

# DOCTORAL DISSERTATIONS IN LOGISTICS AND SUPPLY CHAIN MANAGEMENT

A review of Nordic contributions from 2009 - 2014

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# Brief info

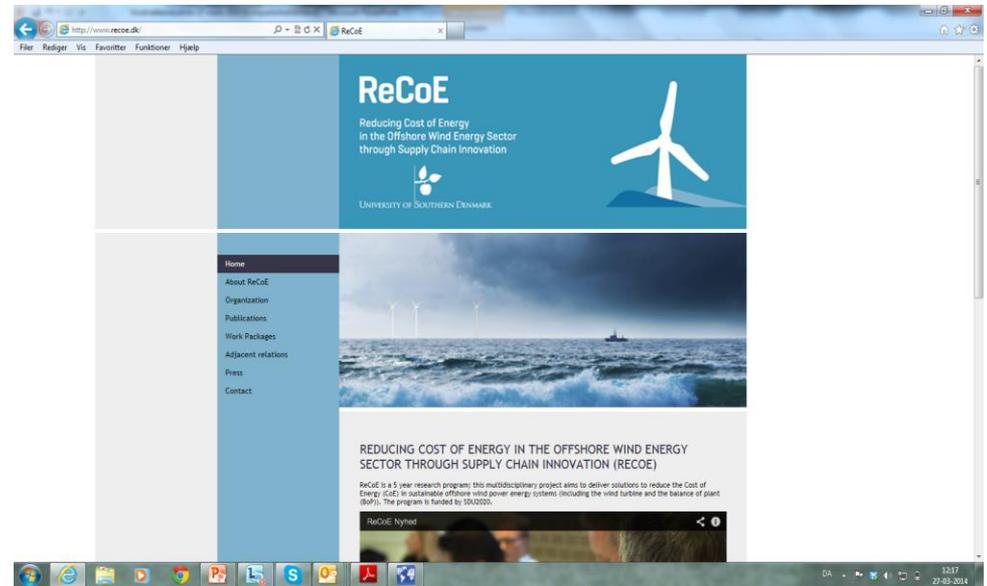
- *Jan Stentoft, Ph.D.*, is Professor in Supply Chain Management (SCM) at the Department of Entrepreneurship and Relationship Management, University of Southern Denmark.
- He has over 15 years of teaching experience and teach primarily postgraduate, PhD and MBA levels.
- Has published +200 manuscripts spanning international peer-reviewed journals, books, book chapters and practical articles to trade press journals and Newspapers. He has published academic articles to wide number of journals e.g. *Journal of Operations Management, Journal of Supply Chain Management, Supply Chain Management: An International, Journal of Cleaner Production, International Journal of Physical Distribution & Logistics Management, Supply Chain Forum: An International Journal, European Business Review, Journal of Purchasing & Supply Management, Operations Management Research, Logistics Research, Journal of Enterprise Information Management and Industrial Management & Data Systems*. He has practical industry experience from positions as Director (Programme Management Office) at LEGO Systems A/S, ERP Project Manager at Gumlink A/S, and as management consultant in a wide number of public and private enterprises.

# Head of research program



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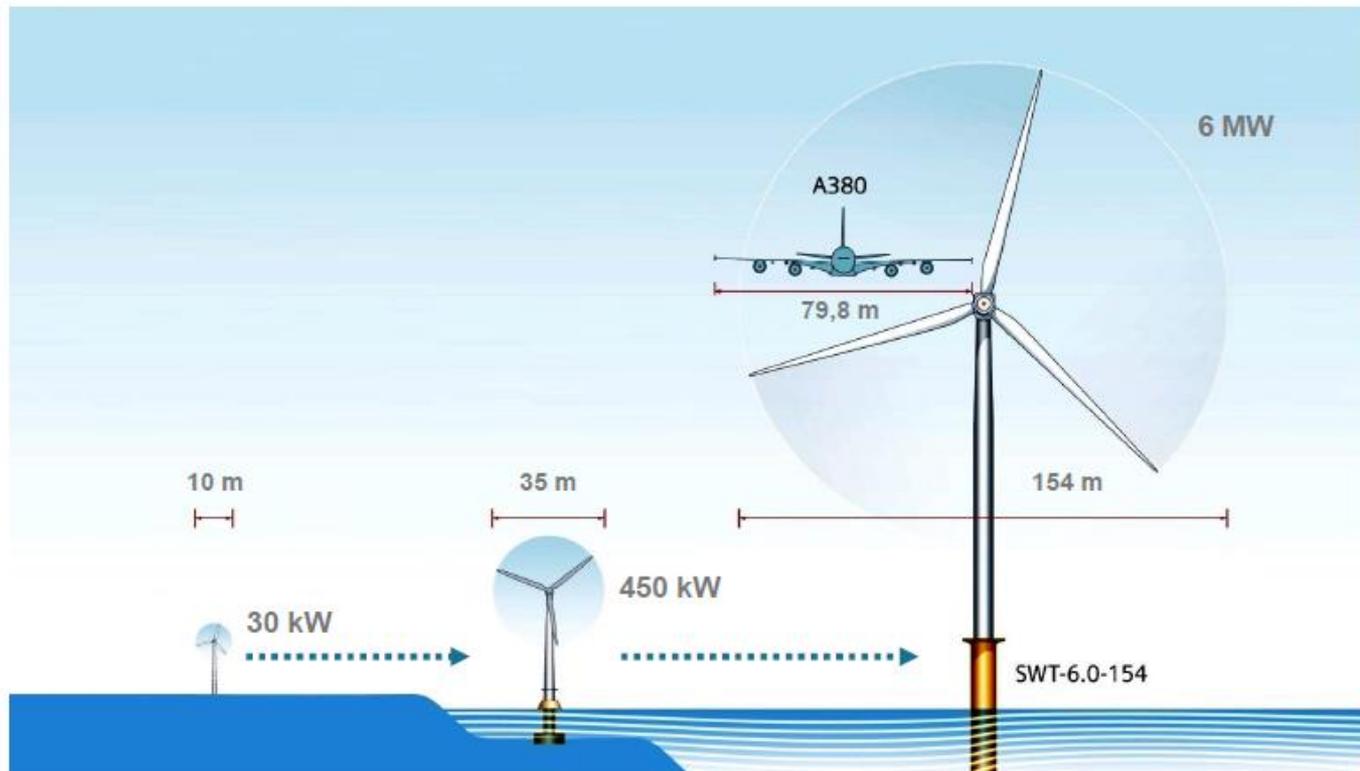
# Offshore project size development

World's 1 <sup>st</sup> offshore wind power plant 1991	World's 1 <sup>st</sup> offshore wind power plant w/ MW turbines 2000	World's largest offshore wind power plant in operation 2003	World's largest wind power market entered in China 2011	World's largest offshore wind power plant in operation 2012	World's largest offshore wind power plant in operation 2013
					
Vindeby	Middelgrunden	Nysted	Rudong	Greater Gabbard	London Array
5 MW	40 MW	166 MW	48 MW	504 MW	630 MW

## Our performance

- Leading market share and number one in offshore <sup>1</sup>.
- Industrialized offshore wind power (from 5 MW to 630 MW wind power plants)
- Market entry into the Asia Pacific region

# Product development – from 30 kW to 6 MW in 30 years



# The offshore wind supply chain

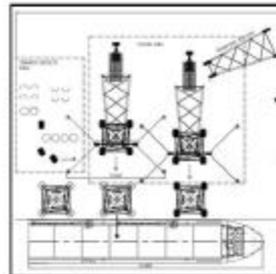
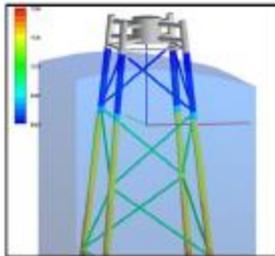


Project specific design

Purchasing modules

Assembly in port

Offshore Installation



# Disposition

- Background and Motivation
- Methodology
- Analysis
- Limitations
- Conclusion

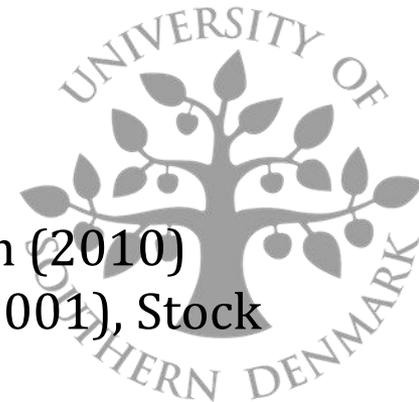


# Background

- To gain more insights of research within the logistics and supply chain management.
- To track the progress of doctoral work within Nordic countries (2009 - 2014).
- To provide the students and practitioners with an overview of the research done within this area.
- To recognize more potential topics for future research.

## **Continuation of:**

Nordic studies: Gubi et al. (2003); Zachariassen and Arlbjörn (2010)  
North American: Nakhata et al. (2013); Stock (1987, 1988, 2001), Stock and Broadus (2006); Stock and Luhrsen (1993),



# Motivation

This paper provides two analyses:

- An analysis of identified Nordic dissertations from the year 2009 to 2014
- A longitudinal analysis that compares the above analysis with the result from Gubi *et al.* (2003) and Zachariassen and Arlbjørn (2010)



# Methodology in three steps

## 1. Identification and Collection

Nordic Countries – Denmark, Finland, Iceland,  
Norway and Sweden

Final List : 38 research institutions were  
identified

Email sent to the considered institutions



Validation of the list by senior researchers

Institutions list and Dissertations list will be provided to you on  
request.

## 2. Validation Process

Gross List – 123 Dissertations



Net List – 120 Dissertations



Review List – 112 Dissertations



# Methodology in three steps

## 3. Review Process

Monographs  
vs  
Article based Dissertations

Template includes:

- Number of Articles
- Type of Article
- Year of Publication
- Journal Ranking
- Number of Authors for the Article
- Doctoral Candidate's Author Number

Article Type:

Journal Publication

Book Chapter

Conference Paper

Working Paper



# Analysis: Type of dissertations

Table 4.1 Number and type of PhD dissertations finalized in the period 2009-2014

	2009	2010	2011	2012	2013	2014	Total (2009-2014)	Total (2002-2008)	Total (1990-2001)
<i>All identified dissertations</i>									
Danish	2	1	4	3	5	2	17	11	15
Finnish	10	9	7	8	6	8	48	22	20
Icelandic	-	1	-	-	-	-	1	-	-
Norwegian	-	1	-	-	1	-	2	17	12
Swedish	7	9	9	11	8	8	52	20	28
<b>Total</b>	<b>19</b>	<b>21</b>	<b>20</b>	<b>22</b>	<b>20</b>	<b>18</b>	<b>120</b>	<b>70</b>	<b>75</b>
<i>Reviewed dissertations</i>									
<i>Danish reviewed</i>									
Monograph	2	-	1	1	1	0	5	9	14
Collection of articles	-	1	3	2	4	2	12	2	1
<b>Total Danish</b>	<b>2</b>	<b>1</b>	<b>4</b>	<b>3</b>	<b>5</b>	<b>2</b>	<b>17</b>	<b>11</b>	<b>15</b>
<i>Finnish reviewed</i>									
Monograph	2	2	5	4	2	3	18	13	14
Collection of articles	8	6	2	3	4	4	27	9	3
<b>Total Finnish</b>	<b>10</b>	<b>8</b>	<b>7</b>	<b>7</b>	<b>6</b>	<b>7</b>	<b>45</b>	<b>22</b>	<b>17</b>
<i>Icelandic reviewed</i>									
Monograph	-	1	-	-	-	-	1	-	-
Collection of articles	-	-	-	-	-	-	0	-	-
<b>Total Icelandic</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>
<i>Norwegian reviewed</i>									
Monograph	-	1	-	-	1	-	2	9	9
Collection of articles	-	-	-	-	-	-	0	8	2
<b>Total Norwegian</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>17</b>	<b>11</b>
<i>Swedish reviewed</i>									
Monograph	2	5	3	4	1	5	20	13	19
Collection of articles	4	2	5	7	6	3	27	7	9
<b>Total Swedish</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>11</b>	<b>7</b>	<b>8</b>	<b>47</b>	<b>20</b>	<b>28</b>
<i>Reviewed on total</i>									
Monograph	6	9	9	9	5	8	46	44	56
Collection of articles	12	9	10	12	14	9	66	26	15
<b>Total</b>	<b>18</b>	<b>18</b>	<b>19</b>	<b>21</b>	<b>19</b>	<b>17</b>	<b>112</b>	<b>70</b>	<b>71</b>

## Dissertations on an average

2009 – 2014 (6 years) : 120/6 = 20 per year

2002 – 2008 (7 years) : 70/7 = 10 per year

1990 – 2001 (12 years) : 75/12 = 6.25 per year

## Article based dissertation

2009 – 2014 = 59% (66/112 \*100)

2002 – 2008 = 29% (26/70 \*100)

1990 – 2001 = 21% (15/71 \* 100)



Note: Comparable data are included from the period 1990 to 2001 (Gubi *et al.* 2003) and 2002 to 2008 (Zachariassen and Arlbjorn, 2010)

# Analysis: Primary entity of analysis

Table 4.2 Primary entity of analysis

	Danish			Finnish			Icelandic			Norwegian			Swedish			Total		
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Manufacture	9	9	2	11	11	20	-	-	-	6	9	-	10	11	15	36	40	37
Carrier	5	1	2	3	4	5	-	-	-	3	1	2	10	3	12	21	9	21
Wholesaler	-	-	-	-	2	-	-	-	-	-	1	-	-	-	2	0	3	2
Retailer	-	-	-	-	2	3	-	-	-	-	1	-	-	1	3	0	4	6
Inventory hotel	-	-	-	-	-	1	-	-	-	-	-	-	1	-	3	1	0	4
N/A	1	1	13	3	3	16	-	-	1	2	5	-	7	5	12	13	14	42
Total	15	11	17	17	22	45	0	1	1	11	17	2	28	20	47	71	70	112

Note: A = Time-period of 1999-2001 covered in Gubi *et al.* (2003); B = Time-period of 2002-2008 covered in Zachariassen and Arlbjørn (2010); C = Time-period of 2009-2014 covered in this paper.

In N/A group-

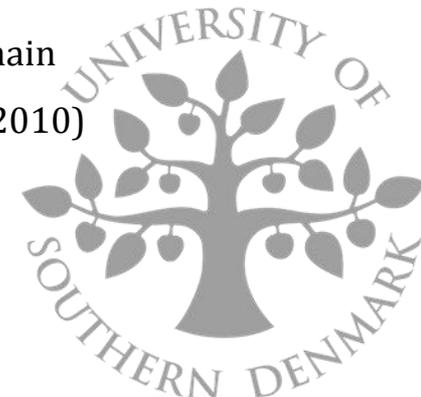
2009 – 2014 = 37.5% (42/112 \* 100)

2002 – 2008 = 20% (14/70 \* 100)

1999 – 2001 = 18.3% (13/71 \* 100)

Variety of dissertations without a specific supply chain actors' perspective – fresh fish supply chains (Nga, 2010) and health care logistics (Jørgensen, 2013).

No change in Manufacturer group : 33% (2009 - 2014)



# Writing publishable articles

- Is this:
  - A Science?
  - An Art?
  - A game?

# Writing publishable articles - Science

- Research competence: What is it?
  - Access to tools
  - Experience in research
  - Knowledge of literature
  - Methodological knowledge
  - Critical exposure

# Writing Publishable Articles - Art

- Creative, craft aspect of writing articles
- Positioning and writing of the paper
  - Allude to contribution

# Writing Publishable Articles – Game

- Targeting journals
- Working with reviewers
- Successfully revising the paper

# Analysis: Level of analysis

Table 4.3 shows the analysis of the dissertations level of analysis arranged by the year of publication.

Table 4.3 Level of analysis arranged according to year of publication

	2009	2010	2011	2012	2013	2014	Total (2009-2014)	Total (2002-2008)	Total (1990-2001)
<i>Total</i>									
Function	5	4	4	5	8	1	27	8	7
Firm	1	4	1	0	4	5	14	19	33
Dyad	0	2	4	1	1	1	9	16	8
Supply chain	6	3	3	8	2	7	29	15	8
Network	2	4	5	6	5	3	25	8	5
N/A	3	1	2	1	0	0	7	4	10
Total	17	18	19	21	20	17	112	70	71

Increased focus on Functional themes

2009 – 2014 : 24.10% ( $27/112 * 100$ )

2002 – 2008 : 11.42% ( $8/70 * 100$ )

1999 – 2001 : 9.85% ( $7/71 * 100$ )

Increased focus on Network themes :

2009 – 2014 : 22.32% ( $25/112 * 100$ )

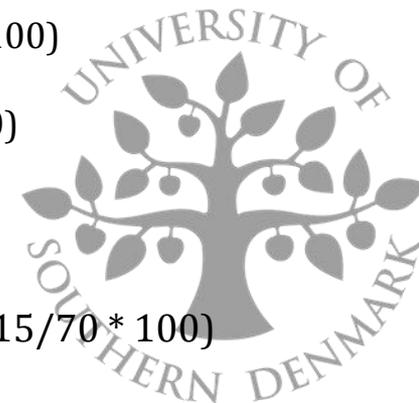
2002 – 2008 : 11.42% ( $8/70 * 100$ )

1999 – 2001 : 7.04% ( $5/71 * 100$ )

Supply Chain themes → 2009 – 2014 : 25.89% ( $29/112 * 100$ )

2002 – 2008 : 21.42% ( $15/70 * 100$ )

1999 – 2001 : 11.26% ( $8/71 * 100$ )



# Analysis: Research design and philosophy of science

Time Frame – N/A

2009 – 2014: 21.64%

2002 – 2008: 10.71%

1990 – 2001: 6%

Table 4.4 Research design, time frame and philosophy of science

	Danish	Finnish	Icelandic	Norwegian	Swedish	Total (2009- 2014)	Total (2002- 2008)	Total (1990- 2001)	Time Frame – Longitudinal
<i>Research Design</i>									
Theoretical (desk research)	6	2	-	-	7	15	14	21	2009 – 2014: 25.77%
Empirical quantitative	4	9	-	-	1	14	9	6	2002 – 2008: 19.64%
Empirical qualitative	4	17	1	2	19	43	31	27	1990 – 2001: 12%
Empirical triangulation	3	17	-	-	20	40	16	17	
Research design total	17	45	1	2	47	112	70	71	
<i>Time frame</i>									
Snapshot	8	30	1	1	11	51	39	41	
Longitudinal	1	8	-	1	15	25	11	6	2009 – 2014: 35.71%
N/A	2	5	-	-	14	21	6	3	
Time frame total	11	43	1	2	40	97	56	50	2002 – 2008: 22.85%
<i>Containing philosophy of science</i>									
Yes	9	13	-	1	8	31	20	39	1990 – 2001: 23.94%
No	8	32	1	1	39	81	50	32	
Total	17	45	1	2	47	112	70	71	

Design – Triangulation

## Philosophy of Science :

The present analysis reveals that 72% (81/112\*100) of the dissertations do not include philosophical considerations in comparison to 71 % (50/70\*100) and 45% (32/71\*100) in the two previous periods of analysis.



# Analysis: Dissertation score calculation

Formula 1: Overall dissertation score

$$S = \sum_{i=1}^n T_i * Authorship\ factor_i$$

Where:

S = Overall dissertation score

T = Type of article

Authorship factor = Number of authors (NoA) \* Author order position (AOP)

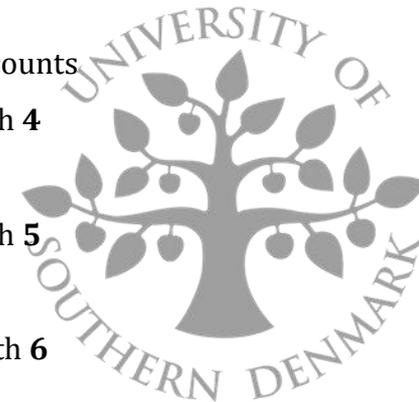
Different types of articles with specific value:

1. Peer reviewed journal articles; value: 1
2. Peer reviewed articles in form of book chapters (e.g. in an anthology); value: 0,8
3. Peer reviewed conference articles; value 0,8
4. Working papers; value: 0,5
5. Non-published papers; value 0,5

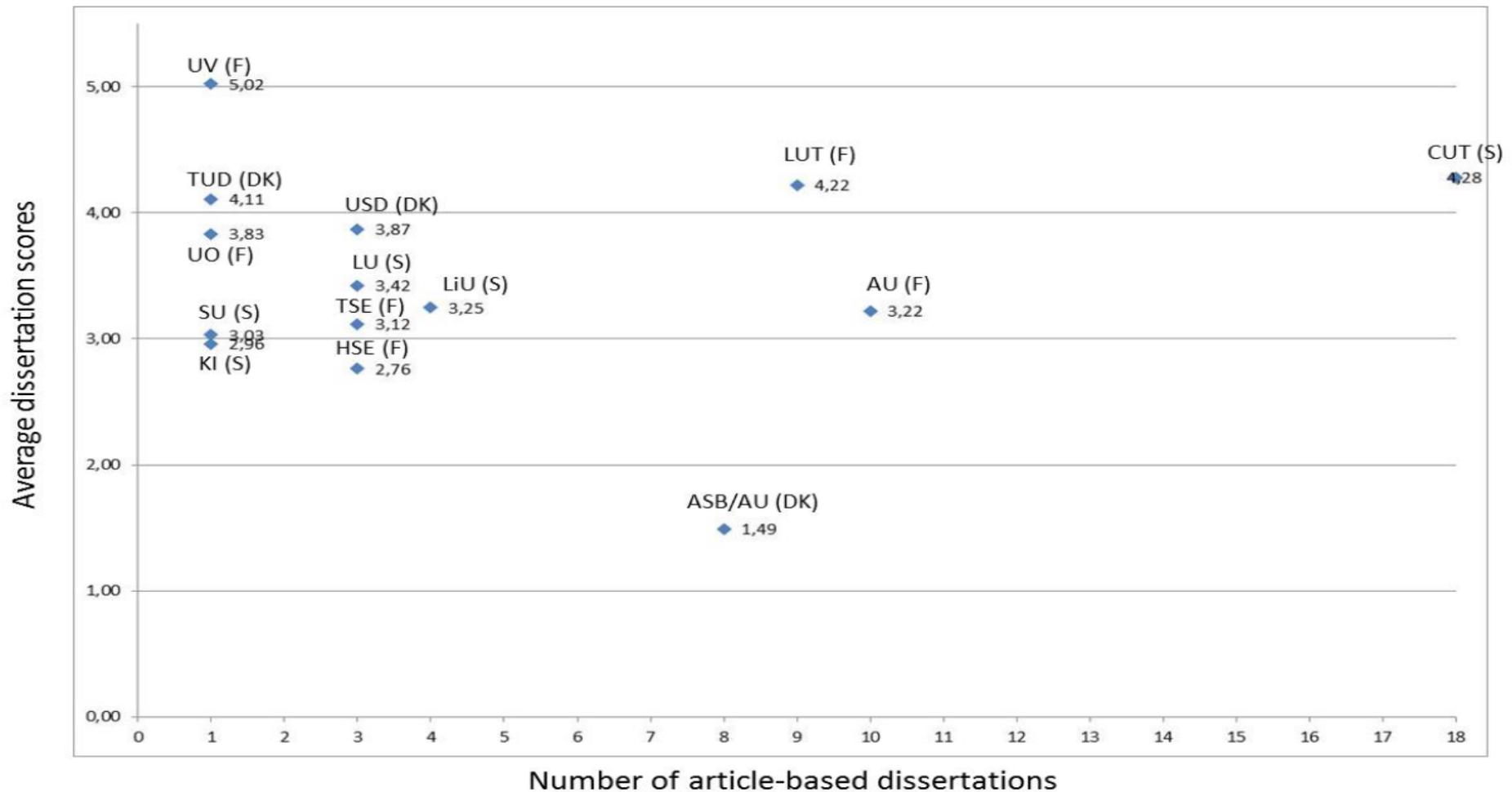
Table 4.6 Authorship factor calculation

Number of authors (NoA)		Author order position (AOP)		Authorship factor
NoA	Value	AOP	Value	NoA * AOP
1	1	1	1	1
2	0,9	1	1	0,9
2	0,9	2	0,9	0,81
3	0,8	1	1	0,8
3	0,8	2	0,9	0,72
3	0,8	3	0,8	0,64
4	0,7	1	1	0,7
4	0,7	2	0,9	0,63
4	0,7	3	0,8	0,56
4	0,7	4	0,7	0,49
5	0,6	1	1	0,6
5	0,6	2	0,9	0,54
5	0,6	3	0,8	0,48
5	0,6	4	0,7	0,42
5	0,6	5	0,6	0,36

The share of journal articles counts  
 60% among dissertations with **4**  
 articles;  
 67% among dissertations with **5**  
 articles; and  
 69% among dissertations with **6**  
 articles.



Average dissertation scores divided by research institution



Note: AU = Aalto University; ASB/AU = Aarhus School of Business/Aarhus University; CUT = Chalmers University of Technology; HSE = Hanken School of Economics; KI = Karolinska Institutet; LiU = Linköping University; LU = Lund University; LUT = Lappeenranta University of Technology; SU = Stockholm University; TSE = Turku School of Economics; TUD = Technical University Denmark; UO = University of Oulu; UV = University of Vaasa; USD = University of Southern Denmark.

# Topics not addressed

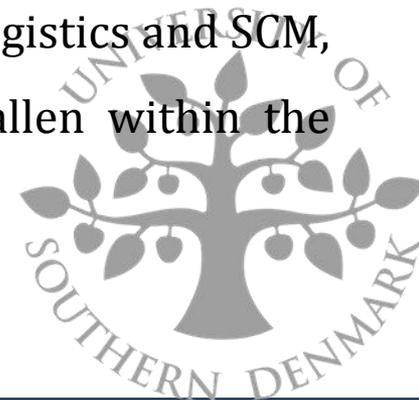
The review process of the 112 dissertations reveals that five research areas seem to be under-prioritized among Nordic scholars within logistics and SCM. The topics are as follows (not prioritized):

- Cloud Technology
- Globalization of Supply Chain
- Supply Chain Innovation
- Security
- Big Data



# Limitations

- There is a possibility that some dissertations were not identified.
- Reviewer subjectivity could not be completely eliminated in the review of the 112 dissertations.
- This study can make observations only based on the dissertations reviewed under the NOFOMA umbrella.
- Since the contact persons were not provided with a definition of logistics and SCM, they might have excluded some dissertation that could have fallen within the scope of this analysis.



# Conclusion

This research found several important developments in the Nordic doctoral research:

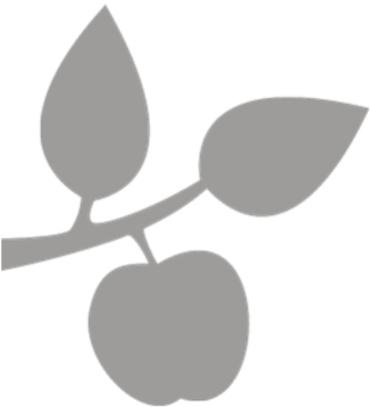
- Increase in the average annual number of finalized dissertations.
- Decrease of dissertations with a focus on classical entities of analysis such as carriers, wholesalers, retailers and inventories.
- Increase in functional subject areas of logistics and SCM and the supply chain/network level.
- The number of dissertations containing philosophical of science discussions is continuing declining.
- There is clear shift toward disseminating doctoral research as an article-based dissertation.

A dissertation score has been suggested as a measure for initiating discussions about such dissertations at a single research institution and as a benchmark between different institutions.

The next logical step might be a discussion about

**What is enough in order to earn a PhD degree?**





Thank you

