



Improving collaboration between R&D and Manufacturing

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The purpose of the presentation

- To discuss empirical results.
- To present a tentative model of thematic areas.




Introduction / background

- Helix and partners from organizations.
- Interactive research.
- Practitioners main question.
- Empirical qualitative approach.




Background to the problem

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- Problems due to design occur in manufacturing.
 - The problems are common knowledge to manufacturing personnel.
 - The problems can not be avoided in advance.
 - “Something” is missing:
 - Language
 - Knowledge
 - Participation
 - Early involvement
 - Other?




Method

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- Interviews with managers from four organizations.
 - Mutual understanding and decision of the main question:
How can we improve the information “backwards” from manufacturing to research and development?
 - 24 interviews with white collar workers in the organizations.
 - Critical Incident Technique




Method – researchers loop in the interactive model

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- Transcription of interviews by an administrator.
 - Individual reading of interviews. Highlighting interesting parts based on the research question (*Which factors are important for collaboration between R&D and Manufacturing?*)
 - Agreeing and creating categories together from reading.
 - Clustering categories.
 - Formulating one question to each category.



Method – developing knowledge together with practitioners

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- Network meetings every second month.
 - Testing ideas and results from researchers loop.
 - New knowledge created together.

At the last meeting before summer, constructive criticism was raised from the practitioners, which was a good sign of engagement and participation. It resulted in changing the questions into themes.



Results




Six themes:

1. The balance between standardized ways of collaboration and ad-hoc decisions.
2. Physical proximity and distance between actors from various parts of the organization.
3. The role of authentic participation in product design activities.
4. Ways of handling deviances and mistakes.
5. Overlapping system artefacts.
6. Balance between cross functional collaboration and expertise.



Implications on interaction between human actors, collaborating in R&D and Manufacturing

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- Interests has to meet somewhere in space or time.
 - A need for understanding what factors that facilitates these meetings of interests.
 - Understand what factors that are obstacles or barriers.
 - The actors has to choose to participate in the interaction.
 - To participate in the network, you need to have an understanding of the network with human and non-human actors.
 - You have to view deviances and mistakes as learning moments.
 - There must be a pragmatic way that optimize crossings of interests in the network.



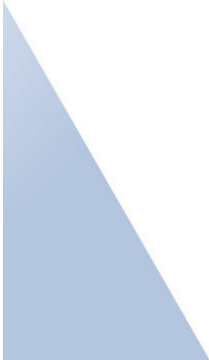
Continued work



Four aspects of Actor-Network-Theory (ANT) to investigate:

- Actors
- Network
- Translation
- Artefacts


Examples: To make the practitioners aware of non-human actors, a better understanding of how the network looks like and its strengths and weaknesses. Better knowledge about how the translation is made and when manufacturing should be involved and finally what artefacts are there and what is their role?



Facilitating workshops in the organizations together with the practitioners and use the themes.



Summary

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- A main question from four organizations has been investigated and analyzed.
 - Six themes has been developed together with practitioners to be used by them in daily work.
 - The Actor Network Theory (ANT) will be used in the continued work to create a lens which will highlight actors, network, translation and artefacts and their role in collaboration.



Thank you!

Andreas Bolling



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