



MATILDA WATZ

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SUMMARY

Matilda is a researcher in Sustainable Product Development at the Department of Strategic Sustainable Development on Blekinge Institute of Technology (BTH) in Karlskrona, Sweden, from which she since 2019 also holds a Licentiate of Engineering degree. Currently finalizing her PhD thesis which she will defend in June 2022. Her research concerns practices of sustainability integration in requirements within product developing companies. Currently, she works with group model building applications using qualitative and quantitative system analysis tools to support a strategic sustainability perspective in the initial requirements management during early phases of design projects. She is also a teacher in sustainable product design for engineering students and is a coordinator for sustainability integration in across all higher education programs at BTH.

WORK EXPERIENCE

2017 – PhD student, Sustainable Product Development, Blekinge Institute of Technology, Department of Strategic Sustainable Development, Karlskrona, Sweden

2011 – 17 Production process Engineering, Internships and quality improvement projects at Scania CV AB, Scania Chassis Assembly, Södertälje, Sweden

EDUCATION

2019 - Third-Cycle Studies, later part, Blekinge Institute of Technology, Karlskrona, Sweden

2017 – 19 Lic. Eng. in Strategic Sustainable Development, Blekinge Institute of Technology, Karlskrona, Sweden

2015 – 2017 M.Sc. in Industrial Ecology and Environmental Engineering, The Royal Institute of Technology, Stockholm, Sweden

Master thesis at Swedish Environmental Protection Agency: *Residential wood combustion, cancer risk frequency and costs in Sweden: A review of instruments using the Multi Criteria Analysis methodology*

2012 – 2015 B.Eng. in Mechanical Engineering, The Royal Institute of Technology, Stockholm, Sweden. Bachelor thesis at OKG AB:

Säkerhetsfrämjande arbete - En analys av brister i förutsättningar för entreprenörer på OKG

PROJECTS

2021 – Digital Sustainability Implementation Package (DSIP)

Building on the previous SIP project, DSIP aims to provide companies with means to understand the business rationale of, and realize, sustainable innovation. Together with Chalmers Institute of Technology, Eurostep, and a consortium of 12 other industrial partners, DSIP will create a sustainable product development toolbox and digital platform for tailored product modelling and decision support. Matilda co-leads the definition of company case studies, to which she contributes with application and evaluation of sustainable product development methods and tools related to design requirements. She also facilitates both project-internal and public workshops and presentations.

SKILLS

Sustainable Product Development;
Requirements Management;
Systems Analysis;
Sustainability Lifecycle Assessment,
Environmental management,
Teaching

LANGUAGES

Swedish, English

SPECIAL TASKS

Sustainability integration in higher education – Coordinator (2021-)

BTH Board of Governors – PhD representative (2021-)

BTH PhD Student Committée – member (2017-2020)

AWARDS

2020: IVA (Swedish Royal Engineering science Academy) top 100 list.

2018 & 2020: 'Outstanding contribution' paper awards at the International Design Conference

ADDITIONAL EDUCATION

3rd cycle

EU Taxonomy and Sustainability Reporting;
Transdisciplinary research and policy-making for Circular Economy;
Strategic Sustainable Development;
Design Research Methodology;
System Dynamics;
Higher Education Pedagogy;
Modelling, Simulation and Optimization in Engineering Product Development;

2nd cycle

Lifecycle Assessment;
Industrial Ecology;
Cleaner Production;
Material- and Energy Flow Accounting;
Ecological Economics;
CAD
Multicriteria analysis,
Environmental management and policymaking.

2019 – Sustainable Product Development within Model-driven development and decision support

Through business-collaboration, this project aims to develop, disseminate, and integrate relevant, user-friendly and efficient support methods and tools for sustainable product-service system innovation into business leaders', business developers' and product developers' working environments that enable and inspire industry to thrive in the changing global context. Matilda contributes through company case studies and state of the art research on methods for integrating sustainability into the decision-making processes for design requirements.

2018 – 19 Sustainability implementation in the product innovation process: SIP – a toolkit and methodology

This project created an implementation package with methodology and interconnected methods and tools to systematically integrate and implement sustainability in product development companies. Matilda was responsible for the exploration of current practices of sustainability requirements management within the industry, and the development of a methodology for early phase modelling of relationships between key sustainability criteria and design requirements. She was also part of the planning, preparation and facilitation of workshops where state of the art research was presented for, and tested by, academic and industrial research partners.

2017 – 18 Strategic, Tactical, and Operational Implementation of Sustainability into the Innovation Process (STOSIP)

The project's main purpose is to support product development and manufacturing companies in integrating and implementing a strategic sustainability perspective in the product innovation process. Matilda was responsible for the research track of sustainability integration into product requirements and guidance for down-selection of emerging technologies.

SELECTED PUBLICATIONS

- Watz, M., & Hallstedt, S.I. (2021) *Depth and detail or Quick and Easy? Benefits and drawbacks of two approaches to define leading sustainability criteria*. Proceedings of 12th International Symposium on Environmentally Conscious Design and Inverse Manufacturing, EcoDesign 2021, Virtual Tokyo, 1-3 December 2021
- Watz M., Hoffenson, S., & Hallstedt, S.I., (2021). *Exploring systemic drivers and barriers to sustainable design*. Proceedings of the International Design Conference ICED21, 16-20 Aug 2021, Gothenburg, Sweden. <https://doi.org/10.1017/pds.2021.411>
- Watz M. (2020) Using Group Model Building to Foster Learning for Strategic Sustainable Development. *Sustainability*. 12(20), 8350. <https://doi.org/10.3390/su12208350>
- Watz, M., & Hallstedt, S. (2020). *Group model building with causal loop diagrams to foster capabilities for sustainable design and product development*. Proceedings of the Design Society: DESIGN Conference, 1, 2207-2216. <https://doi.org/10.1017/dsd.2020.53>
- Watz, M., & Hallstedt, S. I. (2020). *Profile model for management of sustainability integration in engineering design requirements*. Journal of Cleaner Production, 247, 119155. <https://doi.org/10.1016/j.jclepro.2019.119155>
- Watz, M. (2019). *Utilizing requirements to support sustainable product development: Introductory approaches for strategic sustainability integration* (Doctoral dissertation, Blekinge Tekniska Högskola).
- Siiskonen, M., Watz, M., Malmqvist, J., & Folestad, S. (2019, July). *Decision Support for Re-designed Medicinal Products- Assessing consequences of a customizable product design on the value chain from a sustainability perspective*. Proceedings of the Design Society: International Conference on Engineering Design (Vol. 1, No. 1, pp. 867-876). Cambridge University Press. <https://doi.org/10.1017/dsi.2019.91>
- Watz, M. and Hallstedt, S.I. 2018. *Integrating Sustainability in Product Requirements*. Proceedings of the DESIGN 2018 15th International Design Conference, May 21-24 2018, Dubrovnik, Croatia <https://doi.org/10.21278/idc.2018.0377>