System Perception and Coordination in Product Development

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Research Group: Lean Product Development, LAI

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Motivation

In complex product development (PD) the number of disciplines involved in the design and development of new products requires different people with different skills.

Managing PD projects involves a balance between specialization and integration of the participants.

Each participant is, more of less, able to find those who he believes are important to interact with in order to complete the project. Each participant holds a personal view of the system.

My aim with this research is help understand the behavior of individuals at a system level so the number of failed interactions is reduced.
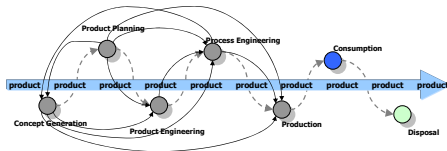
Key Questions

- How well do the system views that people in a team have fit each other?

- How consistent are people in working with others?

- What properties of the product trigger more or less coordination requirements?

Methodology

Case studies that involve interviews, surveys and document analysis

Industries observed:
> Industrial machinery (2)
> Food packaging (1)
> Space exploration (13)
> Automotive (1)
> Aerospace products (2)
> Software (1+)
> Healthcare (2)

The Research

"The primary task of management is to get people to work together in a systematic way"

Christensen et al, (2006)

Interactions between people in product development and design teams can be looked at from three basic components: need, can, do
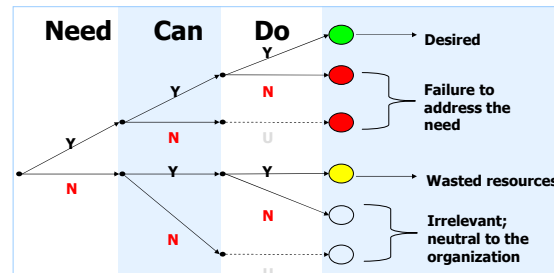
In this research, I focus on the "need" component. Why and how participants in a PD process identify who they are going to coordinate with (and who they won't).

Preliminary Results

From interviews I have found that the most common reason why people engage in coordination is to seek specific expertise or to propose and verify ideas. (Qualitative content analysis)

The number of people that are important for each designer also seems to be consistent, regardless of technical area.

Preliminary Results (cont)

Concurrent Engineering case study illustrates purposeful behavior of PD designers
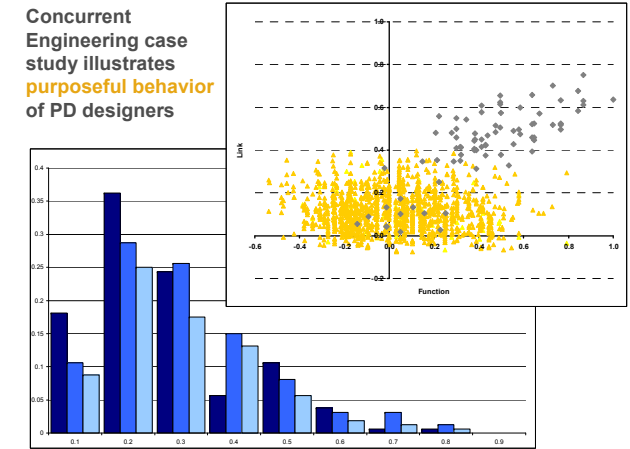
Remaining Research

Open Source Software project example
>10 405 emails, 12 427 bugs, 1.2M lines of code

Incorporating previous research
>~34 000 data points with team, task and component interactions

Expected Contributions

Contribute to the understanding of how a system of designers engages in coordination.

Illustrate the parallelism between product and coordination behavior.

Best practices.

Joao Castro