

# The ‘Nordic Approach’ and how it may support Design for Sustainability

Faheem Ali, Elli Verhulst, Casper Boks

*Department of Product Design, Norwegian University of Science and Technology,  
faheem.ali@ntnu.no, elli.verhulst@ntnu.no, casper.boks@ntnu.no*

## Abstract

The Nordic industries have been considered to be one of the first movers on sustainability related topics. This research work aims at exploring the ‘Nordic Approach’ in a Design for Sustainability (DfS) context and is based on findings from existing literature and industrial reports in a broader field of research pertaining to the Nordics. The paper investigates and presents factors and drivers that distinguish the Nordic countries from the rest of the world. This work concludes with a discussion on how a thorough understanding of what the Nordic Approach entails may improve further theoretical and applied work related to Design for Sustainability. Such an understanding may in turn inform a discussion on the potential need for customised tools, methods and approaches for implementing Design for Sustainability within Nordic industry and public work environments. The paper also identifies future research potential correlating the ‘Nordic approach’ and DfS.

**Keywords:** *Design for sustainability, Nordic Approach, Soft side, organisational factors, change management*

## 1 Introduction

Sustainability encompassing the triple bottom line of economic, environmental and socio-ethical aspects has become an indispensable part of industrial activities around the globe. Increasing attention from policy makers, governments, academics and companies have made sustainable innovations a pivotal part of business strategies. Moreover, including environmental and social aspects in business development has increasingly proven to provide a competitive advantage for companies over their competitors (Porter & Kramer, 2011). Product design and development has an important role in this process because, careful consideration of relevant aspects can mitigate many environmental, societal and economic challenges during the life cycle of the product (Brezet & Van Hemel, 1997). There has been a shift of focus in Design for Sustainability (DfS) research from mainly technical, product related approach to more organisational, managerial and business related areas and its impact on the subject of DfS (Boks, 2006; Boks & McAloone, 2009; Daae & Boks, 2015; Tukker et al., 2001; Verhulst, Boks, Stranger, & Masson, 2007). Subsequently, one of the areas of research on DfS focuses on its implementation in companies and emphasises the need to

include a larger arena of influential factors. This latter direction in research has predominantly focussed on topics such as organisational behaviour, human related factors, organisational characteristics, cultural and language diversity and their impact on DfS implementation. The increased internationalisation and complex interdependencies between markets emphasize an even larger significance of these factors in discussions on DfS. Hofstede, (1983) observes that nationality is a crucial part of management for three reasons. Firstly, nations are politically rooted historical units with mutually differing formal institutions that are hard to converge. Secondly, the sociological factor of common identity among people from a nation or region distinguishes them from the rest. Thirdly, the psychological factor, that our thinking is partly influenced by our culture, family and childhood experiences, which differ from country to country. These observations make it an interesting academic proposition to explore those factors that are unique to a region or country, and that could possibly have an impact on the successful implementation of DfS strategies.

Scandinavian industries have been first movers in various sustainability initiatives and are also home to many companies that perform well in sustainability indices around the globe. This includes the Dow-Jones Sustainability Index (DJSI) and the Global 100 Index. The 'Nordic' countries which include Norway, Sweden, Denmark, Finland and Iceland have been widely discussed in sustainability and organisational management context in both industrial reports and academic literature (Emmelin, 1998; Lindell & Arvonen, 1996; Lindell & Karagozoglu, 2001; Smith, Andersen, Ekelund, Graversen, & Ropo, 2003). Further, the term approach is defined as *'to make advances to, especially in order to create a desired result'* (Webster, 2006). The usage 'Nordic approach' in this research work thus entails the Nordic method of carrying out tasks and style of functioning in the organisation. Furthermore, the socio-cultural similarity existing among the Scandinavian countries makes it a good choice to be analysed as a single unit (Poulsen, 1988). This research work aims at reviewing existing evidence in literature for a 'Nordic approach' that distinguishes business activities within Nordic companies and industries from the rest of the world. The research also explores how an understanding of such an approach, if it exists, can help ongoing academic research and discussions on sustainability implementation in industries. Subsequently, the 'Nordic approach' observed in a broader set of literature is considered as the unit of analysis for this paper.

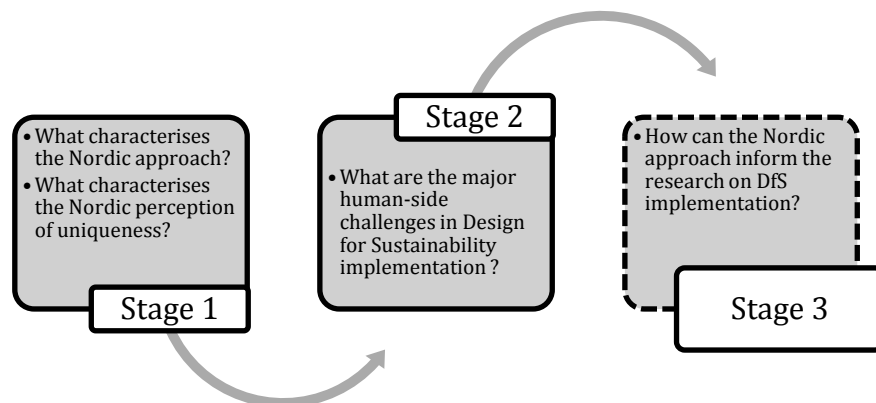
## **2 Research Methodology**

As mentioned earlier, the research work for this paper has been based on literature review of existing work in academia and industry that deal with the topic. A literature review on the topic intends to provide a comprehensive understanding of the existing academic research in the area (Denscombe, 2014). The larger research project, of which this paper is a part of, intends to use the results presented in this paper as a point of departure for a detailed case study on DfS implementation in industries from a Scandinavian perspective. Thus, the findings and discussions presented in this paper would contribute to the triangulation process in the case studies that will follow in the larger project outline (Bryman, 2012; Yin, 2009).

A comprehensive search string covering various dimensions of the topic of study was developed to streamline the literature search and to include research and findings from relevant sources. Scopus was selected as the main scientific database mainly because of two reasons, firstly, the detailed meta-data available from this database facilitated supplementary research and secondly, the depth of relevant literature in this database. The search strings used in the literature review process were related to 1) literature on the geographic area of

Scandinavia, 2) academic work on institutional entities, and 3) different organisational parameters that can be observed in such institutional entities. Further, in order to identify the insights from existing academic research covering Scandinavia and the topic of sustainability, an additional list of independent variables were also used in the literature search process.

Subsequently, as illustrated in Figure 1, a three stage research method was devised to investigate the factors outlined in Section 1. Stage 1 of the research work involved finding factors that characterised the Nordic style of functioning in different academic segments. Further, it also studies how the Nordic style is different from other identified academic works on regional and organisational culture (Section 3.1). In stage 2 some of the commonly identified human-side challenges in DfS implementation are presented (Section 3.2). Together this provides food for discussion on how insights on the Nordic style may benefit DFS implementation. This is briefly touched upon in Section 4, thus indicated by dotted lines (Stage 3).



**Figure 1 The research approach - an illustration**

### **3 Results from the literature review**

This chapter presents the findings on ‘Nordic approach’ and on DfS implementation that was identified in the literature review process. A total of 37 articles were identified and selected for analysis. These articles were selected based upon their focus on the Nordic organisational culture and comparative discussions on other regional cultures. Since the main focus of this article is on understanding the Nordic approach, only 9 of the selected articles discuss the DfS literature and implementation challenges.

Smith et al., (2003) observe that research on the Nordic management style has been mostly characterised by researchers from two different backgrounds. The first kind of researchers who are from outside the Nordic geographic region approached the Nordic management style and its way of functioning as part of an attempt to highlight existing global variations in the field. Hofstede (1980) and House et al. (2004) are some examples. In contrast, researchers from within the Nordic region have put larger focus on bringing out attributes considered unique to that region (e.g.: Hall et al. (2009); Hvid et al. (2011)) . The latter academic work has thereby helped in highlighting the Nordic uniqueness in terms of culture and organisational characteristics. Both these findings are further discussed in the following section.

### 3.1 Stage 1: The Nordic socio-cultural dimension

In his classic survey covering employees of a multinational company with presence in 40 different countries, Hofstede (1980) states that culture is characterised by four major dimensions;

- Power distance (unequal versus equal)
- Uncertainty avoidance
- Individualism/Collectivism (alone versus together); and
- Masculinity/Femininity (tough versus tender)

Among these four, Hofstede observes that the Nordic countries along with the Netherlands have very low power distance among the employees in the organisation. The Nordic countries were also found to be more individualistic in their approach, with initiatives driven by subordinates.

Hofstede further characterises the Nordic countries as having a more feminine culture, femininity according to him relates to the similar gender roles existing among both male and female (Smith et al., 2003). This mainly stems from the gender equality (termed as 'likestilling' in Norwegian) approach for which the Scandinavian countries are known for. This also follows the findings of Hofstede (1998), where the author identifies the feminine culture existing in the Nordic countries as a main reason for these countries having a larger female presence in leadership roles in the society and better work and family life balance.

However, Hofstede's dimensions address culture on a very general, national culture level and do not incorporate other societal or personal characteristics that may be typical for a certain geographic location and/or state of welfare. Proposing an agenda for organisational change in the work and family interface setting, Lewis & Cooper (1995) highlight the individual, organisational, family and community costs entailing an improper work and social life balance. These costs include personal work related stress, low efficiency in work, absenteeism and reduced quality of life. The Nordic countries have come out well in studies on the quality of life and work life balance. In a study comparing five different European countries in terms of work-life balance, Crompton & Lyonette (2006) observe that Norway and Finland score better than Portugal, France and the United Kingdom. Researchers opine that the long standing public policy initiatives since the 1970s in Scandinavia played a big role in achieving this balance between employee and family life (Gallie, 2003; Lewis & Cooper, 1995). These observations in literature lead to the concrete conclusions on how Nordic traditions and long standing cultural norms have served as a determinative factor in shaping organisational characteristics in the Nordics. The following subsections investigate some of these organisational characteristics in detail.

#### 3.1.1 *Flat organisational structure in Nordics – its manifestations*

The Nordic countries are known for their relatively flat organisational structure, which distinguishes its style of functioning. In a cross-cultural study between the market orientation of Nordic and US based firms, Selnes et al. (1996) observe that national context of the firms play a decisive role in its response to the market changes. The studies showed that interdepartmental conflicts were found to be low in Scandinavian firms and interdepartmental connectedness was on a higher level.

Empirical studies show that shared leadership in firms improve the team performance when supported with proper team autonomy in functioning, control and discretion over tasks and conditions (Fausing, Jeppesen, Jønsson, Lewandowski, & Bligh, 2013). The flat working

structure in the Nordic organisations in turn results in increased autonomy and low power distance within the management levels (Hofstede, 1980; Kasvio, Gonäs, & Skorstad, 2012). In a cross cutting review of organisational studies on the Nordic work culture, Hasle & Sørensen (2013) establishes that employees in the Nordics are autonomous beings possessing individual and collective aspirations that drive their commitment and increase their individual contribution to the firm's activities.

### *3.1.2 High degree of stakeholder approach*

Another feature identified in the Nordic style of organisational working is the increased stakeholder involvement in the functioning of the organisations (Lindell & Arvonen, 1996). Kasvio et al. (2012) mention a Norwegian example of how high degree of stakeholder involvement benefits all concerned parties in an organisational setting. This also follows de Monthoux's (1991) view on a participatory style of working in Swedish companies, where people are taken seriously only when they speak on as part of the collective group appreciating different views in the group. Another study on national culture and hierarchy also concludes that this participatory style of organisational functioning is found to be ingrained in Nordic organisations. This leads to an improved cohesiveness among different organisational units within the firm leading to improved conflict resolution and lesser uncertainty in activities (Laurent, 1983).

### *3.1.3 Task orientation*

In a comparative case study on the Nordic management style in an European context, Lindell & Arvonen (1996) observe that Nordic managers stress upon the need for proper planning and order in the activities of the company and communicate the details more with their subordinates. The Nordic organisations are thus less task oriented, giving more freedom to the employees to achieve the targets based on the inputs they receive (Smith et al., 2003).

### *3.1.4 Employee orientation*

In study mentioned earlier, Lindell & Arvonen (1996) also study the employee orientation in the Nordic firms, and find that Nordic managers allowed employees to make decisions and showed regard for the individual they were. The article observe that it was based on the mutual trust and consideration that the employee and manager had for each other.

### *3.1.5 Innovation driven*

Exploring the influence of management control in empowering the employees, Simons (1995) argue that effective managers empower their employees, giving them enough room to innovate and add value in their activities. The Nordic managers are known to encourage their employees to think along new lines and are open to discuss new ideas (Lindell & Arvonen, 1996; Smith et al., 2003).

## **3.2 Stage 2: Design for Sustainability implementation – human-side challenges and needs**

Since it is beyond the scope of this paper to identify all DfS challenges and literature, this section only presents a brief overview of some of the widely identified human related challenges in DfS implementation literature. However, some of the relevant literature is also cited in Table 2. For a better understanding of DfS, it is also worth mentioning that the topic of DfS can be further explored in works of Aschehoug S., Boks C., Baumann H., Verhulst E., Lindahl M. et al. The challenge of successful implementation of DfS has entailed a number of factors, not only technical aspects but also socio-psychological factors (Boks, 2006; Boks & McAloone, 2009; van Hemel & Cramer, 2002; Verhulst & Boks, 2012, 2014) . Among these,

one observation is that there is a need for effective and continuous communication between different stakeholders involved in the implementation process (Schindler & Eppler, 2003); it has been hypothesised that the latter may be of particular importance in the context of sustainability, as it still is a relatively new concept, intertwined throughout the whole internal and external value chain. Another hypothesis is that for example a flat, participative management style – typical of Nordic management approaches, may ensure a continuous chain of communication between various levels of the organisation.

Another observation from DfS literature is the need for empowerment of personnel involved in the implementation process. Based on a number of case studies, Verhulst & Boks (2014) identify three dimensions of empowerment, namely;

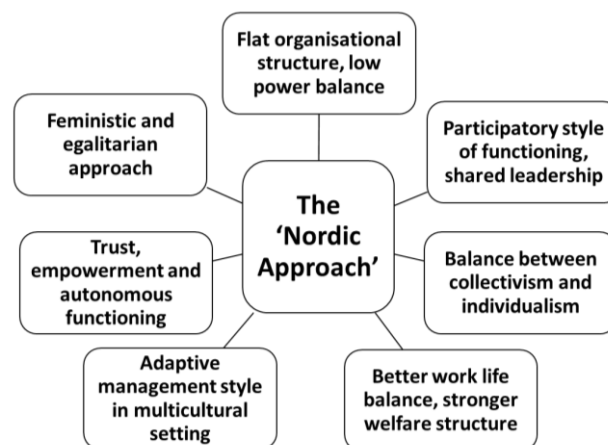
- **Authority:** involving power, decision-making and responsibility.
- **Resources and specialisation:** Information, knowledge and skills.
- **Self-determination:** creativity, autonomy and initiatives.

The terminology used in the above definition of empowerment is similar to some of the characteristics identified in the ‘Nordic approach’. The Nordic style of management provides individuals with sufficient autonomy and responsibility to contribute their ideas to the group. There is also strong emphasis on ensuring participation of all stakeholders in a decision making process, which in turn is said to promote creativity and encourage initiatives from the employees (Boks, 2006). Concomitantly, this approach also encourages a pro-active learning process among various involved partners.

## 4 Discussion

Based on existing academic literature, insights on what entails a ‘Nordic approach’ were explored and presented. As illustrated in Figure 2, the ‘Nordic approach’ is characterised by a number of features originating from the socio-cultural dimension of the region. It is our hypothesis that understanding and addressing these features may provide insights in understanding conditions for successful implementation of Design for Sustainability (DfS) in a Nordic context. As so far, literature on DfS implementation does not distinguish between different geographic reasons, this goes two ways:

- A better understanding can provide additional, geographic-specific insights on how DfS implementation in the Nordic business culture can be supported
- Should it become clear that the Nordic business culture is specifically supportive to DfS implementation, it provides food for thought on which elements of the Nordic approach may be implemented in other suitable geographic regions.



**Figure 2 The 'Nordic Approach' - an illustration**

#### 4.1 Design for sustainability implementation – what the Nordic approach entails

Table 1 lists the ‘Nordic approach’ factors identified in this paper in conjunction with challenges and areas of difficulties identified in the Design for Sustainability implementation literature. In the third column in the table, we have attempted to identify how insights about the Nordic approach, when connected to known obstacles from DfS literature, may contribute to implementation thereof. So far, these remain hypotheses, and are put forward here to spark discussion and inspire for further research. For example, the high level of individuality and relatively flat structure of organisations may facilitate communication between individuals and departments, thus overcoming challenges related to communication, cooperation, and favouring bottom-up initiatives and creativity. Similarly, a tradition for stakeholder participation and mutual trust may contribute for more efficient innovation processes, faster decision making processes, and avoid distrust among different parties that are all needed to be ‘on board’ to push sustainable innovations forward.

**Table 1 'Nordic approach' and Design for Sustainability - drawing parallels**

<b>Identified from ‘Nordic approach’ literature</b>	<b>Factors identified from DfS implementation literature that are relevant in the context</b>	<b>Possible coupling and potential benefit area</b>
Flat structure of organisation (Selnes et al., 1996)	Need for effective communication (Boks, 2006)	Facilitates easy and open communication Supports (bottom-up) creativity in DfS product development process
Individualistic behaviour (Hofstede, 1980)	Need for creativity and self-driven individuals (Baumann, Boons, & Bragd, 2002)	Avoids uncertainty and conflict creation during DfS implementation
Lesser uncertainty (Laurent, 1983)	Need for cooperation (van Hemel & Cramer, 2002)	Ensures proper dissemination of information enhancing overall competitiveness of the firm.
Proper planning and order (Smith et al., 2003)	Need for proper dissemination of sustainability information (Aschehoug, Boks, & Støren, 2012)	Improved decision making process, avoiding inward focus
High degree of stakeholder approach (Lindell & Arvonen, 1996)	Need for complete stakeholder involvement (Tukker et al., 2001)	Easier translation of goals to action, increase acceptance
Strong employee orientation (Lindell & Arvonen, 1996)	Need for empowerment (Verhulst & Boks, 2014)	Exploiting creative approaches in DfS
Innovation driven (Smith et al., 2003)	Need for continuous improvement in eco-design environment (Santolaria, Oliver-Solà, Gasol, Morales-Pinzón, & Rieradevall, 2011)	Faster implementation process
Mutual trust (Poulsen, 1988)	Need to overcome scepticism associated with change (Knight & Jenkins, 2009)	Better adaptive results
Collective aspirations among employees (Hasle & Sørensen, 2013)	Aligning company goals with individual perceptions (Doppelt, 2003)	More (two-way) discussion, less rigid approaches
Feminine attitude (Hofstede, 1980)	Risk from patriarchal thinking and false sense of security (Doppelt, 2003)	Increase acceptance for work and responsibility changes in the firm
Egalitarian approach in society (Gallie, 2003)	Fear of work overload (Verhulst & Boks, 2012)	

## 4.2 Research potential and future work

The discussion presented in this paper highlights certain potential research areas that can contribute to more successful DfS implementation. Firstly, academic research on DfS implementation has been primarily driven by tool and method development, which has predominantly focussed on technical aspects of product development. Our review suggests that elements of the Nordic approach may support aspects such as internal communication, creativity, stakeholder dialogue and participation. The authors will continue to research how to incorporate the cultural and human side perspectives into tool, methodology and strategy development. Still, though the Nordic style of organising work environments seems relatively suitable for DfS implementation, ground reality still points towards room for improvement in companies in the region. Our review identified mostly aspects of the Nordic Approach that may support DfS implementation, but some aspects may pose challenges as well; an individual orientation and flat organisational structures may also be seen as obstacles in some contexts. A user based fact finding research on why Scandinavian companies fail in DfS implementation can enrich the ongoing academic discourse.

It is also a valid question to ask to what extent implementation in non-Nordic countries may benefit from our current insights, though answering this question is at this time not among our research priorities.

The future work based on the discussion presented in this paper shall include an empirical case study based validity testing of the potential coupling areas identified in Table 1.

## 5 Conclusion

This paper presents the results of a literature review on what entails the ‘Nordic approach’. The aim of this literature review process was to explore how a good understanding of the ‘Nordic approach’ can inform research on DfS implementation. The paper begins by defining the ‘Nordic approach’. Further, it sketches out different characteristics of the Nordic countries and how these contribute to the Nordic style of functioning in firms. The paper argues that a joint reading of the Nordic approach and the challenges in implementation of DfS provides valuable insights to streamlining the latter. It also discusses how these characteristics help in addressing barriers and challenges identified in the DfS implementation literature. Potential research areas in this topic are also discussed.

## References

- Aschehoug, S. H., Boks, C., & Støren, S. (2012). Environmental information from stakeholders supporting product development. *Journal of Cleaner Production*, 31, 1–13. <http://doi.org/10.1016/j.jclepro.2012.02.031>
- Baumann, H., Boons, F., & Bragd, A. (2002). Mapping the green product development field: engineering, policy and business perspectives. *Journal of Cleaner Production*, 10(5), 409–425.
- Boks, C. (2006). The soft side of ecodesign. *Journal of Cleaner Production*, 14(15–16), 1346–1356. <http://doi.org/10.1016/j.jclepro.2005.11.015>
- Boks, C., & McAlone, T. C. (2009). Transitions in sustainable product design research. *International Journal of Product Development*, 9(4), 429–449.
- Brezet, H., & Van Hemel, C. (1997). *Ecodesign: a promising approach to sustainable production and consumption*. UNEP.
- Bryman, A. (2012). *Social Research Methods*. Oxford University Press.



- Crompton, R., & Lyonette, C. (2006). Work-Life 'Balance' in Europe. *Acta Sociologica*, 49(4), 379–393. <http://doi.org/10.1177/0001699306071680>
- Daae, J., & Boks, C. (2015). A classification of user research methods for design for sustainable behaviour. *Journal of Cleaner Production*, 106, 680–689. <http://doi.org/10.1016/j.jclepro.2014.04.056>
- de Monthoux, P. G. (1991). Modernism and the dominating firm—on the managerial mentality of the Swedish model. *Scandinavian Journal of Management*, 7(1), 27–40. [http://doi.org/10.1016/0956-5221\(91\)90025-V](http://doi.org/10.1016/0956-5221(91)90025-V)
- Denscombe, M. (2014). *The good research guide: for small-scale social research projects*. Open University Press. Terje Stafseng <terje.stafseng@ntnu.no> <https://www.dora.dmu.ac.uk/xmlui/handle/2086/10239>
- Doppelt, B. (2003). Overcoming the seven sustainability blunders. *SYSTEMS THINKER*, 14, 2–6.
- Emmelin, L. (1998). Evaluating nordic environmental impact assessment – part 2: Professional culture as an aid in understanding implementation. *Scandinavian Housing and Planning Research*, 15(4), 187–209. <http://doi.org/10.1080/02815739808730457>
- Fausang, M. S., Jeppesen, H. J., Jønsson, T. S., Lewandowski, J., & Bligh, M. C. (2013). Moderators of shared leadership: work function and team autonomy. *Team Performance Management*, 19(5/6), 244–262. <http://doi.org/http://dx.doi.org/10.1108/TPM-11-2012-0038>
- Gallie, D. (2003). The Quality of Working Life: Is Scandinavia Different? *European Sociological Review*, 19(1), 61–79. <http://doi.org/10.1093/esr/19.1.61>
- Hall, P., Kettunen, P., Löfgren, K., & Ringholm, T. (2009). Is there a Nordic Approach to Questions of Democracy in Studies of Network Governance? *Local Government Studies*, 35(5), 515–538. <http://doi.org/10.1080/03003930903411675>
- Hasle, P., & Sørensen, O. H. (2013). Employees as Individually and Collectively Acting Subjects-Key Contributions from Nordic Working Life Research. *Nordic Journal of Working Life Studies*, 3(3), 9.
- Hofstede, G. (1980). Motivation, leadership, and organization: Do American theories apply abroad? *Organizational Dynamics*, 9(1), 42–63. [http://doi.org/10.1016/0090-2616\(80\)90013-3](http://doi.org/10.1016/0090-2616(80)90013-3)
- Hofstede, G. (1983). The Cultural Relativity of Organizational Practices and Theories. *Journal of International Business Studies*, 14(2), 75–89.
- Hofstede, G. (1998). *Masculinity and Femininity: The Taboo Dimension of National Cultures*. SAGE Publications.
- House, R. J., Hanges, P. J., Javidan, M., Dorfman, P. W., & Gupta, V. (2004). *Culture, Leadership, and Organizations: The GLOBE Study of 62 Societies*. SAGE Publications.
- Hvid, H., Bergholm, T., Gonäs, L., Juul, I., Kamp, A., Karlsson, J., Kasvio, A., Klemsdal, L., Salomon, R., Skorstad, E. (2011). Nordic Working Life Research-Continuity and Renewal 1. *Nordic Journal of Working Life Studies*, 1(1), 3.
- Kasvio, A., Gonäs, L., & Skorstad, E. J. (2012). In search of the Nordic working life model; introduction to the thematic issue. *Nordic Journal of Working Life Studies*, 2(4), 1.
- Knight, P., & Jenkins, J. O. (2009). Adopting and applying eco-design techniques: a practitioners perspective. *Journal of Cleaner Production*, 17(5), 549–558. <http://doi.org/10.1016/j.jclepro.2008.10.002>
- Laurent, A. (1983). The Cultural Diversity of Western Conceptions of Management. *International Studies of Management & Organization*, 13(1/2), 75–96.
- Lewis, S., & Cooper, C. L. (1995). Balancing the work/home interface: A European perspective. *Human Resource Management Review*, 5(4), 289–305.

- [http://doi.org/10.1016/1053-4822\(95\)90011-X](http://doi.org/10.1016/1053-4822(95)90011-X)
- Lindell, M., & Arvonen, J. (1996). The Nordic Management Style in a European Context. *International Studies of Management & Organization*, 26(3), 73–91.
- Lindell, M., & Karagozoglu, N. (2001). Corporate environmental behaviour – a comparison between Nordic and US firms. *Business Strategy and the Environment*, 10(1), 38–52. [http://doi.org/10.1002/1099-0836\(200101/02\)10:1<38::AID-BSE269>3.0.CO;2-C](http://doi.org/10.1002/1099-0836(200101/02)10:1<38::AID-BSE269>3.0.CO;2-C)
- Porter, M. E., & Kramer, M. R. (2011). Creating shared value. *Harvard Business Review*, 89(1/2), 62–77.
- Poulsen, P. T. (1988). The attuned corporation: Experience from 18 Scandinavian pioneering corporations. *European Management Journal*, 6(3), 229–235. [http://doi.org/10.1016/S0263-2373\(98\)90008-1](http://doi.org/10.1016/S0263-2373(98)90008-1)
- Santolaria, M., Oliver-Solà, J., Gasol, C. M., Morales-Pinzón, T., & Rieradevall, J. (2011). Eco-design in innovation driven companies: perception, predictions and the main drivers of integration. The Spanish example. *Journal of Cleaner Production*, 19(12), 1315–1323. <http://doi.org/10.1016/j.jclepro.2011.03.009>
- Schindler, M., & Eppler, M. J. (2003). Harvesting project knowledge: a review of project learning methods and success factors. *International Journal of Project Management*, 21(3), 219–228.
- Selnes, F., Jaworski, B. J., & Kohli, A. K. (1996). Market orientation in United States and Scandinavian companies. A cross-cultural study. *Scandinavian Journal of Management*, 12(2), 139–157. [http://doi.org/10.1016/0956-5221\(95\)00053-4](http://doi.org/10.1016/0956-5221(95)00053-4)
- Simons, R. (1995). Control in an age of empowerment. *Harvard Business Review*, 73(2), 80–88.
- Smith, P. B., Andersen, J. A., Ekelund, B., Graversen, G., & Ropo, A. (2003). In search of Nordic management styles. *Scandinavian Journal of Management*, 19(4), 491–507. [http://doi.org/10.1016/S0956-5221\(03\)00036-8](http://doi.org/10.1016/S0956-5221(03)00036-8)
- Tukker, A., Eder, P., Charter, M., Haag, E., Vercalsteren, A., Wiedmann, T., & others. (2001). Eco-design: the state of implementation in Europe—conclusions of a state of the art study for IPTS. *The Journal of Sustainable Product Design*, 1(3), 147–161.
- van Hemel, C., & Cramer, J. (2002). Barriers and stimuli for ecodesign in SMEs. *Journal of Cleaner Production*, 10(5), 439–453. [http://doi.org/10.1016/S0959-6526\(02\)00013-6](http://doi.org/10.1016/S0959-6526(02)00013-6)
- Verhulst, E., & Boks, C. (2012). The role of human factors in the adoption of sustainable design criteria in business: evidence from Belgian and Dutch case studies. *International Journal of Innovation and Sustainable Development*, 6(2), 146–163. <http://doi.org/10.1504/IJISD.2012.046943>
- Verhulst, E., & Boks, C. (2014). Employee Empowerment for Sustainable Design. *Journal of Corporate Citizenship*, 2014(55), 73–101.
- Verhulst, E., Boks, C., Stranger, M., & Masson, H. (2007). The human side of ecodesign from the perspective of change management. In *Advances in Life Cycle Engineering for Sustainable Manufacturing Businesses* (pp. 107–112). Springer. Retrieved from [http://link.springer.com/chapter/10.1007/978-1-84628-935-4\\_19](http://link.springer.com/chapter/10.1007/978-1-84628-935-4_19)
- Webster, M. (2006). Merriam-Webster Online Dictionary, 2006(7-NaN-2006).
- Yin, R. K. (2009). *Case Study Research: Design and Methods*. SAGE.