

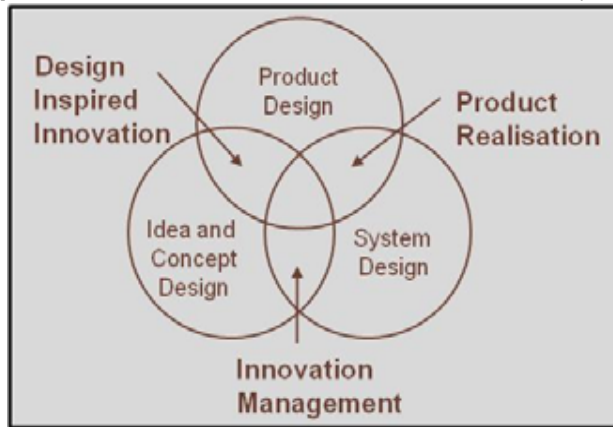


Swedish Quality Management Academy

Mälardalen University

Research interest:

- **Quality perspectives on Innovation and Product Realization (IPR)**



Objective

- Develop knowledge and competence within the quality area for a product realization from idea and need to production and market.

Background

- In order to support the network with continuous and radical improvements, new work pattern and new design of organizations with a changed leadership and new quality perspectives is needed.

Case studies at hand

- Quality assurance in industrialization processes.
- Dynamics of service and product quality dimensions over ten years based on customer satisfaction feedback.
- Processes for development of Maintenance strategies
- Supply strategies – “Rightsourcing”
- Volvo Construction Equipment Operations Eskilstuna on maintenance development in general and implementing condition based maintenance in particular.
- A longitudinal study of the re-design of dynamic structures for measurement systems.
- Explorative studies of the dynamic capabilities of the measurement system at multiple companies

Academic relevance

- The research within IPR has a common research platform in the international established research theme Design Science and the international supporting collaboration Design Society.

Industrial relevance

- Ability to innovate and manage innovation are competitive elements that requires uniqueness and differentiation in the development work together with a continuous emphasis on customer satisfaction.

Projects in progress

- Dynamics of service and product quality dimensions
- SUNT – Strategiskt Underhåll i svensk Tillverkningsindustri
- SIMET – Swedish Metrology Forum
- Stability Growth
- XPRES – Life cycle approaches for product realisation
- ProLoc
- Make or buy process at Volvo CE
- Spare part factory
- deVIP
- Kaikaku
- Service innovation in a tightly structured project environment
- Disturbance in advanced product development

Other projects:

- *STABLE- Industrial graduate school in sustainable production (Knowledge Foundation application)*
- *Co-applicant for ITEA2-project (awaiting response)*

Partners

- Volvo Construction Equipment, Volvo Aero, Bombardier, ABB, LEAX, SIQ, Ericsson Global Services, Deva Mecaneyes, Swerea IVF, TPC components, Leine & Linde, CH industry, Solö mechanical solutions, LogMax

Expected results

- Develop a national competitive coproducing research and educational environment within the field of Innovation and Product Realization (IPR) with projections on Quality Technology and Management.

Researchers involved

- Anders Fundin, Mats Deleryd, Mats Jackson, Marcus Bengtsson, Anette Brannemo, Mohammed Salloum, Yuji Yamamoto, Hassan Qureshi, Lina Stålberg, Antti Salonen, Joel Schedin, Joakim Eriksson

Adjunct Professor Anders Fundin

Research interest

- Customer feedback systems and their link to early phases in product and service development.
- The dynamics of product and service quality over lifecycles of goods and services.

Objective

- To enhance and facilitate service development in organizations that has a strong tradition in developing physical goods.
- Aiming for win-win solutions between suppliers and customers over life-cycles of goods and services.

Background

- The competitive market of today observe an increased interest in total offering solutions with combinations of physical goods and services.
- Total offering solutions could not only be of advantage for building strong customer relationships, but also as a way to better utilize the lifecycles of goods with help of supporting services.

Case studies at hand

- Dynamics of service and product quality dimensions over ten years based on customer satisfaction feedback.

Academic relevance

- It is of interest to describe the dynamics of service and product quality dimensions, not only within a total offering solution, but also to study the longitudinal impact on the dynamics of service and product quality dimensions.

Industrial relevance

- By an increased awareness of how customer satisfaction varies depending on different lifecycles of goods and services could help decision makers defining strategies when to add new service solutions or service attributes to a total offering solution on a certain market place.

Projects in progress

- Dynamics of service and product quality dimensions

Other projects:

- *STABLE- Industrial graduate school in sustainable production (Knowledge Foundation)*
- *deVIP (Knowledge Foundation)*
- *Kaikaku (Vinnova)*

Partners

- Volvo Construction Equipment

Expected results

- An increased awareness of different lifecycle perspectives on goods and services

Researcher

- Anders Fundin
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Adjunct Professor Mats Deleryd

Research interest

- Innovative process development
- Quality Development strategies in multinational companies
- Quality management throughout the lifecycle of a product

Objective

- Develop efficient and effective Quality development approaches in industrial settings.
- Aiming for win-win solutions between suppliers and customers over life-cycles of goods and services.

Background

- Many companies still lack or have no optimal approaches to develop and implement quality strategies.
- Larger companies experience big difficulties assuring quality on launches of new generations of products and services.

Case studies at hand

- Quality assurance in industrialization processes.
- Dynamics of service and product quality dimensions over ten years based on customer satisfaction feedback.
- Processes for development of Maintenance strategies
- Supply strategies – “Rightsourcing”.



Academic relevance

- It is of interest to further develop methods and tools and processes in relation to Quality strategies built up by Quality Planning, Assurance, Control and Improvement approaches.

Industrial relevance

- Still many global organizations are not that mature in terms of how they approach quality. Quite often in large organizations, many of the employees come quite far away from end customers and it is of high relevance to further develop approaches bringing the customer perspectives into companies.

Projects in progress

- Dynamics of service and product quality dimensions
- SUnT – Strategiskt Underhåll i svensk Tillverkningsindustri
- SIMET – Swedish Metrology Forum
- “Stability Growth”

Partners

- Volvo Construction Equipment, ABB, LEAX, SIG

Expected results

- Maintenance strategies development methods
- Quality strategy development methods
- Sourcing models and approaches
- Quality assurance on industrialization processes

Researcher

- Mats Deleryd
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Vice President Quality, Safety & Environmental Care, Volvo CE
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Marcus Bengtsson, PhD

Research interest

- Maintenance development in discrete item manufacturing.

Objective

- Develop and test methods of maintenance development and in particular methods to implement condition based maintenance in order to find incipient failures and quality deviations before they affect production negatively.

Background

- Much research has been devoted to the development of condition monitoring technologies, however, how to implement and to utilize these technologies in a day-to-day operations has been given less attention in research.

Case studies at hand

- Applied research at Volvo Construction Equipment Operations Eskilstuna on maintenance development in general and implementing condition based maintenance in particular.

Academic relevance

- There is still a gap in development of maintenance strategies and in implementing them. This research aims to study the necessary change process, needed to implement new strategies and tools.

Industrial relevance

- By finding enabling and obstructing factors for change within maintenance development, industrial companies will easier be able to implement new strategies and tools.

Projects in progress

- SUnT
- XPRES – FA2

Other projects:

- *Co-applicant for ITEA2-project (awaiting response)*

Partners

- Volvo Construction Equipment

Expected results

- An increased awareness of the importance to not only focus the attention to technology in the implementation phase of maintenance development.

Researcher

- Marcus Bengtsson
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Anette Brannemo, Lic Eng, PhD candidate

Research interest

- The concept of Rightsourcing
- a lifecycle perspective on sourcing decision

Objective

- The objective is to describe how companies work with sourcing decisions, in order to develop a strategic concept for sourcing management

Background

- Outsourcingtrend
- Offshore
- Insourcing has been a more common used strategy
- The industry lack support for analyzing sourcing decisions

Case studies at hand

- Bahco Tools & Alfa Laval
- Volvo & ABB
- Volvo CE

Academic and industrial relevance

- This research develops a concept for rightsourcing based on experience from several companies.
- The concept rightsourcing is introduced

Projects in progress

- Make or buy process at Volvo CE
- Spare part factory

Partners

- Volvo CE
- ProViking
- ProLoc

Expected results

- A concept for rightsourcing decisions that consider a products lifecycle perspective

Anette Brannemo

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Antti Salonen, Lic. Eng, PhD candidate

Research interest

- Strategic maintenance development in manufacturing industry.
- Cost of Poor Maintenance as a concept for maintenance optimization.

Objective

- To develop tools for strategic maintenance development in manufacturing industry.
- To develop a concept for visualizing the true financial aspects of production maintenance.

Background

- Manufacturing industry is still quite immature in maintenance management but efforts to apply Lean production increase the demand for dependable production equipment.
- 70% of industry view maintenance as a cost driver. One reason for this is that there are no financial measures for maintenance that consider indirect costs, as well as direct costs.

Case studies at hand

- Applications of the concept Cost of Poor Maintenance in manufacturing industry.

Academic relevance

- Maintenance management is not much studied in discrete manufacturing industry.

Industrial relevance

- An increased awareness of how maintenance may contribute to the competitiveness of companies.

Projects in progress

- SUnT, Strategisk Underhållsutveckling i Tillverkningsindustrin

Partners

- Volvo Construction Equipment
- ABB Cewe-Control
- Leax group

Expected results

- An increased awareness of maintenance as a possible contributor to competitiveness.

Researcher

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Yuji Yamamoto, Lic. Eng, PhD candidate

Research interest

- Innovative and radical production development in the manufacturing industry.

Objective

- To develop a support that facilitates innovative and radical production development.

Background

- Manufacturing functions at higher labor cost countries needs to be internationally competitive. A strong and constant development of production has been inevitable to gain and sustain the high competitiveness.
- The importance of the capability of innovation and radical improvements in production can be highlighted when continuous incremental improvements can not provide a sufficient competitive advantage.

Case studies at hand

- Case studies with five partner companies. Research methodologies are under the phase of clarification.

Academic relevance

- A limited support has been developed in term of innovative and radical production development .

Industrial relevance

- Companies can be more aware of the potential and importance of innovative and radical production development.
- Production managers and engineers may increase the understanding of how to conduct such development.

Projects in progress

- *Kaikaku (Vinnova)*

Partners

- Deva Mecaneyes
- Swerea IVF
- TPC components
- Leine & Linde
- CH industry
- Solö mechanical solutions
- Volvo Construction Equipment



Expected results

- A method that help companies to conduct innovative and radical production development.

Researcher

- Yuji Yamamoto
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Joakim Eriksson, Lic. Eng, PhD candidate

Research interest

- Process disturbances in early phases in product and service development.
- The prerequisites for robust decision making in early phases in product and service development.

Objective

- The research aims at increasing the knowledge of the concept of disturbance, and current practice of managing disturbances, in advanced product development projects.
- Create models which can describe practices of the absorption of disturbances, i.e. the practice which facilitates robust processes.

Background

- The normative models used to guide activities in product development projects paint an ideal picture which companies strive but struggle to follow.
- These diversions from the ideal model that are experienced by actors to interfere in reaching informed decisions are defined as “Disturbances” in this research.

Case studies at hand

- Managing disturbances in early phases in product and service development.



Academic relevance

- There exists a need for understanding disturbance in order to reason about process improvement through considering uncertainty aspects not covered by management models used currently without trying to eliminate uncertainty which cannot be eliminated. This could create realistic prerequisite for making decisions in planning activities and create robust ways of working in projects.

Industrial relevance

- This is important in order to better explain industry’s current view on improving process performance and its implications on management models in product development. By further clarify the nature of decision making in product development by viewing disturbances as a natural occurrence and prerequisite, managing product development projects can be supported by models which can describe practices of the absorption of disturbances, i.e. the practice which facilitates robust processes.

Projects in progress

- Disturbance in advanced product development

Partners

- Volvo Construction Equipment, Volvo Aero, Bombardier, LogMax

Expected results

- An increased awareness of the concept of disturbance and related practices.

Researcher

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Mohammed Salloum, PhD candidate

Research interest

- Performance measurement systems and their viability in rapid and ever-changing contexts.
- The design of dynamic performance measurement systems.

Objective

- To explore and describe factors that are of importance in keeping performance measurement systems contextual.
- To develop a framework for enhancing the efficient use of measurement systems over time.

Background

- The paradox of combining ever changing and dynamic strategies with static and rigid measurement systems have created problems for companies as the strategic context alters. Even though the research in the field of performance measurement is vast little research has been done regarding what factors affect performance measurement systems viability in ever-changing environments.

Case studies at hand

- A longitudinal study of the re-design of dynamic structures for measurement systems.
- Explorative studies of the dynamic capabilities of the measurement system at multiple companies.

Academic relevance

- Little of the performance measurement research has focused on the dynamic capabilities of the measurement system.

Industrial relevance

- Companies are struggling to keep their measurement systems contextual as the strategic direction alters.

Projects in progress

- ProLoc (*Vinnova*)

Partners

- Volvo Construction Equipment

Expected results

- A framework for designing dynamic measurement systems that enhance the true performance of a business unit.

Researcher

- Mohammed Salloum
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Hassan Qureshi, PhD candidate

Research interest

- Voice of the customer and its role in new product and service development process

Objective

- To understand customer needs about product and service offerings and how the total solution can exceed the customer expectations
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Background

- In today's competitive environment, customer satisfaction is immensely important to keep customer loyalty and one way to do it is by giving outstanding service.
- Many manufacturing companies are aiming for a considerable amount of their revenue through services but this transition is quite new to many companies and that's why it is important for them to understand how service can support providers as well as the customers.

Case studies at hand

- Currently we are analyzing Customer survey to understand customer perception on Product Quality and Service Quality over the period of last 10 years.

Academic relevance

- This study will help us understanding a connection between product and service quality from customer perspective and raises the importance of basic and expected quality for both products and services.

Industrial relevance

- This study will also open up new perspective for industry by looking how their customers are perceiving quality of products and services and help them to focus more on some aspects which are important from customers' perspective.

Projects in progress

- Doing a study on Customer Satisfaction Survey at Volvo Construction Equipment

Other projects:

- *Participating in a study on service innovation process with Ericsson Global Services*

Partners

- Volvo Construction Equipment
- Ericsson Global Services

Expected results

- Some of the quality attributes are more important for both products and services but in total customers perceive Product Quality and Service Quality more or less on the same level.

Researcher

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Joel Schedin, Industrial PhD candidate

Research interest

- Quality assurance in Industrialization processes

Objective

- To establish and validate a methodology for quality assurance when introducing new products in production.
- The methodology for verification and validation of a new production system shall also be adjusted and tailored to be a generic support and process used when verifying and validation the transfer of an existing production from one site to another, so called Industrial Transfer projects.

Background

- Larger companies experience big difficulties assuring quality on launches of new generations of products.
- Companies are introducing more products more often, and simultaneously facing higher quality expectations and increased pricing pressure, they have less time to improve quality and manufacturing productivity.
- There is also a smaller margin of errors: New product introductions cannot result in a drop in quality. With shortened model life spans, companies can no longer afford a spike in defect.

Case studies at hand

- “Stability Growth” – a Global project for Quality assurance in Industrialization processes

Academic relevance

- It is of interest to further develop methods, tools and processes for quality assurance when introducing new products in production and for Industrial transfer projects.

Industrial relevance

- Further developed methods, tools and processes for quality assurance when introducing new products in production and for Industrial transfer projects can give companies a competitive advantage and less cost of poor Quality that directly affect their financial results.

Projects in progress

- “Stability Growth”

Partners

- Volvo Construction Equipment

Expected results

- Efficient and effective Quality assurance on Industrialization and Industrial Transfer processes.

Researcher

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