

# SEMINARIESERIEN INDUSTRY 4.0

**How to increase performance by  
focusing on the utilization of shared  
demand-related information**





# Who am I?

## Background

- Research Engineer at MDH
- PhD student at Chalmers

## Research topics

- Production logistics
- Production planning
- Buyer-supplier relationships
- Information sharing
- (Industry 4.0)



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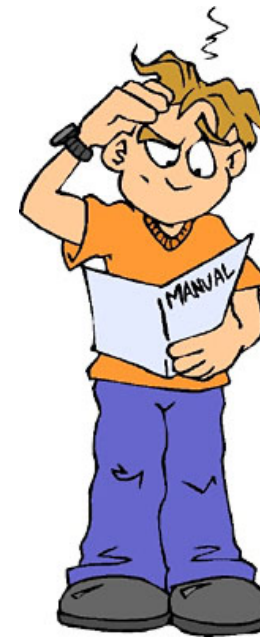
# Why am I here?

## General view of Industry 4.0



Source: Saturno et al., 2017

## My view of Industry 4.0





# What will I present?

- Important concepts
  - Information sharing
  - Information quality
  - Information utilisation
- My research results
  - Two case studies
  - One survey study
- Implications for the industry

# Important concepts

Information sharing

Information quality

Information utilization



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# Information sharing

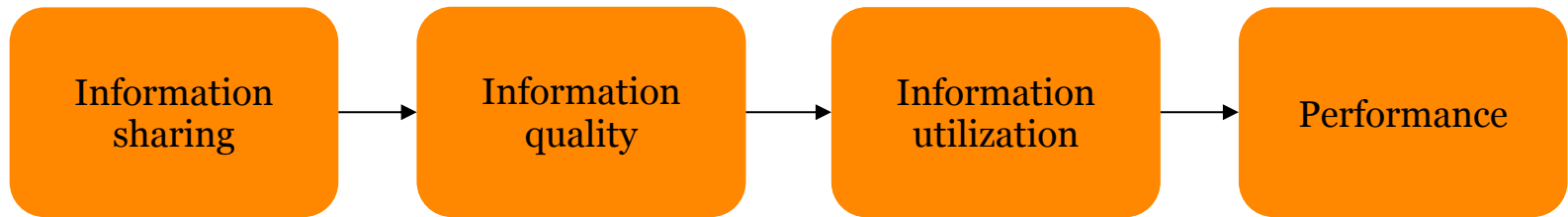
In a supply chain context:

*“The extent to which crucial and/or proprietary information are available to members of the supply chain”*

*Source: Hsu et al., 2008*

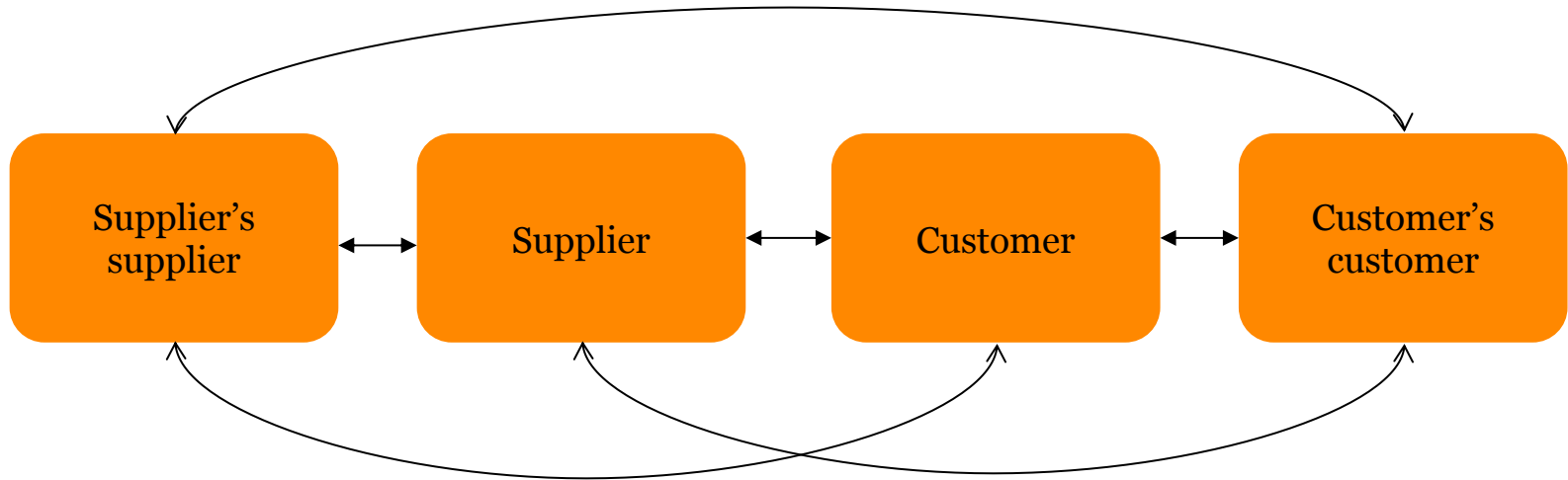


# Information sharing and performance





# Information sharing actors







# Demand-related information

- Firm and planned orders
- Forecasts
- Trends
- Inventory levels
- Point-of-sales data
- Forecast accuracy measurements
- Etc.



# Information quality

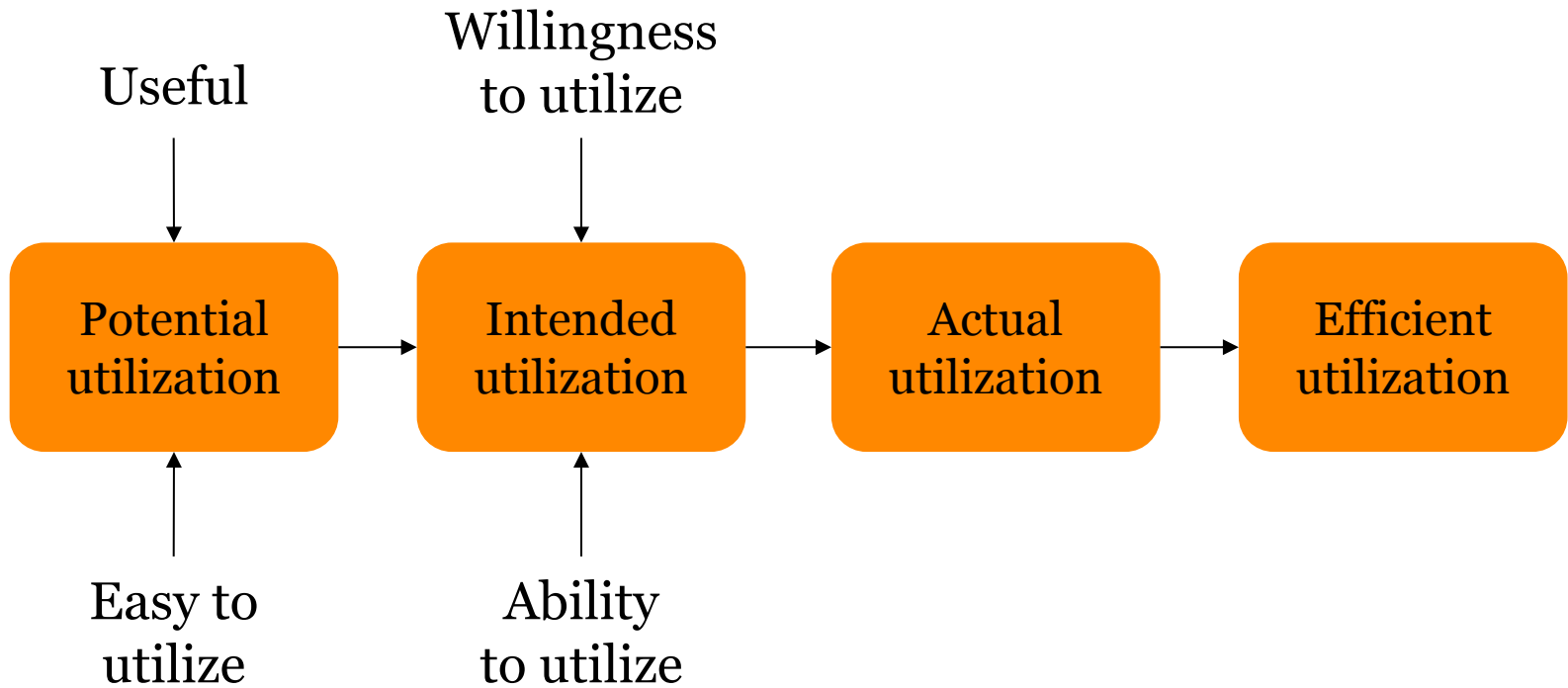
- Complete
- Concise
- Reliable
- Timely
- Valid
- Available
- Appropriate amount
- Relevant
- Understandable
- Credible

Objective

Subjective



# Information utilization



# My research results

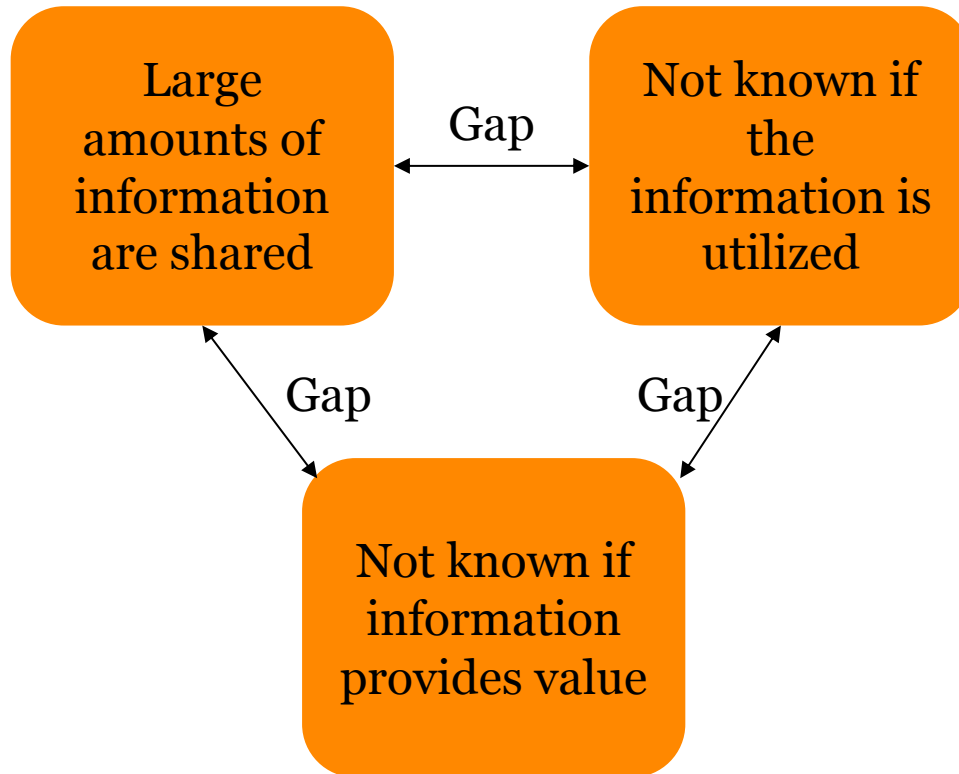
Two case studies  
One survey study



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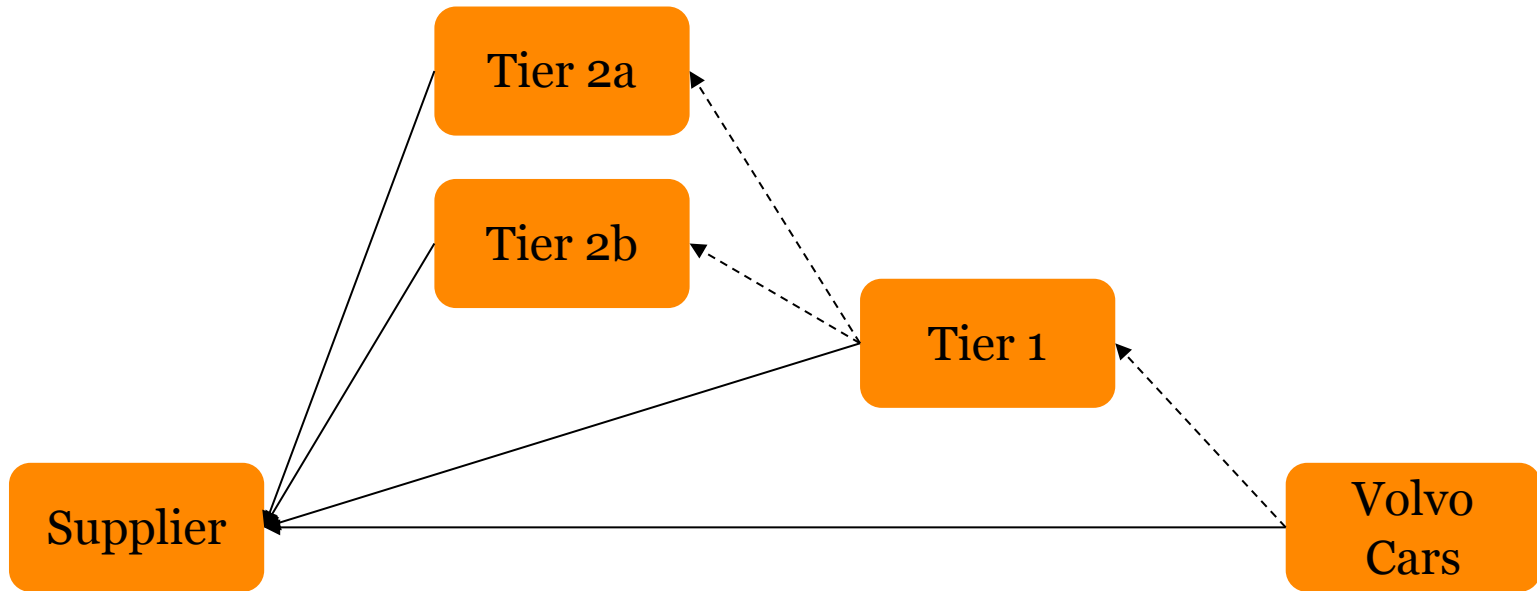


# Starting point



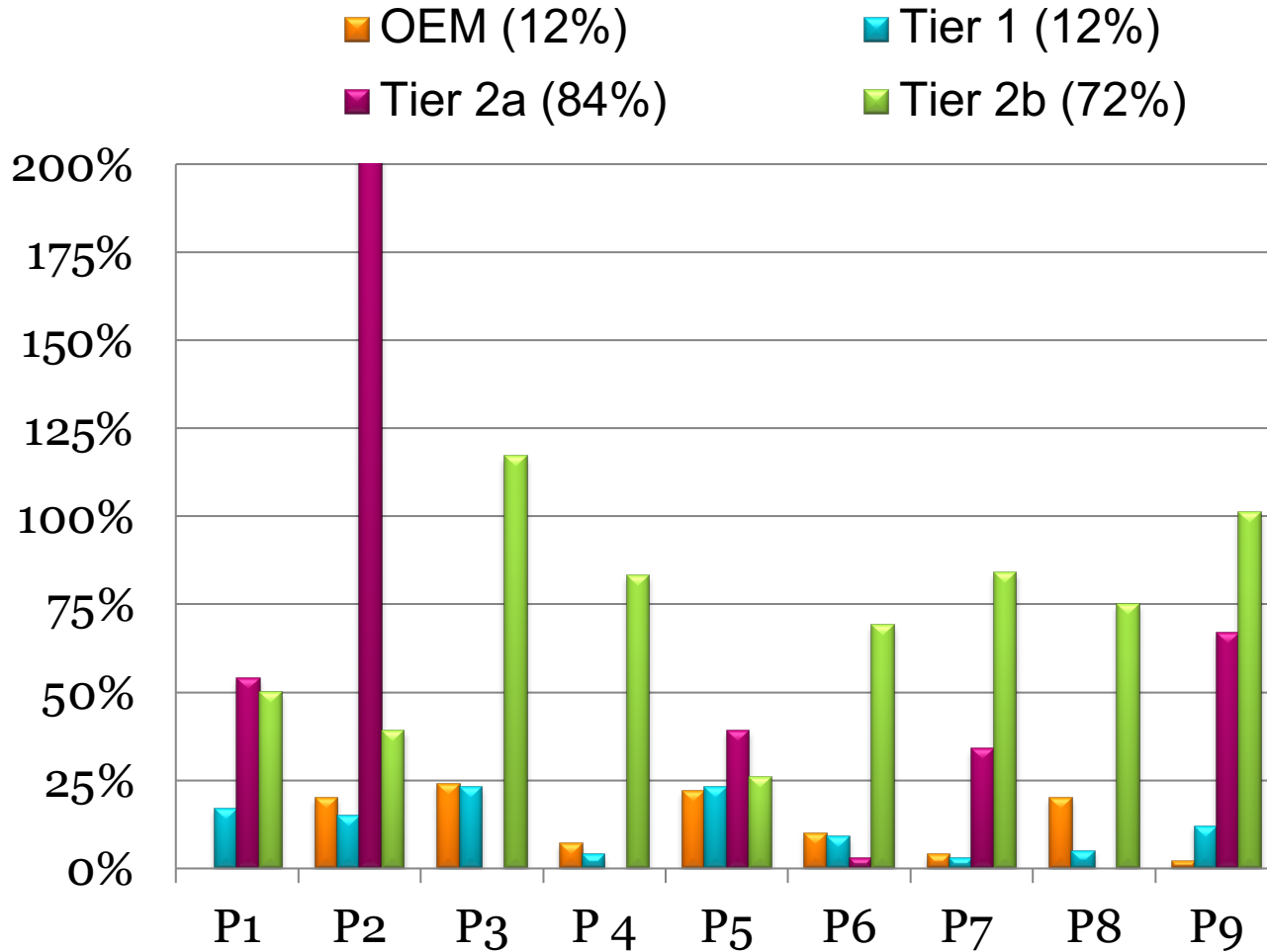


# The Volvo Cars study



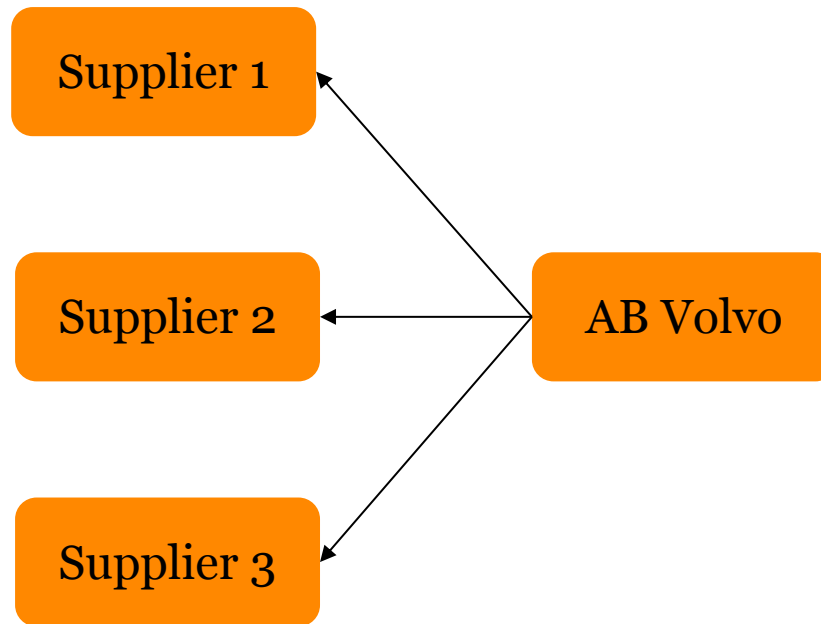


# Dependency of information





# The AB Volvo study





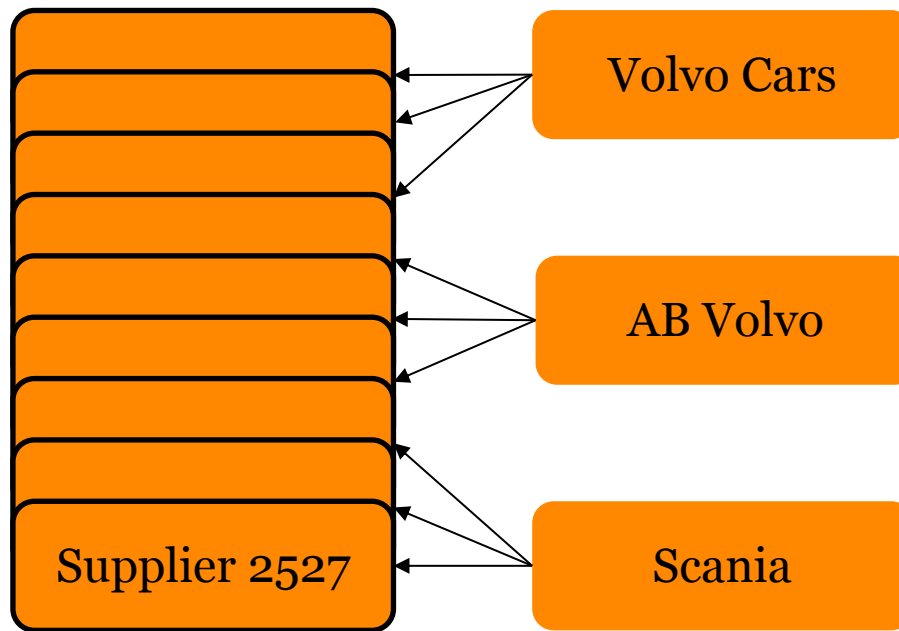


# Determinants of information utilization

Determinant	Category	Impact on utilization	Impact on IQ
<b>Collaborative relationship</b>	Inter-organisational	Willingness to utilise	Credibility Relevance Accessibility Understandability Ease of operation
<b>Skills and understanding</b>	Intra-organisational	Ability to utilise	Understandability
<b>Planning system functionality</b>	Intra-organisational	Ability to utilise	Relevance Ease of operation
<b>Process formality and structure</b>	Intra-organisational	Ability to utilise	Credibility

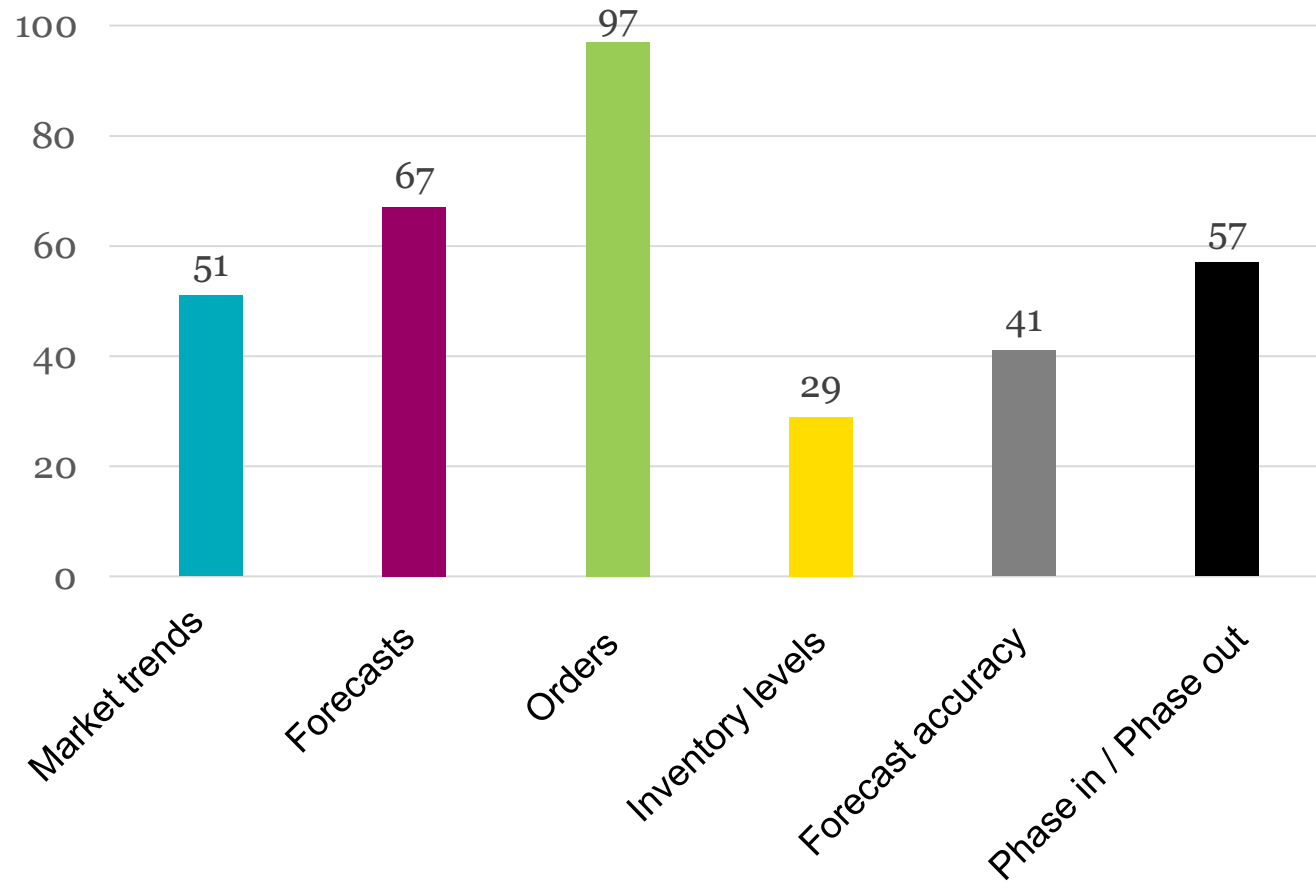


# The survey study



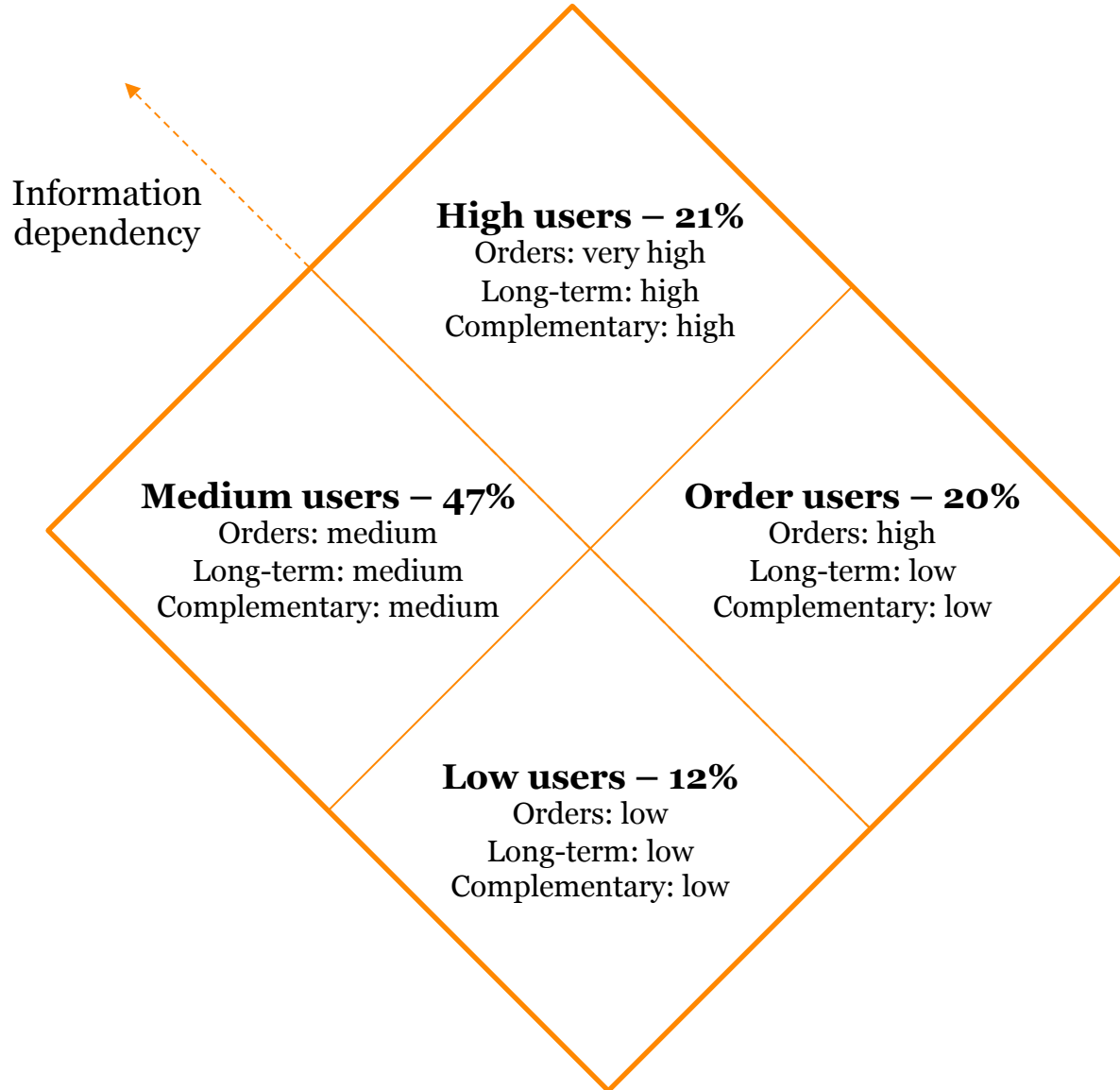


# Access to information

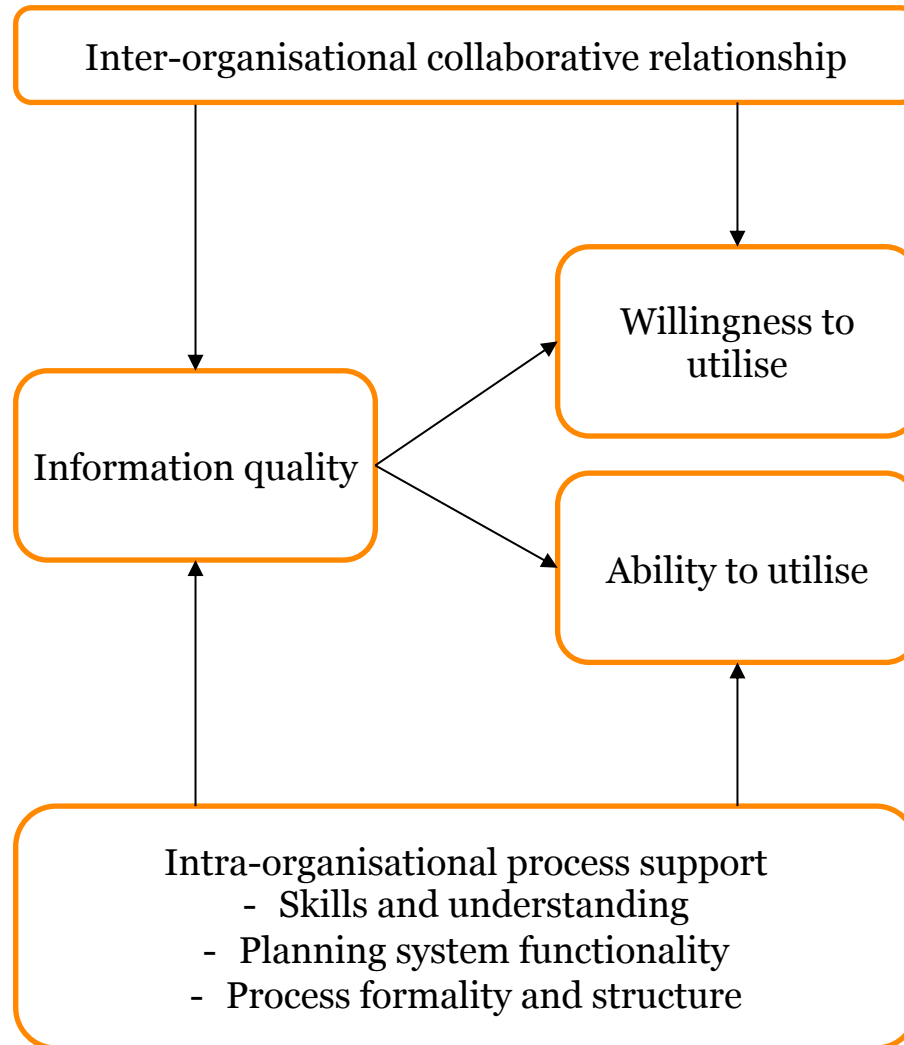




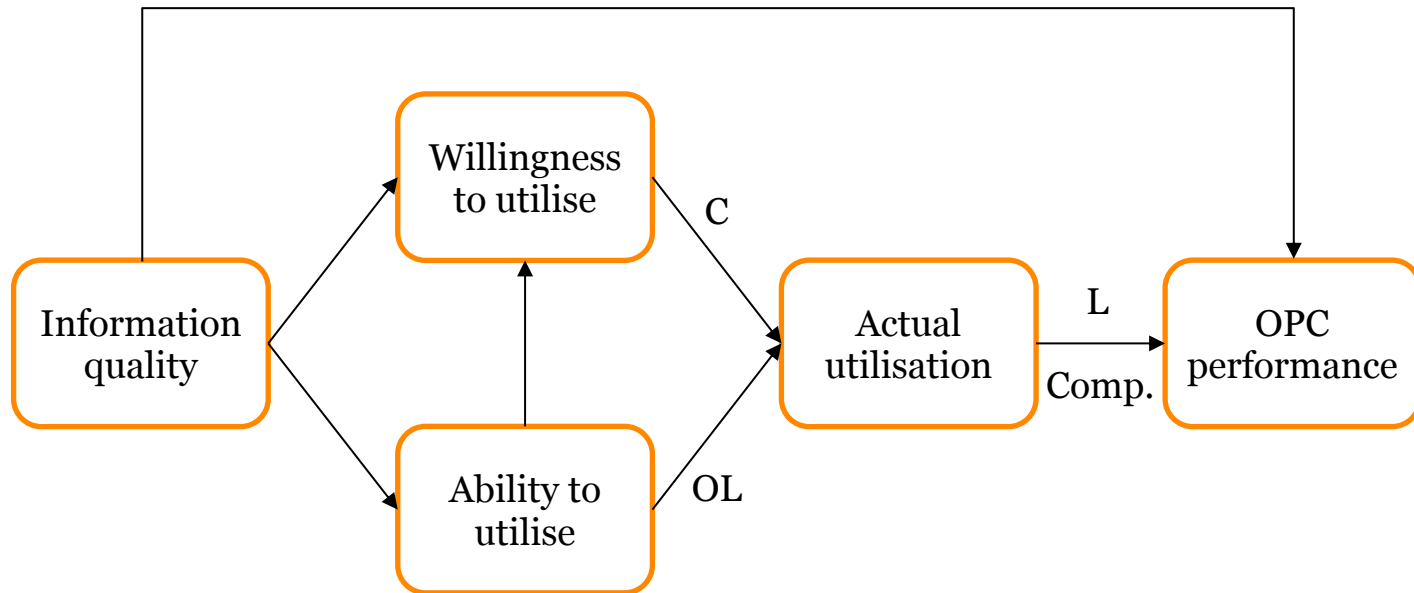
# Supplier clusters



# Testing the determinants



# Testing the mediating effect



O = order information  
L = long-term information  
C = complementary information  
Comp. = composite information

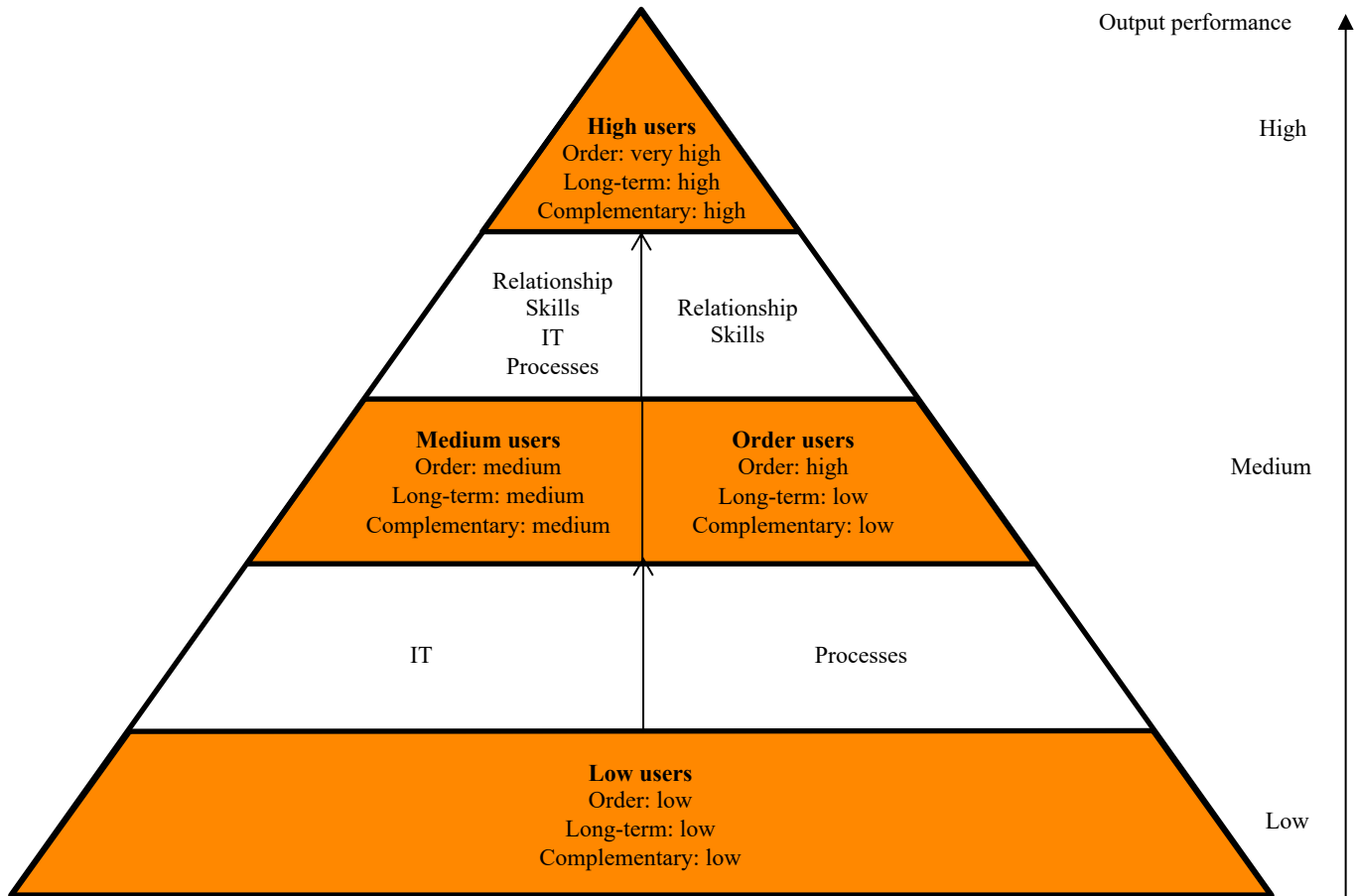
# Implications for the industry



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# Maturity model







# Contributions for buyers

Subject	Contribution
<b>What to share</b>	<ul style="list-style-type: none"><li>- All information<ul style="list-style-type: none"><li>- Orders =&gt; output performance</li><li>- Long-term =&gt; output performance</li><li>- Complementary =&gt; resource performance</li></ul></li><li>- Composite information sharing</li></ul>
<b>With whom to share</b>	<ul style="list-style-type: none"><li>- All suppliers</li><li>- Dependent suppliers are more willing</li></ul>
<b>Information quality</b>	<ul style="list-style-type: none"><li>- Important for both willingness and ability</li><li>- Important for performance</li></ul>
<b>How to help suppliers</b>	<ul style="list-style-type: none"><li>- Include in supplier evaluation models</li></ul>



# Contributions for suppliers

Subject	Contributions
<b>What to utilize</b>	<ul style="list-style-type: none"><li>- All information<ul style="list-style-type: none"><li>- Orders =&gt; output performance</li><li>- Long-term =&gt; output performance</li><li>- Complementary =&gt; resource performance</li></ul></li><li>- Composite information utilization</li></ul>
<b>How to enable utilization</b>	<ul style="list-style-type: none"><li>- Maturity model</li></ul>

Potential for improvement!



# Connection to Industry 4.0

- "Simple" information is difficult to make use of

Industry 4.0 technologies are not an easy solution!

# Coming events



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# Coming seminars

- **May 7:**

*Supporting implementation of Robots in collaborative application*

Teacher: Staffan Andersson

- **June 4**

More information will follow, visit [mdh.se/kalender/2020/maj/seminarieserien-industry-4.0](https://mdh.se/kalender/2020/maj/seminarieserien-industry-4.0)



# Production engineering courses autumn 2021

(5 credits/course)

- **Internet of Things for Manufacturing Industry**  
Study period: 2021-08-30 - 2021-11-07
- **Lean Production**  
Study period: 2021-08-30 - 2021-11-07
- **Simulation of Production Systems**  
Study period: 2021-08-30 - 2021-11-07
- **Big Data and Cloud Computing for Industrial Applications**  
Study period: 2021-11-08 - 2022-01-16
- **Industrial maintenance development**  
Study period: 2021-11-08 - 2022-01-16
- **Industrial Project Management**  
Study period: 2021-11-08 - 2022-01-16

For more information, visit [mdh.se/premium](https://mdh.se/premium)

**Thank you for listening!**



Questions or comments?

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