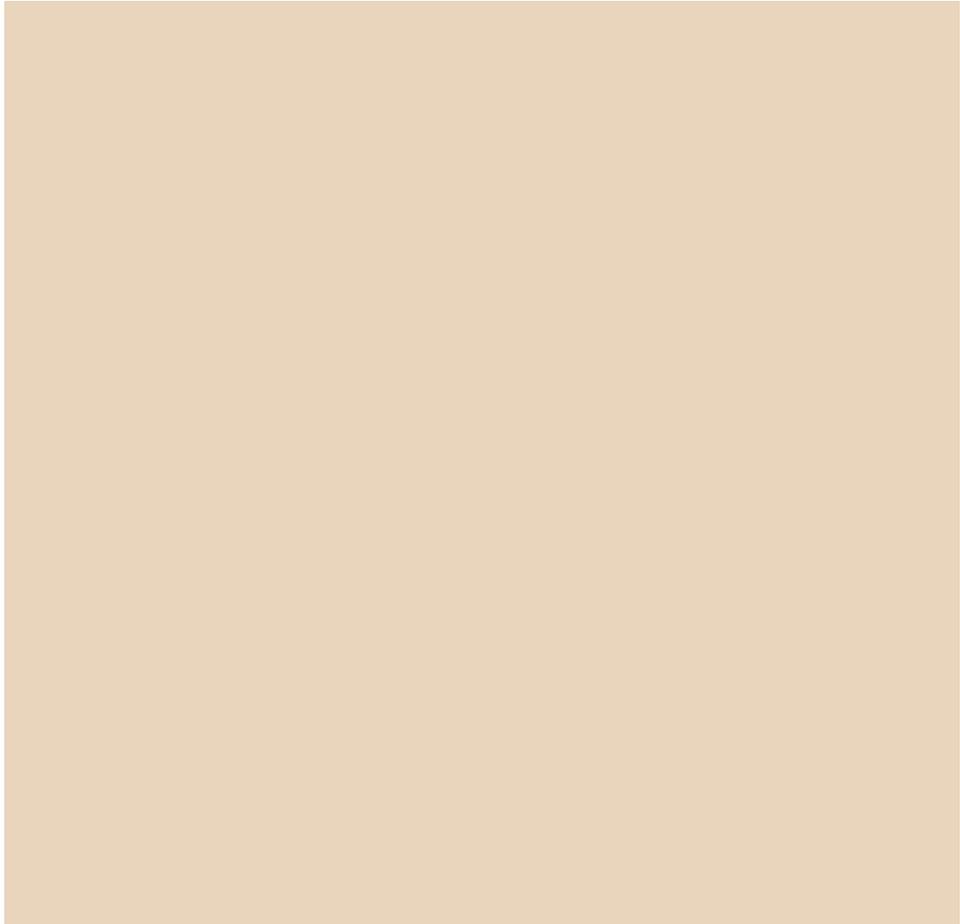


# **FACILITIES MANAGEMENT RESEARCH IN THE NORDIC COUNTRIES**

## **PAST, PRESENT AND FUTURE**

PER ANKER JENSEN AND SUSANNE BALSLEV NIELSEN (EDITORS)



**FACILITIES MANAGEMENT RESEARCH  
IN THE NORDIC COUNTRIES:  
PAST, PRESENT AND FUTURE**

© Centre for Facilities Management – Realdania Research

Published 2012

E-book 9788750210610

Layout: heddabank.dk

Edited by:  
Per Anker Jensen and Susanne Balslev Nielsen  
Centre for Facilities Management – Realdania Research  
DTU Management Engineering  
Technical University of Denmark  
Produktionstorvet  
Building 424  
DK-2800 Lyngby  
Denmark  
[www.cfm.dtu.dk](http://www.cfm.dtu.dk)

Coverphoto:  
Location: Conference venue at the Technical University Denmark  
Photographer: Thomas Evaldsen

Photo on banners on cover photo and photo on page 352:  
Project: Interior facebook office  
Design: Studio O+A  
Photographer: Cesar Rubio

Print: InPrint

Published by  
**Polyteknisk Forlag**  
Anker Engelundsvej 1  
DK-2800 Lyngby  
Tel.: +45 7742 4328  
email: [forlag@polyteknisk.dk](mailto:forlag@polyteknisk.dk)  
[www.polyteknisk.dk](http://www.polyteknisk.dk)

# PREFACE

Centre for Facilities Management – Realdania Research (CFM) is a virtual, national Danish research centre with management placed at the Department of Management Engineering, Technical University of Denmark (DTU). CFM arranged a Nordic Facilities Management (FM) conference at DTU's main campus in Lyngby by Copenhagen on 22-23 August 2011. The title of the conference was: ***“Research for Practice – Vision of Futures”***. This book is a result of the conference.

The title of the conference indicates firstly, that the objective was to present FM research aimed at practitioners and to facilitate discussions and collaboration between researchers and practitioners. Secondly, the title indicates, that the objective also was to present visions of the future of FM and FM research. According to the conference announcement the purpose was to create an exciting meeting place for people working with FM around CFM's research. The conference program aimed to give insights into research projects, to discuss the results and to explore mutual interests of practitioners and researchers in the next generation of FM research. The ambition was to create a Nordic meeting place, which the participants would remember for the intellectual challenges, its practical relevance and as a milestone in the increased alliance around FM research for practice in the Nordic countries. The conference was arranged in collaboration with NordicFM and DFM – the Danish Facilities Management Association. There were 82 participants in the conference from Denmark, Norway, Sweden, Finland and Iceland.

The book is mostly based on the papers from the conference with necessary corrections and in a graphical elaborated layout. It also includes introductions to each theme, summaries of discussions from paper sessions and workshops during the conference, and results of CFM's FM Futures project. The main purpose of this project was to create input to a joint Nordic FM research agenda. Thus, the overriding purpose of the conference, the FM Futures project and this book is to support increased Nordic collaboration on FM research among researchers and with practitioners. We are excited to see in the coming years how well we will succeed with this.

We would like to thank all of you who participated in and contributed to the conference, to the FM Futures project and the production of this book.

You can find more information about CFM's research at [www.cfm.dtu.dk](http://www.cfm.dtu.dk). Do not hesitate to contact us for any comments and enquiries about this publication or CFM's activities.

Per Anker Jensen  
pank@man.dtu.dk

Susanne Balslev Nielsen  
sbni@man.dtu.dk

Centre for Facilities Management – Realdania Research



# CONTENT

<b>Preface</b>	<b>3</b>
<b>Content</b>	<b>5</b>
<b>Authors</b>	<b>8</b>
<b>1 Introduction</b>	<b>10</b>
<i>Per Anker Jensen and Susanne Balslev Nielsen</i>	
<b>PART A. NORDIC FM RESEARCH DEVELOPMENTS</b>	<b>17</b>
<b>2 National FM Research Overviews</b>	<b>18</b>
2.1 Chapter introduction	18
<i>Per Anker Jensen</i>	
2.2 FM Research for Practice in Denmark	20
<i>Per Anker Jensen</i>	
2.3 Overview and Status of FM Research for Practice in Norway	32
<i>Geir K. Hansen</i>	
2.4 FM Research for Practice – Swedish developments	49
<i>Jan Bröchner</i>	
2.5 Facilities Management Research for Practice – An Overview on Finland	62
<i>Suvi Nenonen</i>	
<b>PART B. CURRENT FM RESEARCH IN THE NORDIC COUNTRIES</b>	<b>75</b>
<b>3 Working Environments</b>	<b>76</b>
3.1 Chapter introduction	76
<i>Karen Mosbech</i>	
3.2 Office Contrasts – Six contrasting Dutch cases	77
<i>Juriaan van Meel</i>	
3.3 Empowering Places for Knowledge Work Processes	
– Methods for assessing the restorativeness of office environments	91
<i>Heidi Rasila, Ursula Hyrkkänen and Suvi Nenonen</i>	
3.4 Facilitating Creative Environments	
– Lessons from Danish cases at different organizational scales	105
<i>Birgitte Hoffmann, Morten Elle and Peter Munthe-Kaas</i>	

<b>4</b>	<b>FM and Sustainability</b>	<b>120</b>
4.1	Chapter introduction <i>Jacob Steen Møller</i>	120
4.2	Claims of Sustainable FM: Exploring current practices <i>Susanne Balslev Nielsen</i>	121
4.3	A Critical Review of the Environmental Management System as a Tool for Sustainability <i>Kirsten Ramskov Galamba</i>	133
4.4	ESCO in Danish Municipalities: Basic, integrative or strategic approaches? <i>Jesper Ole Jensen, Jesper Rohr Hansen and Susanne Balslev Nielsen</i>	144
<b>5</b>	<b>Innovation and Usability in FM</b>	<b>160</b>
5.1	Chapter introduction <i>Jan Bröchner</i>	160
5.2	Innovation Insights in the Danish Facility Management Sector <i>Ada Scupola</i>	161
5.3	Usability Reviewed: Summing up Norwegian research on Usability <i>Geir K. Hansen, Siri H. Blakstad and Nils O.E. Olsson</i>	173
5.4	Facilities in Use – Nordic Studies about Usability of Workplaces <i>Göran Lindahl, Suvi Nenonen, Geir K. Hansen and Siri Hunnes Blakstad</i>	187
5.5	Facilitating User Driven Innovation – A Study of Methods and Tools at Herlev Hospital <i>Aneta Fronczek-Munter</i>	199
<b>6</b>	<b>Partnerships in FM</b>	<b>216</b>
6.1	Chapter introduction <i>Geir K. Hansen</i>	216
6.2	To Procure for Better Buildings – FM and Public Private Partnerships in Denmark <i>Kristian Kristiansen</i>	217
6.3	Flexibility – Implications on project and facilities management <i>Nils O.E. Olsson</i>	227
6.4	Long-Term Buyer-Supplier Relations in Facilities Management <i>Kresten Storgaard and Jacob Norvig Larsen</i>	236

<b>7</b>	<b>Knowledge Implementation</b>	<b>252</b>
7.1	Chapter introduction <i>Per Langaa Jensen</i>	252
7.2	Knowledge as a Source of Power in Real Estate Organisations <i>Sofia Pemsel and Gunnar Blomé</i>	253
7.3	Communities of Practice as a Learning Challenge in Construction Projects – How FM knowledge can be integrated in the learning process <i>Anders Peder Hansen and Torben Damgaard</i>	267
7.4	POKI – A Management Tool for the Implementation of FM Know-How in Construction Projects <i>Poul Henrik Due and Peder Stephensen</i>	283
<b>8</b>	<b>FM and Added Value</b>	<b>294</b>
8.1	Chapter introduction <i>Suvi Nenonen</i>	294
8.2	Classifying FM Value Positioning by Using a Product-Process Matrix <i>Akarapong Katchamart</i>	295
	<b>PART C. VISIONS OF FUTURES</b>	<b>309</b>
<b>9</b>	<b>FM Futures and Research Agenda</b>	<b>310</b>
9.1	Chapter introduction <i>Per Anker Jensen</i>	310
9.2	Future Trends and Challenges for FM in the Nordic Countries <i>Per Dannemand Andersen, Birgitte Rasmussen, Per Anker Jensen</i>	311
9.3	How to Increase the Usability of Academic FM Research for Practitioners? <i>Keith Alexander and Susanne Balslev Nielsen</i>	321
9.4	European FM Research Agenda <i>Antje Junghans</i>	325
9.5	Proposal for a Common Nordic FM Research Agenda <i>Per Anker Jensen, Per Dannemand Jensen and Birgitte Rasmussen</i>	340
	<b>Keyword index</b>	<b>350</b>

## AUTHORS

Ada Scupola, Department of Communication, Business and Technologies, Roskilde University, ada@ruc.dk, +45 4674 2598

Akarapong Katchamart, Centre for Facilities Management – Realdania Research, DTU akka@man.dtu.dk, +45 5014 4438

Anders Peder Hansen, Department of Entrepreneurship and Relationship Management, University of Southern Denmark, apha@sam.sdu.dk, +45 6550 1490

Aneta Fronczek-Munter, Centre for Facilities Management – Realdania Research, DTU, afmu@man.dtu.no, +45 4525 1633

Antje Junghans, Norwegian University of Science and Technology, Trondheim, Norway, antje.junghans@ntnu.no, +47 7359 5062

Birgitte Hoffmann, Technical University of Denmark, bhof@man.dtu.dk, + 45 4525 1544

Birgitte Rasmussen, DTU Management Engineering, bira@man.dtu.dk, + 45 4525 4536

Geir K. Hansen, Faculty of Architecture and Fine Art, Norwegian University of Science and Technology, geir.hansen@ntnu.no

Gunnar Blomé, Malmö University, Department of Urban Studies, Malmö, gunnar.blome@mah.se

Göran Lindahl, Construction Management, Chalmers University of Technology, Sweden, goran.lindahl@chalmers.se

Heidi Rasila, Aalto University, Finland, heidi.rasila@aalto.fi

Jacob Norvig Larsen, Danish Building Research Institute, SBI, Aalborg University, jnl@sbi.dk

Jacob Steen Møller, DTU Campus Service, jsm@adm.dtu.dk, +45 4525 1303

Jan Bröchner, Chalmers University of Technology, jan.brochner@chalmers.se, +46 31 7725492

Jesper Ole Jensen, Danish Building Research Institute, Aalborg University, joj@sbi.dk, +45 9940 2358

Jesper Rohr Hansen, Danish Building Research Institute, Aalborg University, jer@sbi.dk

Juriaan van Meel; Centre for Facilities Management – Realdania Research, DTU, juvme@man.dtu.dk, +31-6-546-00-549

Karen Mosbech, Freja Property, km@freja.biz, +45 3373 0140

Keith Alexander, Centre for Facilities Management, Manchester, k.alexander@salford.ac.uk, +44 161 918 6650

Kirsten Ramskov Galamba, Centre for Facilities Management – Realdania Research, DTU, kirg@man.dtu.dk, +45 45254800/45251635

Kresten Storgaard, Danish Building Research Institute, SBI, Aalborg University, krs@sbi.dk, +45 99402274

Kristian Kristiansen, Institute for Planning, Management and Innovation, DTU, krikr@man.dtu.dk, +45 45251663

Morten Elle, Technical University of Denmark, mell@man.dtu.dk

Nils O.E. Olsson, Norwegian University of Science and Technology, Trondheim, nils.olsson@ntnu.no, +47 97713628

Peder Stephensen, PS-Experience, Denmark, ps-experience@mail.dk

Per Anker Jensen, Centre for Facilities Management – Realdania Research, DTU, pank@man.dtu.dk, +45 4525 1674

Per Dannemand Andersen, DTU Management Engineering, pean@man.dtu.dk, + 45 4525 4535

Per Langaa Jensen, DTU Management Engineering, per.langaa@man.dtu.dk, + 45 4525 6031

Peter Munthe-Kaas, Technical University of Denmark, pmka@man.dtu.dk

Poul Henrik Due, COWI A/S, Denmark, phdu@cowi.dk, +45 4597 2357

Siri Hunnes Blakstad, Faculty of Architecture and Fine Art, Norwegian University of Science and Technology, siri.blakstad@ntnu.no

Sofia Pemsel, Lund University, Construction Management, Lund, sofia.pemsel@construction.lth.se, +46 46 222 74 19

Susanne Balslev Nielsen, Centre for Facilities Management – Realdania Research, DTU, sbni@man.dtu.dk, + 45 40213025

Suvi Nenonen, Built Environment Services Research group, Aalto University, Finland, suvi.nenonen@tkk.fi, +358 505 985 342

Torben Damgaard, Department of Entrepreneurship and Relationship Management, University of Southern Denmark, torben@sam.sdu.dk

Ursula Hyrkkänen, Aalto University, Finland, ursula.hyrkkanen@turkuamk.fi

# 1 INTRODUCTION

*Per Anker Jensen and Susanne Balslev Nielsen*

The title of this book is: *"Facilities Management Research in the Nordic Countries – Past, Present and Future"*. This title reflects the overall structure of the book with a division in three parts. Part A gives research overviews of the short development of FM research in the Nordic countries. Part B is the main part and presents current FM research divided according to the themes of the paper sessions at the conference. Part C concerns the future of FM with focus on FM research agenda. Together the three parts give a coherent overview and an in depth insight in the recent developments, the state of the art, and the upcoming trends in FM research in the Nordic countries.

Even though the book includes contributions from Denmark, Norway, Sweden and Finland, it should be stressed that the conference was planned by CFM with our research profile as a starting point. CFM was established in 2008 with financial support from the private foundation Realdania for a period of 5-6 years. The overall research profile for CFM is defined as: *"Research in space for humans, buildings with use value, and property and infrastructure, that facilitates"*. This indicates that the main focus of the centre is the interrelationships between physical environments and social activities and how professionally managed and serviced physical surroundings can support and improve the conditions and activities of humans and organizations. The research themes have developed during the first years and they are now defined as the following five themes: Working environments, Sustainable FM, Innovation and partnerships, Knowledge implementation and Market and Added value, see also Figure 1 in section 2.2.

The papers for the conference were selected by invitation. The national FM research overviews in part A were keynote papers presented at a plenary session. From Norway and Sweden the papers are written by members of CFM's scientific committee – Geir K. Hansen, NTNU together with Siri Hunnes Blakstad and Jan Bröchner, Chalmers. From Finland the paper is written by Suvi Nenonen, Aalto University, which CFM also have close collaboration with, and from Denmark the paper is written by Per Anker Jensen, head of CFM.

The papers for parallel sessions in part B were for Denmark based on invitations to all participants in CFM's national research forum, and all CFM's current projects at the time are represented. For Norway, Sweden and Finland invitations were sent to FM researchers suggested by Geir K. Hansen, Jan Bröchner and Suvi Nenonen, respectively. Invitations were sent out in August 2010 asking for indication of interest and abstracts. The abstracts were reviewed by us as organizers and editors in December 2010. The full papers were written, reviewed and revised in the first half of 2011. To secure the scientific quality the papers were reviewed by 2-3 reviewers with at least one reviewer from another country than the author(s). The reviewers were – besides us as organizers and editors – Geir K. Hansen, Jan Bröchner, Suvi Nenonen and Keith Alexander.

In relation to part C there was an invited presentation by Antje Junghans, NTNU, who is the present chairman of EuroFM's research network group, and she presented a recent survey about European FM research and ongoing work on a European FM research agenda. Part C is otherwise based on three workshops during the conference and the FM Futures project as further explained below.

1

### **PART A: NORDIC FM RESEARCH OVERVIEW**

Part A consists of chapter 2 with an introduction in section 2.1 and national FM research overviews for Denmark, Norway, Sweden and Finland in section 2.2-2.5, respectively. Per Anker Jensen explains in section 2.2, that specific FM research in Denmark is very recent compared to the other Nordic countries and did not start before 2005, but there has since the 1980s been some related research and development projects of importance for creation of FM knowledge. The establishment of CFM in 2008 has caused a major boost to Danish FM research. In section 2.3 Geir K. Hansen shows that FM research in Norway started in the early 1990s at NTNU and the Metamorphose 2005 project was of major importance to establish research based education and the Centre for Real Estate and Facilities Management, which from 2008 has had a 5 years research program in public real estate and FM. Other issues like knowledge workplaces, building adaptability and usability are important Norwegian research areas as well. Jan Bröchner in section 2.4 identifies eight different research topics in Sweden based on a review of all published FM research in Sweden – the oldest being a PhD thesis from 1985 – without any clear time trend that indicates a long-term shift in research emphasis. The two heavy topics are 'space management and briefing' and 'contract strategies'. In section 2.5 Suvi Nenonen explains that research on FM in Finland like in Norway started in the early 1990s and she identifies three waves. The first in the 1990s focused on FM services, service development and on production and management of services, while the second focused more on research about the connection between FM and client organizations. The third wave is now focusing on more integrated models, both in the mixed use concepts in different space segments and in enlarging the service business models to e.g. an area context.

### **PART B: CURRENT FM RESEARCH IN THE NORDIC COUNTRIES**

Part B consists of chapter 3-8 and each chapter includes papers from one of the parallel sessions with paper presentations at the conference. Each chapter starts with an introduction written by the chairman of the session introducing the topic, presenting the papers, and summarising the discussion from the session. The topics follow the five themes of CFM's research mentioned above except that 'Innovation and partnerships' has been divided in 'Innovation and Usability in FM' and 'Partnerships in FM'. The reason was that there were three papers on Usability, which most suitable could be combined with a paper on 'Innovation', particularly because one of the papers on 'Usability' concerns 'User driven innovation'.

### **CHAPTER 3: WORKING ENVIRONMENTS**

This topic focuses on workplace management and how workplaces can be utilised as an organisational tool. In her introduction in section 3.1 Karen Mosbech writes it is very gratifying that we now again are getting focused on the interaction between the physical environment and the activities taking place in them, because it has been a bit quiet on the subject for some years. Juriaan van Meel in section 3.2 presents six contrasting Dutch office cases and concludes that it's more a question of attitude, almost religion, than a matter of objective facts that determine how to arrange yourselves in your company. It is seldom based on a conscious vision of how to support the organizational goals with the physical environment. Heidi Rasila, Ursula Hyrkkänen and Suvi Nenonen in section 3.3 focus on the restorativeness of knowledge workplaces, i.e. how to arrange workplaces in order to ensure that employees thrive and take stimulating (restorative) breaks. The paper tests 3 sets of methodologies for measuring employees' well-being and need for inspiration in the work environment and concludes that a combination of methods is needed. Birgitte Hoffmann, Morten Elle and Peter Munthe-Kaas in section 3.4 present a paper of facilitating creative environments with four cases at different organizational scales from urban level to office environments. One of the conclusions is that there is a need to abandon the focus on special rooms and office design as keys to facilitate creative environments. Instead, broader perspectives on the organisation need to be considered, including the concrete correlation between facilities, facilitation and culture. From the discussion of the three papers it was concluded that it is impossible to separate space, work and business. It is not the spaces but the way you use them, which is crucial for success. In many organizations, especially larger, management and employees do not have the same goals and visions. There are no general solutions; it will always be a matter of corporate culture, which frames will best support the work. That is highlighted from all the contributors from different angles.

### **CHAPTER 4: FM AND SUSTAINABILITY**

Sustainable FM (SFM) is a relatively new FM research topic, but it has however – as pointed out in section 4.1 by Jacob Steen Møller in his introduction – for a longer period of time been an important issue for FM practitioners. In section 4.2 Susanne Balslev Nielsen explores current practices of FM and develops a conceptual framework with three strategic positions in SFM – incremental, radical and transformative – to explain how the potential and barriers of SFM activities relate to the organisational context. This should help facilities managers to identify the mindset behind different services and technologies that are promoted as SFM and provide concepts to help clarifying and improving their own emerging strategy of SFM. In section 4.3 Kirsten Ramskov Galamba presents a critical review of the environmental management system as a tool for sustainability based on her PhD project with action research in Albertslund Municipality. The main conclusion is that the environmental management system does not support an understanding of sustainability beyond a highly instrumental focus on specific environmental issues, nor does it support the everyday practice for sustainability in a local authority FM context. Jesper Ole Jensen, Jesper Rohr Hansen and Susanne Balslev Nielsen in section 4.4 present a study of ESCO in Danish municipalities, where they identify three approaches – basic, integrative and strategic. The three approaches include different ambitions, technolo-

gies, economies and innovation potentials, but an in-house approach is also considered as an alternative by many municipalities. However, ESCO is not necessarily a contrast to improving the internal FM capacity. Instead, the partnership included in ESCO projects might include great innovation opportunities for the municipal FM organisation, giving it a more active role in developing urban sustainability. The general discussion showed that SFM is a topic of great interest but also that the broad nature of SFM makes it difficult to identify immediate research topics. SFM is strongly relevant but it needs some time to mature both as a practical concept and as a research topic in its own right.

1

## CHAPTER 5: INNOVATION AND USABILITY IN FM

What innovation and usability have in common might not be immediately evident to either FM researchers or FM practitioners as mentioned by Jan Bröchner in his introduction in section 5.1. Ada Scupola in section 5.2 presents an interview study of innovation in the Danish FM sector. The results show that for big service providers, innovation is a strategic activity and is conducted as a planned and systematic process. For FM service customers with their own FM department, the results are mixed: some of the FM departments have innovation as a strategic priority and clear innovation strategies while other FM departments do innovate without being aware that innovation is taking place. ICT Supplier and Consultants are found to be innovative and their innovations are both driven by the user needs and by the desire to improve their competitiveness. In section 5.3 Geir K. Hansen, Siri Hunnes Blakstad and Nils Olsson provides an overview of ten years of Norwegian usability studies at NTNU. During this period, researcher interest has gradually shifted from a focus on the buildings to the users and their activities. Exploring concepts such as “the effectiveness of a building” has led to new insights. Outcomes of the research include a typology with six types of users and the USEtool with its five process stages. Göran Lindahl, Suvi Nenonen, Geir K. Hansen and Siri Hunnes Blakstad in section 5.4 describe Nordic usability studies within the framework of the REBUS project: national case studies have been performed and then discussed in joint workshops. The project confirmed that previous research on briefs and methods to capture user needs is relevant, but these methods need to include management of action and be supported by information technology. The role of the users as well as effective feedback systems crossing project barriers also needs to be developed and this affects the role of the project manager. In addition, the focus on methods and processes needs to be complemented by a theoretically based discourse. In the final debate at the conference session it was pointed out, that mainstream services research talks about user driven innovation, and this is worth taking seriously and not least the issue of communicating user driven innovations. However, there is probably also a tension between usability and innovation, although this depends on how we choose to define FM innovation and how we divide innovation into phases.

The paper in section 5.5 by Aneta Fronzcek-Munter on facilitation user driven innovation was not presented at the conference, because the author was not able to be present. This was unfortunate as the paper concerns both usability and user driven innovation. The paper presents different methods used in planning of new hospital facilities in workshops with users and the

experiences with using them in practice to improve usability of the built environment. Depending on the methods and the boundary objects used at the workshops the participants had different focus, changed the priorities and developed different solutions.

## **CHAPTER 6: PARTNERSHIPS IN FM**

The most known and discussed partnership concept in relation to FM, at least here in Scandinavia, has been Public-Private Partnerships (PPP) according to the introduction in section 6.1 by Geir K. Hansen. Of course this is one of several other possible types of partnerships. The first paper in section 6.2 by Kristian Kristiansen exactly focuses on PPP. The paper questions the assumption that PPP's is an advantage for the integration of FM considerations in the planning, design and construction of facilities. The results indicate that the effect of PPP's on the integration of FM is exaggerated, and that FM practitioners should pay more attention to issues related to the sociology of the construction process rather than legal arrangements like PPP. In section 6.3 Nils Olsson focuses on flexibility in the building process and in the actual building and the implications for project management and FM. The paper presents a framework with four approaches to flexibility management and possible implications on FM. It concludes that is in the interest of facilities managers that projects have an approach for flexibility management to be able to adjust for future changes. Kresten Storgaard and Jacob Norvig Larsen in section 6.4 elaborate on the anticipation that productivity might rise through long-term collaboration and that the quality of solutions will be better. Four types of collaboration are analyzed based on experience and expectations of the firms and customers from empirical findings of a questionnaire survey and case studies of the Danish FM sector. One of the conclusions is that thrust-enhancing mechanisms and a focus on joint problem solving were decisive factors in creating mutually benefiting long-term relationships within FM. Among the general conclusion from the session was that there are rather few experiences from different concepts regarding partnerships in FM and this reflects that this sector is still immature and under development.

## **CHAPTER 7: KNOWLEDGE IMPLEMENTATION IN FM**

Knowledge implementation is as explained in the introduction in section 7.1 by Per Langaa Jensen an aspect of knowledge management, which focuses on how knowledge can be transferred and shared. In a FM context this often regards knowledge transfer from FM to building projects. The paper in section 7.2 by Sofia Pemsel and Gunner Blomé concerns a slightly different context as it presents a study based on questionnaires in Sweden on knowledge sharing activities in real estate organizations. They found that knowledge sharing were insufficient between different subunits in the organizations, that the main motivation for employees were assuring good jobs for colleagues, incentives for knowledge sharing was not in use, and all could report on additional costs due to missing knowledge sharing. Anders Peder Hansen and Torben Damgaard in section 7.3 based on a combination of a case study and literature review address how FM knowledge can be integrated in the design phase in light of the dominating principles of managing construction work emphasizing standards in contracts, role and skills in combination with informal exchange of experience in communities of practice. They recommend that priority should be given to integrating facility managers into the design phase

and that boundary objects (i.e. objects facilitating a dialogue between different communities of practice) should be given more attention. The paper in section 7.4 by Poul Henrik Due and Peder Stephensen is a best practice project made in parallel to the research project presented in section 7.3. The paper presents a methodology for integrating FM knowledge in construction processes, which has been developed based on workshops with a panel of 18 experienced facility managers. The methodology comprises four elements to take into account when following a predefined screening process. The first experiences from using the methodology in two projects are promising. In the discussion following the presentations of the three papers it was agreed that knowledge feedback from practice to design is weak concerning FM. It was pointed out that such difficulties in feedback from operation to design are also important problems in many areas within production management. Lessons might be learned by analyzing other work in this field.

## **CHAPTER 8: FM AND ADDED VALUE**

The added value of FM is a topic which focuses on the impact FM might have on the core business it supports and possible the surroundings and other stakeholders as explained in the introduction in section 8.1 by Suvi Nenonen. The conference session on this topic had presentations of four papers, but only one of these is included in this book. The reason is that it has been decided to include two of the papers in a new EuroFM publication with specific focus on the added value of FM, which also has Per Anker Jensen as the main editor, and the last paper has been withdrawn from this publication by the author after the conference. The paper included in this chapter is by Akarapong Katchamart, who in section 8.2 presents a product-process matrix to be used for classifying the value positioning of FM organizations. The hypothesis is that FM value positioning located along the matrix diagonal will deliver greater customer value than FM value positioning in the off-diagonal positions of the matrix. The paper also demonstrates the applications of the matrix by examining the FM value positions in the FM organizations within the two multinational Danish based corporations LEGO group and A.P. Moller – Maersk Group.

## **PART C: VISION OF FUTURES**

Part C consists of chapter 9 about FM Futures and Research Agenda starting with an introduction in section 9. In section 9.2 Per Dannemand Andersen, Birgitte Rasmussen and Per Anker Jensen presents future trends and challenges for FM in the Nordic countries based on CFM's FM Futures project. This project was carried out in parallel with the planning of the conference in 2010 and 2011 with national workshops in Denmark, Norway, Sweden and Finland, a joint Nordic workshop during the conference and a questionnaire just after the conference. The results were quite different in the four countries with sustainability as the main general overall trend and challenge in all countries. Susanne Balslev Nielsen and Keith Alexander in section 9.3 summarises the results from two workshops during the conference about collaboration between researchers and practitioners. It is clearly a great challenge to disseminate research results to practice and mediators between researchers and practitioners can play a very important role, but direct collaboration in research and development projects can also be very beneficial. Antje Junghans in section 9.4 presents a recent survey about European FM research

and the ongoing work on a European FM research agenda. The survey covered 16 institutions and 10 research fields were identified. The objective of the research agenda is to contribute to the further establishment of the FM discipline. Finally, in section 9.5 Per Anker Jensen, Per Dannemand Jensen and Birgitte Rasmussen presents a proposals for a common Nordic FM research agenda, which like section 9.2 is based on CFM's FM Futures project.

### **THE EDITORS FINAL REMARKS – ENJOY!**

We realize that this book is very voluminous and might appear overwhelming and perhaps frightening to start reading. It is not intended to be read from start to end in one go. We have in this introduction attempted to create an overview of the book, which should make it easier to find the chapters and sections of particular interest for you. The book also has at the end an index of keywords to the papers.

We are certain that the book is a treasure box with a wealth of ideas and information of interest for everybody with an interest in FM at an advanced level – not only in the Nordic countries but in all Europe and around the world. One of the fascinating things about research is that it is truly international. We in the Nordic countries can learn a lot about FM from other parts of the world, but we also have a lot to offer to the world. We hope this publication will be a reference book, which you will keep on coming back to for new information and inspiration. Enjoy reading in it!