



Curriculum Vitae

Sophie I. Hallstedt

Associate Professor and Senior Lecturer

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SUMMARY

Sophie Hallstedt holds an Associate Professorship and a Ph.D. Degree in Mechanical Engineering with emphasis on Sustainable Product Innovation from Blekinge Institute of Technology, Karlskrona, Sweden, a Licentiate Degree in Engineering in Environmental Sciences from Chalmers University of Technology, Gothenburg, Sweden. She has industrial experience from the steel industry, biological monitoring area and aero industry.

Sophie Hallstedt is a senior lecturer and associate professor at the Department of Strategic Sustainable Development at Blekinge Institute of Technology in Sweden. She leads research in sustainable product development at BTH and runs research projects with manufacturing companies such as Volvo CE and GKN Aerospace. Her research interests include how a strategic sustainability perspective can be integrated and implemented into product innovation process with focus on the early phases. Her research is done in close cooperation with industry and society.

FORMAL EDUCATION/EXAMS

- M.Sc. in Environmental Planning and Design (Civilingenjör), Luleå University of Technology, Luleå, Sweden, 1994.
- Licentiate in Engineering in Environmental Sciences, Chalmers University of Technology, Gothenburg, Sweden, 2001.
- Ph.D. in Mechanical Engineering with emphasis on Sustainable Product Innovation, Blekinge Institute of Technology, Karlskrona, Sweden, 2008.

OTHER EDUCATIONS

- Basic studies in pedagogy during 6 months at Luleå University of Technology, 1991.
- Studies in ecology, biology, environmental engineering and other subjects relevant for sustainability and environmental issues. These studies are additional studies to the formal exams and have taken place during one year at Curtin University of Technology, Perth, Australia, 1993.

EMPLOYMENT

Blekinge Tekniska Högskola (Associate Professor, Senior Lecturer at the Department of Strategic Sustainable Development, BTH. Sweden)

Main job tasks: Associate Professor and Senior Lecturer at the Department of Strategic Sustainable Development. Part of the profile project “Model Driven Development and Decision Support” with the main focus to lead the Sustainable Product Development research. Also lead one of the Use-Cases called Sustainable and Value-Driven Engine Sub System Design with GKN Aerospace as the company leader. Project leader and researcher in the STOSIP project (Strategic, Tactical and Operational implementation of Sustainability into the Innovation Process). The overall project objective is to support manufacturing companies to integrate and implement sustainability on strategic, tactical and operational levels in the company in order to be able to bring forward sustainable innovations, creating competitive advantages and increased value to its customers. Working tasks also include to supervise PhD-students and teach in Master courses.

INVOLVEMENT IN RESEARCH PROJECTS

“Tool for Sustainable Product Development and Investment Planning.” A project which was carried out (1998—2000) in collaboration between the Department of Mechanical Engineering, Blekinge Institute of Technology, Karlskrona, Sweden, and the Department of Physical Resource Theory, Chalmers University of Technology and Göteborg University, Gothenburg, Sweden. Funded by the Swedish National Board for Industrial and Technical Development.

“Effective and Sustainable Waterjet Cutting.” This project took a multidisciplinary approach that involved fluid dynamics, machine dynamics/virtual prototyping and sustainability assessment as the main and interrelated areas. This project was carried out (2005-2008) and was funded by the Knowledge Foundation (KK-Stiftelsen), Blekinge Institute of Technology (BTH) and Industry.

“Prioritisation Support for Sustainable Product Development.” The main question for this project is: How does organisational understanding and adoption of a strategic sustainability perspective at senior management level permeate product and process development? The project is funded by the Knowledge Foundation (KK-Stiftelsen), Blekinge Institute of Technology (BTH) and Industry and the project was carried out in three years, (2006-2009).

“Labelling and Procurement Support for Sustainable Product Innovation” The main question for this project is: How could a framework for strategic sustainable development aid development of criteria and guidelines for sustainability based product labelling and sustainability-based procurement policies? The project is funded by Knowledge Foundation (KK-Stiftelsen), Blekinge Institute of Technology (BTH) and Industry and the project was carried out in three years, (2009-2012).

“Post-doc for Sustainable Product Innovation” The main purpose for this project is, in collaboration with industry partner *GKN Aerospace Sweden*¹ (GKN), to further develop research in sustainable product development through application and implementation of support tools for Sustainable Product Development. The purpose is also to increase collaboration between BTH and industry partners. The project was funded by the Knowledge Foundation (KK-Stiftelsen) and GKN, and the project was carried out in two years, (2009-2011).

¹ GKN Aerospace Sweden, here called GKN, had the company name Volvo Aero until Oktober 2012.

“Decision support for sustainable Value Chains” The aim of this project is to provide product developers with quick and cost-effective decision support to address product life cycle sustainability issues, thereby facilitating industrial ability to produce more sustainable and profitable products. The project is funded by Knowledge Foundation (KK-Stiftelsen), Blekinge Institute of Technology (BTH) and Industry and the project will run for three years, **(2010-2013)**.

“Sustainability criteria in concept evaluation methodology” The overall project objective is to promote the project leader’s qualifications, and build up a long-term partnership between BTH and Volvo Aero. The research aim is to clarify how to define sustainability features in the early product innovation phases and suggest an improved concept design and evaluation methodology, including sustainability aspects during the product life cycle. The result will then support the product developers in their daily work during development, evaluation and validation of concepts, technologies and decisions for future products and services. The project is funded by Vinnova, Blekinge Institute of Technology (BTH) and Volvo Aero and the project will run in two years, **(2011-2013)**.

“Model Driven Development and Decision Support” The overall objective of this BTH Profile project is to in co-production mode 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. The project is funded by Knowledge Foundation (KK-Stiftelsen), Blekinge Institute of Technology (BTH) and Industry and the project will run in six years, **(2013-2019)**. <http://bth-collaboration.se/content/model-driven-development-and-decision-support-md3s>.

“Strategic, Tactical and Operational implementation of Sustainability into the Innovation Process – STOSIP”. The overall project objective is to support manufacturing companies to integrate and implement sustainability on strategic, tactical and operational levels in the company in order to be able to bring forward sustainable innovations, creating competitive advantages and increased value to its customers. The research aim to find solutions for how to measure status of current level for sustainability integration and implementation, to visualize the result and the progress to reach defined sustainability targets. The project is funded by Knowledge Foundation (KK-Stiftelsen) and the project will run in three years, **(2015-2018)**. (2015-2018). <https://www.bth.se/eng/stosip/>

SUPERVISOR & ADVISORS FOR RESEARCH STUDIES

- Main Supervisor to PhD student Jesko Schulte since 2016
- Supervisor to PhD student Patricia Lagun Mesquita since 2015. Finalized her Licentiate Degree in 2016: The missing pillar: Exploring social sustainability in product development.
- Supervisor to PhD student Cecilia Bratt since fall 2009. Finalized her PhD research in 2014: Bratt, C. Integrating a Strategic Sustainability Perspective into Eco-Labeling, Procurement and Supply Chain Management Technology Doctoral Dissertation Series No. 2014:06. Blekinge Institute of Technology
- Supervisor to PhD student Rachael Gould since 2013. Finalized her Licentiate Degree in 2015: Integrating sustainability into concept selection decision-making.
- Advisor and conduct research with other PhD students at the Department since 2008.
- Completed “Forskarhandledarutvecklingskurs” (FLUS-2009)

- Completed “Docent Promotion Program at BTH” (2009-2011)

MAIN PUBLICATIONS²

Journals articles

1. Broman G., Byggeth S. and Robèrt K.-H. 2002. Integrating Environmental Aspects in Engineering Education, *International Journal of Engineering Education*, ISSN 0949-149X, Vol. 18, No. 6.
2. Byggeth S. H. and Hochschorner E. 2006. Handling trade-offs in Ecodesign tools for sustainable product development and procurement. *Journal of Cleaner Production*, vol. 14, issue 15-16, 1420-1430.
3. Byggeth S. H., Broman G. and Robèrt K.-H. 2007. A method for sustainable product development based on a modular system of guiding questions. *Journal of Cleaner Production*, vol. 15, issue 1, 1-11.
4. Ny H., Hallstedt S., Robèrt K.-H. and Broman G. 2008. Introducing templates for sustainable product development through an evaluation case study of televisions at the Matsushita Electric Group. *Journal of Industrial Ecology*, vol 12, issue 4, 600-623.
5. Hallstedt S., Ny H., Robèrt K.-H. and Broman G. 2010. An approach to assessing sustainability integration in strategic decision systems. *Journal of Cleaner Production*. vol.18, 703–712.
6. Bratt, C., Hallstedt, S., Robèrt, K.-H., Broman, G. and Oldmark, J. 2011. Assessment of eco-labelling criteria development from a strategic sustainability perspective. *Journal of Cleaner Production*. vol.19, 1631-1638.
7. Bratt, C., Hallstedt, S., Robèrt, K.-H., Broman, G. and Oldmark, J. 2013. Assessment of criteria development for public procurement from a strategic sustainability perspective. *Journal of Cleaner Production*. vol. 52, 309-316.
8. Hallstedt S. Thompson A., Lindahl P. 2013. Key Elements for Implementing a Strategic Sustainability Perspective in the Product Innovation Process. *Journal of Cleaner Production*. vol. 51, 277-288.
9. Hallstedt, S., Bertoni M., Isaksson O. 2015. Assessing sustainability and value of manufacturing processes: a case in the aerospace industry." *Journal of Cleaner Production* vol. 108, 169-182.
10. Bertoni M., Hallstedt S., Isaksson O. 2015. A model-based approach for sustainability and value assessment in the aerospace value chain. *Journal of Advances in Mechanical Engineering*, Special Issue on "Environmentally Conscious Technologies in Mechanical Engineering".
11. Hallstedt S. 2017. Sustainability Criteria and Sustainability Compliance Index for Decision Support in Product Development, *Journal of Cleaner Production*. vol. 140, 251–266.
12. Hallstedt S. and Isaksson O. 2017. Material criticality assessment in early phases of sustainable product development. *Journal of Cleaner Production*. vol.161, 40-52.

² The surname *Byggeth* was changed to the surname *Hallstedt* in 2007

Conference Proceedings

1. Byggeth S. H., Broman G., Holmberg J., Lundqvist U., and Robèrt K-H. 2000. A Method for Sustainable Product Development in Small and Medium Sized Enterprises. In: *Proceedings of Third International Symposium on Tools and Methods of Competitive Engineering - TMCE2000*, April 18-21, 2000, Delft University of Technology, Delft, the Netherlands.
2. Byggeth S.H. and Broman G.I. 2001. Environmental aspects in product development - An investigation among small and medium-sized enterprises, in: *Proceedings of SPIE, Environmentally Conscious Manufacturing*, Surendra M. Gupta, Editor, vol. 4193, 261-271. ISBN: 0-8194-3858-8.
3. Byggeth S. H., Broman G., Lundqvist U., Robèrt K-H., and Holmberg J. 2001. An Approach to Sustainability Product Analysis in Product Development. In: *Proceedings of ERCP, 7th European Roundtable on Cleaner Production*, May 2-4, 2001, Lund, Sweden.
4. Waldron, D., Byggeth, S., Ny, H., Broman, G., & Robèrt, K. H. 2004. Structured comprehension for systems thinking, learning and leadership towards sustainability. In: *Proceedings of EMSU- Environmental Management for Sustainable Universities*.
5. Byggeth S., Ny H., Wall J., Broman G. & Robèrt K-H. 2007. Introductory procedure for sustainability-driven design optimization. In: *Proceedings of the International Conference on Engineering Design, ICED' 07*, 28-31 August, 2007, Cite des Sciences et de l'industrie, Paris, France.
6. Hallstedt, S. 2009. Strategic decisions guided by tools and methods based on sustainability questions. In: *Proceedings of the International Conference on Research into Design, ICoRD'09*. 7-9 January, 2009, Indian Institute of Science, Bangalore, India.
7. França, C. L., Hallstedt, S. and Broman, G. 2009. Systematic guidance for how to integrate a strategic sustainability perspective in core business decision systems. In: *Proceedings of the International Conference on Engineering Design, ICED' 09*, 24-27 August, 2009. Stanford University, Stanford, CA, USA.
8. Hallstedt S. 2010. Sustainability driven product development -some challenges and opportunities for aero industry. 2010. In: *Proceedings of Flygteknik kongress* 18-19 October, Stockholm City Conference Centre, Sweden.
9. Hallstedt Sophie. 2010. How can Master students be supported and evaluated on their Master thesis projects for a good learning result?, *Lärlärdom*, 18 August, 2010, Karlskrona, Sweden.
10. Hallstedt S., Thompson A. (2010) Integrating sustainability and innovation through a master's program in product-service systems. *Conference ERSCP & EMSU*, 25-29 October, 2010, Delft Technical University, The Netherlands.
11. Thompson A., Lindahl P., Hallstedt S., Ny H., Broman G. (2011). Decision Support Tools for Sustainability in Product Innovation in a few Swedish Companies. In: *Proceedings of the International Conference on Research into Design, ICoRD'11*. 10-12 January, 2011, Indian Institute of Science, Bangalore, India.
12. Hallstedt S. and Thompson Anthony (2011). Sustainability driven product development -some challenges and opportunities for aero industry. 2011. In: *Proceedings of International Society for Airbreathing Engines, 20th ISABE Conference*, 12-16 September, Gothenburg, Sweden.
13. Bratt, C., Hallstedt, S., Robèrt, K.-H., Broman, G and Oldmark, J. 2011. Eco-labelling criteria development for strategic life cycle management. *Proceedings of the Life Cycle Management Conference – LCM 2011 – Towards Life Cycle Sustainability Management*, August 28th – 31st 2011, Berlin, Germany.
14. Ny, H., Hallstedt, S., Ericson Å. 2012. A Strategic Approach for Sustainable Product Service System Development. In: *Proceedings of CIRP Design 2012 – Sustainable*

Product Development, 28-30 March 2012, Indian Institute of Science, Bangalore, India.

15. Thompson, A. W. Hallstedt S., Isaksson O. (2012). Introductory approach for sustainability integration in conceptual design. In: *Proceedings of International design conference - DESIGN 2012*. Dubrovnik, Croatia, May 21 - 24, 2012.
16. Bratt C., Broman G., Robèrt K-H, Hallstedt S. (2012). Procurement as driver of sustainable product-service innovation. In: *17th International Conference Sustainable Innovation*. Bonn, Germany. 29th-30th October 2012.
17. Hallstedt S. and Isaksson O. (2013) Clarification of sustainability consequences of manufacturing processes in conceptual design. *Proceedings of the 19th International Conference on Engineering Design, ICED' 13*, 19-22 August, 2013. Seoul, Korea.
18. Hallstedt S., Thompson A., Isaksson O., Larsson T., Ny H. (2013) A decision support approach for modeling sustainability consequences in an aerospace value chain. *Proceedings of ASME, 18th Design for Manufacturing and the Life Cycle Conference (DFMLC) 2013 in the International Design Engineering Technical Conferences & Computers and Information in Engineering Conference*. August 4-7, 2013 in Portland, USA.
19. Bertoni M., Hallstedt S., Isaksson O. (2014) Value assessment of sustainability hotspots in conceptual design: an aerospace study. *Proceedings of Tools and Methods for Competitive Engineering (TMCE)*. May 19-23, 2014, Budapest, Hungary, ISBN 978-94-6186-177-1.
20. Hallstedt S. How to define a sustainability design space. *Proceedings of the 20th International Conference on Engineering Design (ICED)*. Milan, Italy, July 27-30, 2015.
21. Isaksson O., Bertoni M., Hallstedt S., Lavesson N. Model Based Decision Support for Value and Sustainability in Product Development. *Proceedings of the 20th International Conference on Engineering Design (ICED)*. Milan, Italy, July 27-30, 2015.
22. Mesquita L.P., Hallstedt S., Broman G., Isaksson O. An introductory approach to concretize social sustainability for sustainable manufacturing. *Proceedings of TMCE, 2016, Aix-Provence, France, May 9-13, 2016*.
23. Mesquita L.P., Broman G., Hallstedt S. Analyzing Social LCA approaches through the lens of Strategic Sustainable Development. *Proceedings of the XXVII ISPM Innovation Conference: Blending tomorrow's innovation Vintage, Porto, Portugal, June 19-22, 2016*.
24. Zetterlund H., Hallstedt S., Broman G. Implementation potential of sustainability-oriented decision support in product development. *Proceedings of the 26th CIRP Design Conference*. Stockholm, Sweden, June 14-17, 2016.
25. Hallstedt S., Isaksson O., Wallin J., Zetterlund H. (2016) Material Criticality Method - product vulnerability from a sustainable business perspective. *Proceedings of the International Design Conference – Design 16. Dubrovnik, Croatia, May 16-19, 2016*.
26. Jaghbeer Y., Hallstedt I. S., Larsson T., Wall J. (accepted for publication) Exploration of simulation-driven support tools for sustainable product development. *Proceedings of the 9th CIRP IPSS Conference: Circular Perspectives on Product/Service-Systems. Copenhagen, Denmark, June 19-21, 2017*.
27. Hallstedt I. S. and Pigozzo D. (accepted for publication) Sustainability integration in a technology readiness assessment framework. *Proceedings of ICED 17: 21st International Conference on Engineering Design, University of British Columbia, Vancouver, Canada, August 21-25, 2017*.
28. Schulte J. and Hallstedt I. S. (accepted for publication) Challenges for integrating sustainability in risk management – current state of research. *Proceedings of ICED 17: 21st International Conference on Engineering Design, University of British Columbia, Vancouver, Canada, August 21-25, 2017*.

29. Jaghbeer Y., Motyka Y., Hallstedt S. (accepted for publication) A Process for Designing Lean- and Sustainable Production. *Proceedings of ICED 17: 21st International Conference on Engineering Design, University of British Columbia, Vancouver, Canada, August 21-25, 2017.*
30. Schulte J. and Hallstedt I. S. (accepted for publication) Challenges and preconditions to build sustainability capabilities in product innovation. *Proceedings of ICED 17: 21st International Conference on Engineering Design, University of British Columbia, Vancouver, Canada, August 21-25, 2017.*

Book & Book chapter

1. Robèrt, K.-H., Broman G., Waldron D., Ny H., Byggeth S., Cook D., Johansson L. et al. 2007. Strategic leadership towards sustainability. Blekinge Institute of Technology, Sweden.
2. Ny H., Hallstedt S., Ericsson Å. (2013) A strategic Approach for sustainable product service system development. pp 427-436. Editor: Amaresh C. *Cirp Design – Sustainable Product development.* Springer, London. ISBN 978-1-4471-4506-6.

Thesis

1. Hallstedt, Sophie. *A Foundation for Sustainable Product development.* Doctoral Thesis, School of Engineering, Blekinge Institute of Technology. ISBN 978-91-7295-136-5, Karlskrona, Sweden, 2008.
2. Byggeth S. H. *Integration of Sustainability Aspects in Product Development.* Licentiate Thesis, Department of Physical Resource Theory, Chalmers University of Technology and Göteborg University, ISSN 0280-2872, Göteborg, Sweden, 2001.
3. Hallstedt S and M. Byggeth. *Performance validation of the Bio-Sensor, an automated biomonitoring system using the Fathead minnow (Pimephales promelas) as sensor species.* Master Thesis, Luleå University of Technology 1994.