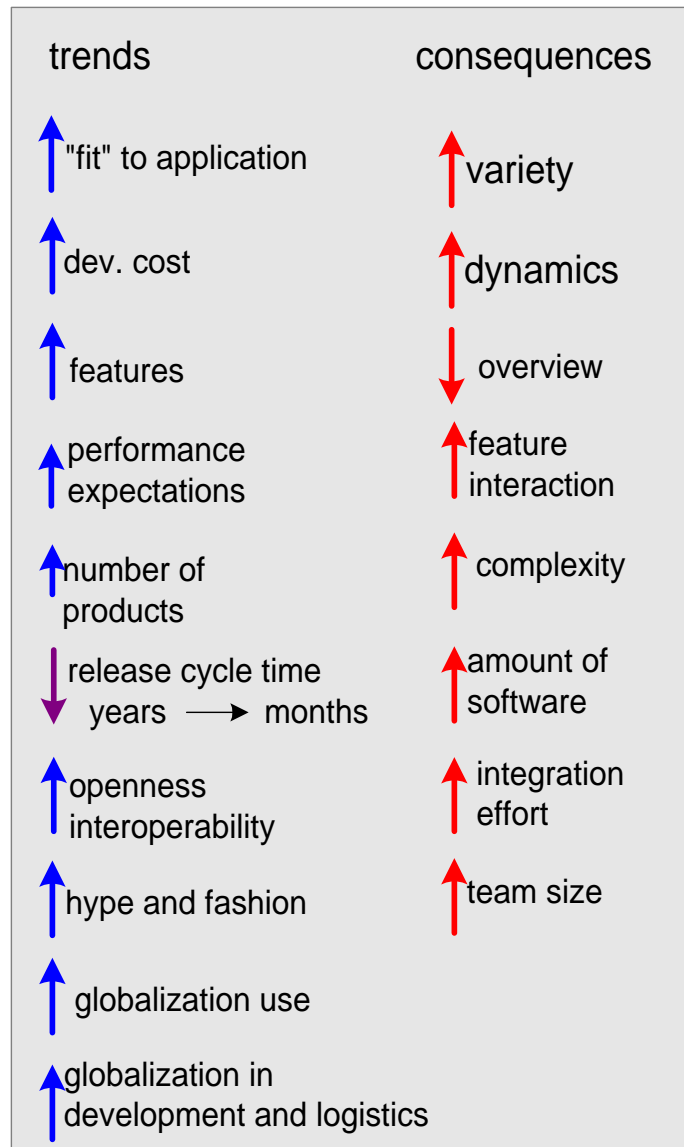
analysis methods:

degree of formality

software and firmware in relation to system

# Buskerud Innovation / Responsiveness

## Innovation / responsiveness to change



### *potential research subjects*

#### state of practice:

methods, techniques

patterns

#### roadmapping:

how much to anticipate

#### reusable assets:

how to create and use reusable assets in projects

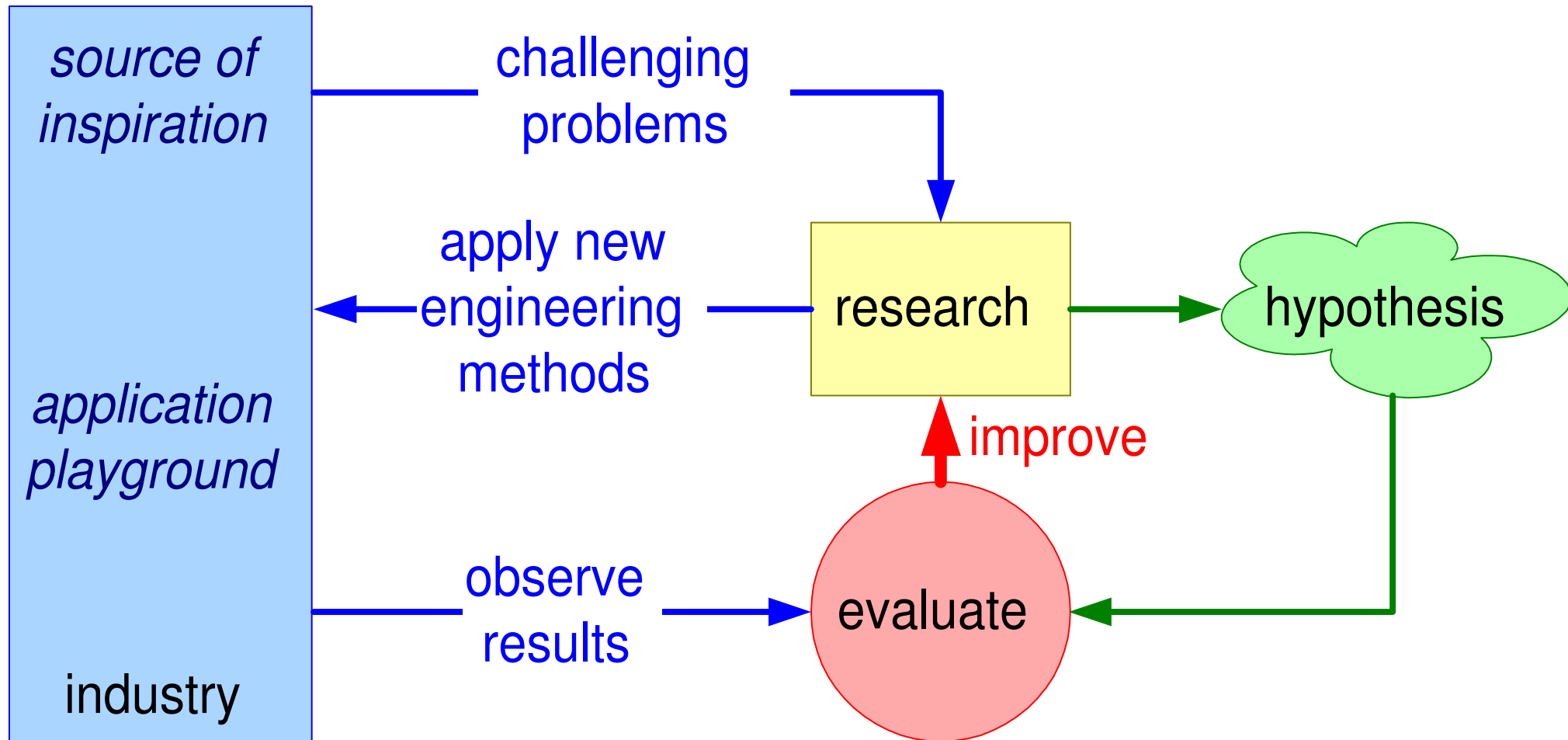
impact on duration, cost of solution, and cost of development

how much to generalize assets

#### tenders, bidding:

how to improve quality and predictability

# Industry as Laboratory



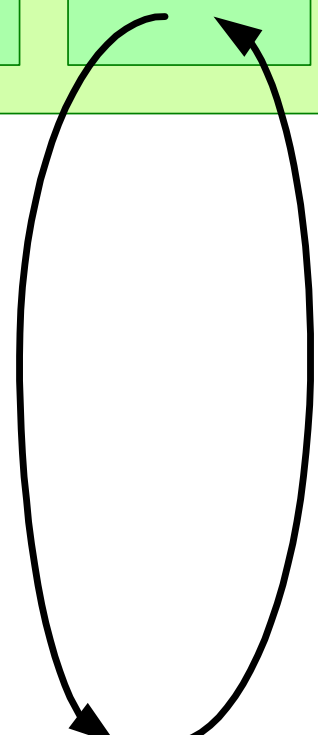
# Industry as Laboratory (2)

intended  
dissemination  
and research  
partners

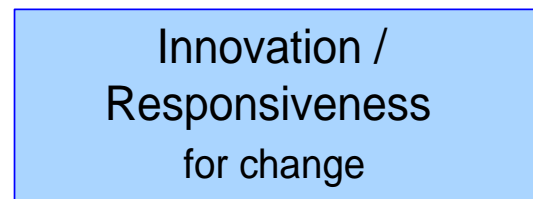
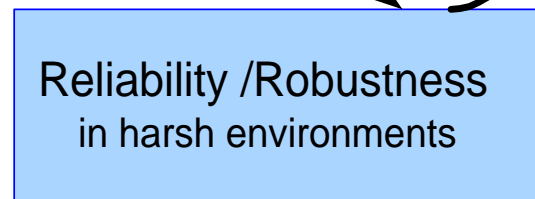


generalization and  
consolidation to  
facilitate use in  
other domains

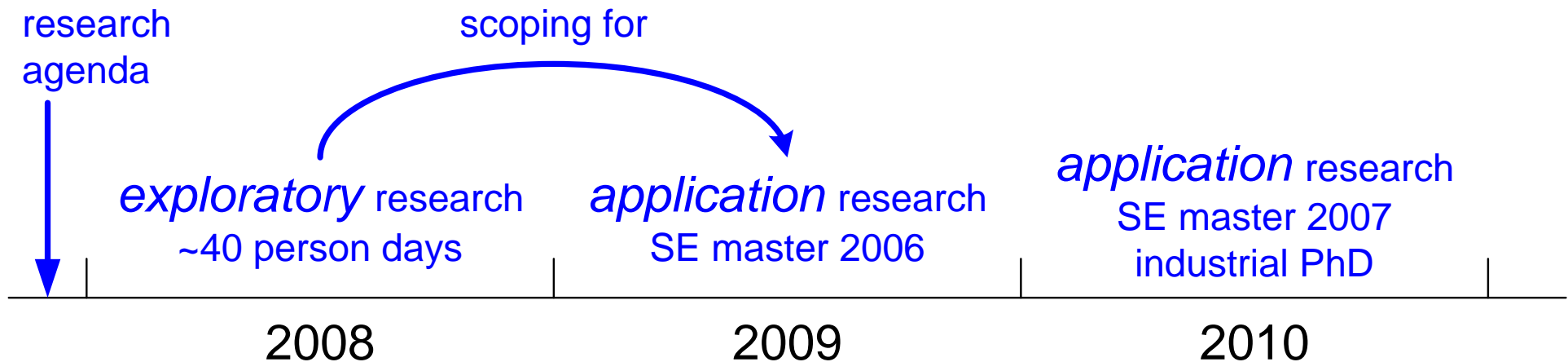
single domain research  
focus on industrial problem



multi-domain  
research and  
expertise



# Master Plan Research



# Buskerud SE Educational Options

