

# Christer W. Elverum, PhD candidate

Christer W. Elverum holds a Master of Science (MSc) in Mechanical Engineering from NTNU, Norway. During his project work he worked with Nammo on visualization of product families and product development methodologies. On his masters degree he worked with semi-automatic forming of aluminum boat hulls. He has worked as a scientific assistant at the IPM department at NTNU for one year before starting with his PhD.



How can businesses increase their success rate of new products? What makes customers choose one product over the other?

Product innovation is the frontier to sustain and improve the competitiveness of Norwegian manufacturing companies. Generating innovative and sustainable concepts in the early phase represents an important contribution to innovation through its focus on reducing lead time and cost. Product attractiveness can be decomposed into two main dimensions: product performance (quantitative characteristics) and product meanings (qualitative characteristics), see Figure 1. This model illustrates that an innovation strategy should leverage a customer-value proposition that focuses on both these dimensions. In many cases, identifying latent user needs, ones that often are unspoken or tacit, and building upon these to add new meanings to a product is a prerequisite for the success of an innovation. Simply adding features or improving performance characteristics is seldom sufficient. As an example, the arrows in the figure show that a marginal technology can either lead to an incremental product innovation, or to a radically new product if combined with new meanings.

To increase the success rate of products, promising concepts have to be developed. By focusing on the user and understanding the real needs and wants during the development phase, it is possible to improve product meanings, and thereby increase the product value.

**Vision:** Develop a usable and practically oriented framework for creating concepts early in the development phase that increases the probability of product success by having a strong emphasis on the users and their needs.

## Research questions:

- Is it possible to establish methodologies to 'boost' the process of identifying unmet needs, generate ideas and convert these into concepts and solutions with better potential for success in the market place? If yes, how is this done, e.g. at what level should 'process' and activities be structured?
- How can we standardize the process and/or methods in order to systematically increase the success rate of new products?
- What are the limitations of the framework, is it applicable for only specific types of products or industries?
- What are the main differences between the roles of methods, people and processes in the converging and diverging phases?

“To increase the success rate of products, promising concepts have to be developed”

## Facts

- PhD started October 2011
- Supervisor
  - Torgeir Welo
- Co-supervisor
  - Martin Steinert
- Thesis title  
*The fuzzy front-end of innovation: a framework for user-centered concept generation in product engineering*

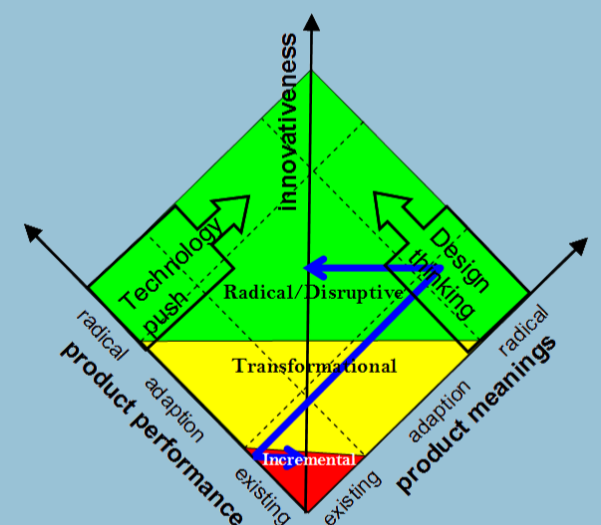


Figure 1. Product innovation..

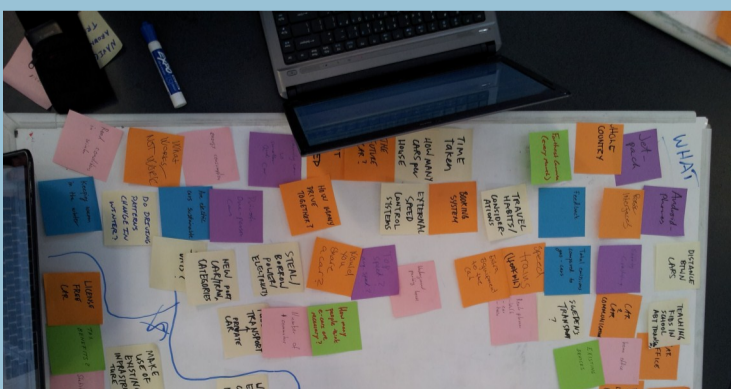


Figure 2. Brainstorming session at Stanford University.

## Expected contributions

The expected outcome of this work is a framework and a mindset for increasing the probability of creating valuable products by including information about the user, or involving users in the process. The result should be practically oriented and useful for the Norwegian industry.