The 34th ANNUAL NOFOMA CONFERENCE  
June 8 – 10, 2022 - Reykjavík, Iceland

BOOK OF ABSTRACTS
Foreword

The 34th NOFOMA annual conference is finally hosted on-site by University of Iceland after two earlier attempts that ended up being on-line; What a Relief – finally to be able to meet with our great society and exchange ideas and research finding in person! The conference is organized by the Faculty of Industrial Engineering, Mechanical Engineering and Computer Science.

The event is arranged in our traditional way, starting with NORDLOG, the doctoral day that this time is attended by 24 doctoral students from the Nordic countries as well as from Germany, Austria, and other countries. The day has a full 09:00 – 16:30 agenda dealing with three themes: a) Rigor, relevance, or novelty; b) Publishing guidelines for PhD students; and c) Experiential learning. The day is hosted by Associate Professor Violeta Roso, Chalmers University of Technology and Associate Professor Dawn Russell, University of North Florida. In addition, they will get a great support from Professor Chee Yew Wong, Leeds University, UK that focused on “rigor, relevance or novelty”; a topic of great concern for our Ph.D. students. All three, thanks from the NOFOMA society for your contribution to our younger researcher.

In addition to NORDLOG, the traditional Educators’ day has been reinstalled where an afternoon session on the Post Covid situation and a) what the academia has learned during the last two years, as well as b) a session how to link teaching with research in logistics. The Educators day has 20 registered attendees that hopefully will participate in a lively discussion about these burning topics. Again, the NOFOMA society is getting a great support from Mr. Ola Hultkrantz, programme director, Chalmers University of Technology and Dr. Per-Olof Arnäs former vice dean for education at the Department of industrial engineering at Chalmers University of Technology, now a Director logistics strategies, Einride. Ola and Per-Olof, thanks a lot.

The first day, June 8. Ends with a welcome reception that hopefully will be attended by most of our NORDLOG and Educators’ Day participants and some more arriving earlier the day to Iceland from various destinations.

The NOFOMA conference has always has its stronghold in the physical arena where the meeting between peers have been carried out successfully for 34 years in various places in the Nordic countries and in times have had over 100 presentations carried out. All full papers do undergone a double-blind review process and we, the hosts, would like to bring our sincere gratitude to those of you dedicating your time in the review process that is one of our major strengths in carrying out the NOFOMA annual conference. The main conference, taking place on June 9 and 10 attracted initially more than 120 abstracts; in the end brought 50 full papers through double blind review in addition to 34 work in progress, resulting in 84 presentations during the two busy days.

In total three keynote lectures will be given at this conference. The opening keynote session is given by Mr. Órvar Þór Kristjánsson - Procurement Manager at Marel Corp. an Icelandic company with a long history of being a global leader in transforming the way food is processed – something that the industry, not the least fishing industry, takes very seriously in Iceland.

The second keynote lecture will be giving by Dr. Per-Olof Arnäs, a Director for logistics strategies at Einride, a company bringing a revolutionary transport solutions to the logistics industry where not only electric freight trucks are being used but fully autonomous as well, a unique service and product offering that is being realized in a full scale operation already.

The third and final keynote lecture is given by Mr. Gunnar Már Sigurfinnsson, CEO of Icelandair Cargo, the freight cargo subsidiary of Icelandair Group, the legacy airline operator in Iceland. He will give a talk on the transformation of the industry during the pandemic and specially the Icelandair Cargo adaption that turned out to be unique in it great flexibility, resilience and adaption to the needs of the freight market that was heavily depended on freight operations of passenger airlines that due to the pandemic more or less vanished overnight, not the least the need of the Icelandic fresh food fish industry.
Publications

International Journal of Physical Distribution & Logistics Management (IJPDL&M) continue its collaboration with NOFOMA by publishing a special issue of the best papers from the conference. After the conference, several papers will be invited for a further process to improve their theoretical and practical relevance. Special thanks go to the editorial team of IJPDL&M for the continued support.

The best papers’ award

DB Schenker continues its dedication towards the NOFOMA society and will give an award to the best overall paper as well as the best doctoral paper – Thanks to Mr. Magnus Strand, Chief Executive Officer, Schenker AB, Head of Cluster, Sweden, Denmark, and Iceland.

Programme and sessions

The Programme and Sessions programme can be found in this book but also on the NOFOMA home page nofoma.hi.is and nofoma.net. There all further practical information can be found. All presentations will be allowed 25 minutes in total including question.

One of our milestones have been the Gala dinner after the first day of the conference, that tradition will continue in “Gamla Bio”, a historic cinema, town town in Reykjavík and starts at 19:15.

Hope you will enjoy the conference and please take part in the discussions, formal and informal, one of the key features in strengthening our NOFOMA research society that has been ongoing for 34 year now – great work!

The Scientific Committee

Dr. Guðmundur V. Oddsson, University of Iceland
Dr. Gunnar Stefánsson, University of Iceland
Dr. Rúnar Unnþórsson, University of Iceland
Dr. Rögnvaldur. J. Sæmundsson, University of Iceland
Dr. Tómas P. Rúnarsson, University of Iceland

The Organising Committee

Dr. Gunnar Stefánsson, University of Iceland
Júlíus I. Guðmundsson, University of Iceland
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<thead>
<tr>
<th>Time</th>
<th>Room</th>
<th>Presenter/Title</th>
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<td>08:30-09:00</td>
<td>Registration, Campus hall- Ulf Stakkahlö 1, House Hamar, 105 Reykjavik</td>
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<tr>
<td>09:00-10:10</td>
<td>Welcome - Opening ceremony - Gunnar Stefansson, chair of the 34th annual NOFOMA conference, Room: Bratti</td>
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<tr>
<td>10:30-12:10</td>
<td>Session 1 - Key note speaker #1 Marel Corp. Örvar Þór Kristjánsson - Procurement Manager, Room: Bratti</td>
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<tr>
<td>10:30-10:55</td>
<td>2A: Port/cont. issues</td>
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<td>Chair: Violeta Roso</td>
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<td>10:30-10:55</td>
<td>2B: Education in logistics</td>
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<td></td>
<td>Reinhold Schodl and Sandra Eitler - Linking Teaching with Research in Logistics, H203</td>
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<td>Chair: Bjorn Oskarsson</td>
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<td>10:30-10:55</td>
<td>2C: Retail/Earl logistics</td>
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<td>Eirill Bø and Inger Beate Hovi - How can parcel lockers contribute to a more efficient and sustainable e-commerce?, H204</td>
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<td>Chair: Henrik Pålsson</td>
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<td>10:30-10:55</td>
<td>2D: Risk management</td>
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<td>Daniel Langner and Tim Auer - The evolution of early warning effectiveness Recommending proactive measures in the event of an early warning and resulting learning effects, H208</td>
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<td>Chair: Dawn Russell</td>
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<tr>
<td>10:30-10:55</td>
<td>2E: Collaboration</td>
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<td>Florian Henne, Andreas Glas and Michael Essig - EFFECT OF PERFORMANCE BASED CONTRACTING: THE MEDIATING ROLE OF PERFORMANCE MEASUREMENT, H209</td>
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<td>Chair: Maria Björklund</td>
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<td>10:30-10:55</td>
<td>Coffee break - Hama Cafeteria</td>
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<tr>
<td>11:20</td>
<td>Alena Khaslavskaya - Stakeholder work perspective on dry ports’ development: multiple cases from Sweden, H202</td>
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<td></td>
<td>Hans-Joachim Schramm, Günter Prockl and Petr Kolar - The Digital Transformation of SCM Education - A Comparison of Curricula with Focus on Digitalization and Logistics 4.0, H203</td>
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<td>Melanie Juppe - Doctoral program: Evaluation design for sustainable mobility with focus on last-mile solutions, H204</td>
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<td>Björn Oskarsson and Malin Wiger - Logistics Management Skill Set - Proposition for Higher Education, H203</td>
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<td></td>
<td>Mikael Kervall and Henrik Pålsson - SUSTAINABLE DEVELOPMENT OF URBAN FREIGHT - A TRANSITION GOVERNANCE APPROACH, H204</td>
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<td></td>
<td>Dawn Russell and Lakshmi Goel - SUPPLY CHAIN PROCESSES AND INFORMATION SYSTEMS SECURITY RESILIENCE: DYNAMIC CAPABILITY DEVELOPMENT, H208</td>
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<td>Chair: Bjorn Oskarsson</td>
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<td>Time</td>
<td>Session 3 - Key note speaker #2 Room Bratti</td>
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<td>13:00-13:45</td>
<td>H02: Supply network</td>
<td>H03: Home delivery issues</td>
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<td>13:45</td>
<td>Chair: Roland Hellberg</td>
<td>Chair: Andreas Norrman</td>
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<td>13:45</td>
<td>Aurélien Rouquet and Diego Vega - AN EXTENDED FRAMEWORK OF SUPPLY CHAIN ORIENTATION: INSIGHTS FROM IKEA</td>
<td>Ebba Eriksson - Automated online order picking systems in omnichannel grocery retail</td>
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<td>H202</td>
<td>Qifeng Yan, Gyöngyi Kovács and Diego Vega</td>
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<td>Elmira Parvizioromran and Rickard Bergqvist</td>
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<td>Lucas Stampe and Bernd Hellingrath</td>
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<td>SD</td>
<td>Rosa Palmgren, Ville Hinkka and Ismo Ruohomäki</td>
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<td>SE</td>
<td>Filip Roubicek and Petr Kolar</td>
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<td>Roland Hellberg and Imoh Antai</td>
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<td>Elmira Parvizioromran and Rickard Bergqvist</td>
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<td>Niklas Arvidsson and Tale Ørving</td>
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<td>Petter Haglund and Mats Janné</td>
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<td>Eric Weisz, David Herold and Sebastian Kummer</td>
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<td>Ulla Lehtinen and Jari Juga</td>
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<td>Henrik Gillström and Maria Björklund</td>
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<td>16:45</td>
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<td>Chee Yew Wong, editor in chief of UPDLM and R. Glenn Richey</td>
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<td>16:20</td>
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<td>Petter Haglund and Mats Janné</td>
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<td>23:00</td>
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<td>Coffee break - Hama Cafeteria</td>
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**Location Information**

- Dinner in Gamla Bio (down town), Ingólfsstræti 2a, 101 Reykjavík
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<tr>
<th>Time</th>
<th>Session</th>
<th>Speaker(s)</th>
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<tr>
<td>09:00</td>
<td>7A: Humanitarian logistics</td>
<td>Viktor Sköld Gustafsson, Tobias Andersson Granberg, Sofie Pilemalm and Martin Waldemarsson - Emergency response to natural hazards in Sweden - needs for improved planning and decision support</td>
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<tr>
<td>09:00</td>
<td>7B: Sustainable development</td>
<td>Lara Schilling and Stefan Seuring - Towards a digital and sustainable transformation of supply chains</td>
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<td>09:00</td>
<td>7C: Waste management</td>
<td>Burçin Özdamar and Aysu Göcer - Drivers and barriers to circularity in household waste supply chain: A developing economy perspective</td>
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<td>09:00</td>
<td>7D: Circularity</td>
<td>Steffen Foldager Jensen, Jonas Nygaard Uhrenholt, Maria Camila Rincon, Sofie Adamsen, Jesper Hemdrup Kristensen and Brian Vejrum Waehrens - Re-manufacture of warranty returns as experimental outsets towards product take-back slides</td>
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<tr>
<td>09:00</td>
<td>7E: Logistics during Covid 19</td>
<td>Sara Rogerson, Martin Svanberg, Ceren Altuntas Vural, Sönke von Wieding and Johan Woxenius - DISRUPTIONS TO MARITIME SUPPLY CHAINS: EFFECTS AND MEASURES DURING THE PANDEMIC</td>
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<td>09:25</td>
<td>0:25</td>
<td>Ville Hinkka, Stefan Walter and Veijo Heinonen - Outsourcing Supply Chain Management of Small-Scale Food Producers</td>
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<td>09:25</td>
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<td>Rainer Müller - Climate Change Adaption in Maritime Logistics</td>
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<td>09:25</td>
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<td>Anna Zhuravleva - Better together? Co-operation between NPOs and municipal waste management companies in post-use textile collection</td>
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<td>09:25</td>
<td>0:25</td>
<td>Maria Camila Rincon, Steffen Jensen, Sofie Adamsen, Jonas Nygaard Uhrenholt, Jesper Kristensen and Brian Waehrens - WHAT TO TAKE BACK? Decision-making factors for functional value product exploitation</td>
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<td>09:25</td>
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<td>Jasmina Müller, Kai Hoberg and Jan Fransoo - Realizing supply chain agility under time pressure: Ad hoc supply chains in the COVID-19 pandemic</td>
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<td>09:50</td>
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<td>Michael Bourlakis and Emmanuel Sawyer - Supplying food to disadvantaged communities in the UK: Insights for the Food Supply Chains</td>
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<td>09:50</td>
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<td>Linea Kjellsdotter Ivert, Vendela Santén, Per Wide, Jessica Wehner, Axel Merkel and Sabrina Brunner - Logistics setups in ports - to enhance the circularity of materials</td>
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<td>09:50</td>
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<td>Virva Tuomala, Anna Aminoff and Gyöngyi Kovács - WASTE MANAGEMENT AND REVERSE LOGISTICS IN THE HUMANITARIAN CONTEXT</td>
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<td>09:50</td>
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<td>Biman Darshana Hettiarachchi - Additive Manufacturing Supply Chains in Circular Economy: Prospects and Challenges</td>
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<td>09:50</td>
<td>0:50</td>
<td>Marcus Brandenburg, Ronak Warashte, Stefan Seuring, Sadaf Aman, Philipp Sauer and Chen Qian - Impacts of the COVID-19 pandemic on supply chains - A Delphi study from a process perspective</td>
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<td>10:15</td>
<td>1:15</td>
<td>Mary Catherine Osman, Maria Huge-Brodin and Linea Kjellsdotter Ivert - Actors’ Drivers and Barriers when switching to Biomethane: An Embedded-case Study</td>
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<td>10:15</td>
<td>1:15</td>
<td>Erik Sandberg - Supply chain capabilities in the circular textile-to-textile recycling supply chain</td>
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<td>10:15</td>
<td>1:15</td>
<td>Paul Larson - Exposure and Vulnerability to COVID-19: Opportunities for Disaster Risk Reduction</td>
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**Coffee break - Hama Cafeteria**
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<tr>
<th>Time</th>
<th>Session/Room</th>
<th>Presenter/Author/Title</th>
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<tbody>
<tr>
<td>11:50</td>
<td>Session 9 - Business meeting - Room Bratti</td>
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<td>12:20</td>
<td>Lunch break - Hama Cafeteria</td>
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<tr>
<td>13:10</td>
<td>10A: Electrification of operations</td>
<td>Henrik Gillström, My Jobrant and Uni Sallnäs - UNDERSTANDING HOW ELECTRIFICATION AFFECTS THE LOGISTICS SYSTEM – A LITERATURE</td>
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<td>13:10</td>
<td>Chair: Maria Huge Brodin</td>
<td>Chair: Anna Fredriksson Chair: Günter Prockl Chair: Per Skoglund</td>
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<td>13:10</td>
<td>10B: Transport efficiency</td>
<td>Bennet Zander, Sascha TimmAnn and Kerstin Lange - Designing the transport organization of a smart factory for the mass retrofit of houses in Sweden</td>
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<td>13:10</td>
<td>10C: Application of ICT</td>
<td>Stefan Walter - AI impacts on the performance in supply chains</td>
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<td>13:10</td>
<td>10D: Logistics networks</td>
<td>Martin Lundmark, Per Skoglund and Susanne Hertz - Flexible and scalable defence logistics network - The Swedish restart of enhanced value co-creation</td>
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<td>13:35</td>
<td>Dawn Russell - SUSTAINABLE SEAPORT MODERNIZATION: ASSESSING THE TRADE-OFFS OF ELECTRIC POWER</td>
<td>Kerstin Lange, Bennet Zander and Roger Heidmann - Increasing the organizational efficiency of large and heavy transports in XXL scale</td>
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<td>13:35</td>
<td>Kerstin Lange, Bennet Zander and Wolfgang Kersten - Factors Affecting Implementation of Supply Chain Analytics – Results from an Interview Study</td>
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<td>13:35</td>
<td>Thomas Ekström and Roland Hellberg - Logistics value co-creation in defence supply chains - A Swedish perspective</td>
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<td>14:00</td>
<td>Virva Tuomala, Anna Aminoff and Niklas Arvidsson - AUTONOMOUS ELECTRIC VEHICLES IN URBAN LAST-MILE DELIVERIES</td>
<td>Helleke Heikkinen - Sustainability in Last Mile Delivery — Exploring the Cognitive Frames of Retailers and LSPs</td>
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<td>14:00</td>
<td>Júlíus Guðmundsson - A systematic categorization process facilitating the selection of demand forecasting methods</td>
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<td>Ronak Warasthe, Marcus Brandenburg and Stefan Seuring - German Act on Corporate Due Diligence in Supply Chains Managing Impact on Supply Chains Tied to African Markets</td>
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<td>Jorge Gutierrez Chiriboga and Maria Huge-Brodin - The Adoption of Battery Electric Vehicles - Challenges from the perspective of Commercial Vehicle Manufacturers</td>
<td>Mats Janné, Micael Thunberg, Anna Fredriksson and Kristina Lundberg - THE POTENTIAL OF MASS LOGISTICS CENTRES TO INCREASE TRANSPORT EFFICIENCY</td>
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ABSTRACT

Purpose
Empty container repositioning (ECR) is the result of trade imbalances but also of other factors such as dynamic operations, uncertainties, size and type of equipment, lack of visibility and collaboration within the transport chain, as well as transport companies’ operational and strategic practices. Therefore, the purpose of this paper is to investigate ECR dynamics to reduce unnecessary movements.

Design/methodology/approach
The primary data has been collected through two rounds of interviews with 10 companies involved in the Port of Gothenburg ECR operations: shipping lines, land-based transport operators, terminal operators and forwarders.

Findings
The findings show that there are two main drivers for improvements of ECR: financial and environmental. Nevertheless, there are nine barriers such as technical imbalances, dynamic operations, blind spots, strategies and operational practices, container fleet size, number of actors involved, contract types and uncertainty factors. The identified barriers only further highlight the complexity of container transport chain. The results of the study also indicate 14 different suggestions for potential improvements, i.e., how to mitigate the identified barriers. However, there is no one single solution that is feasible for all barriers for all actors involved.

Social implications
The ultimate goal is decreased traffic due to improved management of ECR that would result in lower environmental impact.

Original/value
This study contributes to better understanding of issues related to ECR by matching the barriers with possible solutions to overcome them; the same should ultimately facilitate the management of ECR.

Keywords: Empty container repositioning, Container transport, Drivers, Barriers, Port
REDUCING EMPTY CONTAINER REPOSITIONING
THE POTENTIAL OF STREET TurnerS

Vendela Santén*, Sara Rogerson*, Violeta Roso* *, Ceren Altuntas Vural* *, Ivan Sanchez-Diaz* *, Lokesh Kumar Kalahasthi* *, Juan Pablo Castrellon* *

* SSPA Sweden AB, Box 24001, SE-400 22 Gothenburg, Sweden, vendela.santen@sspa.se, sara.rogerson@sspa.se
* * Chalmers University of Technology, Department of Technology Management and Economics, SE-412 96 Gothenburg, Sweden, violeta.roso@chalmers.se, ceren.altuntasvural@chalmers.se, ivan.sanchez@chalmers.se, klokesh@chalmers.se, juanpabl@chalmers.se

ABSTRACT

Purpose
Although trade imbalances make some empty container repositioning (ECR) necessary, the extensive ECR has been challenged, particularly given recent shortage of containers. Several strategies exist to reduce ECR but their potential vary. The purpose is to explore the potential of how key actors can use street turn to reduce empty container repositioning.

Design/methodology/approach
Semi-structured interviews have been conducted including several actor perspectives of Swedish ECR: shipping lines, transport operators, forwarders, ports and terminals.

Findings
Relevant strategies vary depending on actor perspective. Street turns, collaboration and internet-based systems are interdependent strategies in that increased collaboration between actors and internet-based systems would facilitate street turns. Forwarders and transport operators play key roles to match import and export, but depend on shipping lines for information. Container ownership mismatch limits the potential.

Research limitations/implications
Earlier focus on the shipping line perspective is here complemented by perspectives of additional key actors in the Swedish context.

Practical implications
Key actors’ roles to realize the potential are described, including incentives and barriers.

Social implications
Street turns reduce traffic and hence environmental impact from transport.

Original/value
Actors’ roles and interactions when reducing ECR is outlined, specifically for use of street turns.

Keywords: Container transport, Empty container, Repositioning, Street turns, Transport efficiency
Stakeholder work perspective on dry ports’ development: Multiple cases from Sweden

Alena Khaslavskaya *

* Chalmers University of Technology, Technology Management and Logistics, Vera Sandbergs Alle 8, 41296, Gothenburg, Sweden, alena.khaslavskaya@chalmers.se

ABSTRACT

Purpose
The Swedish dry ports operate in a competitive market, where they serve the same limited number of seaports and may be put in dis/advantageous positions by the state developmental programs. In other words, the Inside-Out dry ports are a product of a multiple actors’ interactive work. In addition, recognition of modal shift benefits and low-capacity utilization of dry ports suggest that strategies within vertical and horizontal relationships allowing for more value creation within and beyond the dry port stakeholder network shall be investigated.

Methodology
Stakeholders of the dry port networks shall be identified and interviewed about the activities that are/shall be performed within horizontal and vertical relationships at the operational phase of development, and about how these activities contribute to creation and capturing of value, and ultimately to the increase of the dry ports’ capacity utilization. Such research shall allow emphasis of unique strategies leading to the different dry ports arrangements within the same transportation system.

Practical implications
Identified strategies shall be useful for the stakeholders of the dry port networks to create extra value.

Original/value
The value of this research is in identifying cooperation and coopetition strategies linked to successful performance of dry port networks. The study also has a theoretical value in its application of the stakeholder theory to public-private partnerships which is uncommon in hinterland transportation research. In addition, the paper shall contribute to the stream of research on dry ports development by attempt to conceptualize successful cooperation and coopetition strategies.

Keywords: Dry port, Sweden, stakeholder network, cooperation, coopetition, value creation, network capacity
Port Governance in Denmark:  
A Retrospective and Prospective View on Maritime Port Reforms

Sergey Tsiulin *

*Department of the Built Environment, Aalborg University, Denmark, setsi@build.aau.dk

ABSTRACT

Purpose
The purpose of the paper is to analyze the development of governance of the Danish maritime ports in chronological perspective, providing a comparison with other EU countries.

Design/methodology/approach
The study challenges traditional methodologies that commonly de-contextualize the considered setting and overlook the relations of ports to specific economic and institutional domains. The article underlies the key factors that contributed to the rise of the shipping industry in Denmark and provides an understanding of upcoming challenges with attachment to local territorial context. The empirical results are based on content analysis of Danish maritime reforms and strategy documents.

Findings
The outcome of the Danish case reveals the shift towards ports competitiveness in terms of IT modernization, clusters expansion and communication between the port actors.

Practical implications
The overview could be of use for local decisionmakers and municipalities, port authorities and terminal operator representatives

Originality
The study is the first to provide an overview of Danish maritime ports development in connection with policymaking and maritime industry reforms within the country.

Keywords: maritime ports, port governance, port reform, port law, portclusters.
ABSTRACT

Purpose
The transformation of logistics, driven by major trends such as digitization and decarbonization, is changing the requirements for careers in logistics. A close link between teaching and research enables higher education institutions to focus on competencies actually required in the dynamic logistics environment. Research-informed teaching establishes this link, but implementation may pose challenges. This article therefore describes how students were integrated into a logistics research project and evaluates the outcomes in relation to teaching and research.

Design/methodology/approach
The article presents a teaching-led research project on innovative design options for urban consolidation centers as an example case, and describes the outcomes of the project from the educational and research perspectives. The involved students were from a logistics master’s degree program and participated in the project as part of their degree.

Findings
The empirical case demonstrates how teaching-led research can contribute to achieving learning outcomes for students’ courses and support a university’s research activities. The findings suggest that logistics is a promising subject for the application of teaching-led research.

Research limitations/implications
Although limited by the explorative approach and the focus on a single example case, the empirical findings may contribute to a better understanding of the benefits and limitations of teaching-led research in logistics.

Practical implications
The article provides researchers and lecturers at higher education institutions, especially in logistics, with insights into the application of teaching-led research.

Originality/value
The work contributes to a practice-oriented understanding of the benefits and limitations of teaching-led research in logistics.

Keywords: research-informed teaching, teaching-led research, higher education in logistics, urban consolidation center, urban freight transport
Potentiality of Global Ethics in Contemporary SCM: an Educational Perspective

Markku Nikkanen *

* South-Eastern Finland University of Applied Sciences, Department of Business, Paraatikentta 7, 45200 Kouvola, Finland, markku.nikkanen@xamk.fi.

ABSTRACT

Purpose

The objective of this predominantly conceptual study is to expose the major features of global ethics as related to SCM by exploring universal intentions – accepted across the world – that enable us to understand human interactions more thoroughly. The study also addresses the question of what might be the contribution of global ethics in overcoming the future challenges in education.

Design

Besides theoretical discussion, the empirical data for this study consists of written documents produced by university students taking courses in sustainability-related SCM. The results were compared to the theoretical foundations. A proposal was made on how to better apply global ethics for educational purposes and SCM.

Findings

Global ethics might provide additional support for decision-making by uncovering irrevocable transcendentals and global values. Among students, there seemed to be some tendency to embrace the issues of global ethics in a deeper manner, though this result is implicitly due to difficulties the students have in expressing explicitly the ontological features of ethics. The prevalence of contradictions caused some confusion among students on how to truly address the issues of responsibility.

Practical implications

The study provides an alternative way to consider ethical issues in SCM by offering complementary perspectives for developing strategies in complex supply networks. From an educational point of view, the research increases knowledge on how to tackle the diverse attributes of ethics in SCM-related education particularly at the university level.

Originality

There is still a scarcity of research work regarding how the issues of global ethics are associated with the challenges of contemporary SCM. The conventional theories are not well-equipped to deal with contradictions between actors. In global ethics the human behavior is not only related to efficiency and profits but rather to human aspirations for making a positive difference.

Keywords: global ethics, responsibility, ethical sourcing, logistics education
The Digital Transformation of SCM Education
A Comparison of Curricula with Focus on Digitalization and Logistics 4.0

Hans Joachim Schramm *
Günter Prockl **
Petr Kolar ***

* WU Wirtschaftsuniversität Wien, Dept. Global Business and Trade, 1020 Vienna, Austria, hschramm@wu.ac.at.
** Copenhagen Business School, Dept. Digitalisation, 2000 Frederiksberg, Denmark gp.digi@cbs.dk.
*** Prague University of Economics and Business, Dept. of Logistics, 13067 Praha 3, Czech Republic, petr.kolar@vse.cz

ABSTRACT
Purpose
Digital transformation of supply chains and logistics implies new requirements on competencies and alters the emphasis of skills and capabilities to be taught. Academic education must adjust curricula to prepare students accordingly. This paper investigates approaches in this endeavour in order to reveal key challenges, core topics and structural patterns.

Design/methodology/approach
We apply means of content analysis to assess SCM and logistics master studies’ curricula.

Findings
Our results indicate different levels of coping with the educational challenges associated with the digital transformation of SCM and logistics from just slight cosmetics of relabeling to well thought through curricula that aim to prepare students for the future.

Research limitations/implications (if applicable)
So far, we focused in our assessment on curricula of full time master programs according to Eduniversal Best Masters Ranking and QS Business Masters Rankings. In a second stage, corresponding other master programmes in the digital economy, business analytics, informatics and computer science domain are included to serve as a benchmark.

Practical implications (if applicable)
Best practices and the development of resulting guidelines should support future SCM and logistics education to provide students with knowledge and skills to master present and upcoming digital transformation challenges.

Original/value
By working towards maturity levels and highlighting differences in the implementation of digital elements in curricula, we hope to help separating pure relabeling and buzz wording from a more rigorous reflection of the digital transformation in SCM and logistics education.

Keywords: Curricula, Education, Supply Chain Management, Digital Transformation, Digitalization, Logistics 4.0.
Logistics Management Skill Set - Proposition for Higher Education

Björn Oskarsson *
Malin Wiger **

* Linköping University, Dept of Management and Engineering, 58183 Linköping, Sweden, bjorn.oskarsson@liu.se
** Linköping University, Dept of Management and Engineering, 58183 Linköping, Sweden, malin.wiger@liu.se

ABSTRACT

Purpose
To propose a logistics management skill set practically useful for those who set out for curricular development as well as those investigating required and existing skills.

Design/methodology/approach
The research combined deductive and inductive elements. Skill sets from previous research were used to form a starting point. From interviews with experienced teachers, additional skills were added to the “long list” of tentative skills. In a workshop, the set of skills was reduced to a “short list”, which then was reviewed by teachers/researchers from eight universities.

Findings
Compared to previous research, the proposed set of skills is divided into two major categories: Knowing about: Topics of importance for a logistician to be familiar with; and Knowing how: Logistics-related methods for planning, analysis and development. This division highlights the importance of different methods, or tools, for practical use, in addition to the more theoretical knowledge-related skills presented in previous presented skill sets within logistics. Further, the skill set includes clear descriptions of the included skills, something missing in previous skill sets.

Research implications
Further research is suggested to strengthen the validity of the included skills by input from business and society representatives. Another interesting track for further research would be to use it for evaluating and developing existing curricula in logistics education.

Practical implications
Those responsible for program and course development at Higher Education Institutions providing education in Logistics Management can use the results from this research when designing programs and courses.

Original/value
The division of the important skills into knowing about and knowing how is a principal difference compared to skill sets previously presented.

Keywords: logistics skills, skill set, curricula, education, higher education.
HOW CAN PARCEL LOCKERS CONTRIBUTE TO A MORE EFFICIENT AND ENVIRONMENTAL FRIENDLY E-COMMERCE?

Eirill Bø *
Inger Beate Hovi **

* Norwegian Business School, Norway, eirill.bo@bi.no
** The Institute of Transport Economics, Norway, IngerBeate.Hovi@toi.no

ABSTRACT

Purpose
During the Covid-19 pandemic there has been an increased demand for last mile delivery, about 60% in Norway. The service providers, operating in this area, has had a profitable period during the pandemic. It is expected that this level will continue also post pandemic, but people will probably not stay home during daytime as they have. In that perspective there is a need for new solutions for the last mile delivery. Parcel lockers is a 24/7 alternative with a digital solution for the customers to collect the parcel.

Design/methodology/approach
In this paper we compare different solutions for last mile delivery, like pick up points in stores, attended and unattended home delivery and parcel lockers. By using a calculation model in Excel, we analyse both cost and footprint due to the different solutions and consider whether the customer will collect their parcel in an environmentally way, like walking or cycling.

Findings
Based on a survey made by PostNord, it clear that customers are willing to do an effort for more environmental friendly deliveries and the conclusion is clear that parcel lockers are more efficient than home deliveries from both a cost and an environmental point of view. Depending on the future use, it can also be the most environmentally friendly alternative for last mile deliveries.

Original/value
The analysis provides a framework for simulating cost and CO₂ emissions within different delivery solutions for last mile.

Keywords: E-commerce, Parcel lockers, Home deliveries, Pick-up Point, Last-mile, Cost model.
An examination of consumer preference on the types of online grocery retailers and delivery services

Liu Su *
Hyunwoo Lim **

* INHA University, Graduate School of Logistics, 100 Inha-Ro, Michuhol-gu, 22212, Incheon, South Korea, shot0102793@naver.com
** INHA University, Asia Pacific School of Logistics, 100 Inha-Ro, Michuhol-gu, 22212, Incheon, South Korea, hwlim@inha.ac.kr

ABSTRACT

Purpose
This study aims to examine customer preference for online grocery shopping by analysing factors influencing consumers' choices on i) different types of online grocery retailers and ii) various types of delivery services.

Design/methodology/approach
This study is based on the consumer survey data on online grocery shopping behaviour in South Korea as of January 2021. Twenty online grocery retailers are categorized as open market e-tailers, e-grocery retailers, and omnichannel retailers. Types of delivery services include early morning delivery, delivery on specified date & time window, same-day delivery, delivery within 3 hours after the order, subscription-based periodic delivery. The multinomial logit (MNL) model is used to analyse the factors influencing the consumers’ choice of different types of online grocery retailers and delivery services.

Findings
The dominant choice factors for the three types of online grocery retailers are i) selling processed food that can be handled at ambient temperature at a low price while providing a convenient online shopping environment (open market e-tailers), ii) providing unique, high-quality fresh produce and home-ready meal in safe and reliable packaging services (e-grocery retailers), and iii) providing high-quality fresh produce and processed food delivered at customer-specified dates and times (omnichannel retailers). In terms of delivery services, consumers prefer to receive fresh produce on a specified date and time window than for early morning delivery.

Original/value
This study contributed to the existing literature by identifying consumer preferences on different types of online grocery retailers and delivery services based on various factors, including price, product assortment, promotions, shopping convenience, purchasing behavior, product characteristics, and customer demographics. This research can provide meaningful insights for online grocery retailers to identify their target customers and determine their appropriate service output.

Keywords: Online grocery shopping, consumer choice, retail patronage, customer segmentation, omnichannel retail, delivery services
ABSTRACT

Purpose
The challenges in the fields of mobility and logistics are increasing. A lot of different solutions exist to cope with these challenges. However, the impact for regions regarding economic, environmental, and social impacts of these solutions are not yet assessed.

Design/methodology/approach
Within the 5 year living lab ‘MobiLab’ in Austria different innovative mobility/logistics solutions will be implemented. A multi-criteria evaluation will be set-up to compare the individual impact of the different actions as well as the impact of the total living lab.

Findings
The result will be a systemic evaluation methodology to assess economic, environmental, and social impacts of selected logistics solutions for regions.

Research limitations/implications (if applicable)
If research is reported on in the paper this section must be completed and should include suggestions for future research and any identified limitations in the research process. Not all papers will have research implications.

Practical implications (if applicable)
This study will enable new perspectives and potential solutions to be developed to meet the diverse needs of mobility and logistics stakeholders. Innovative design and collaboration methods will be used, know-how from MobiLab and proven services will be applied. Their impact will be evaluated, published and transferable to other regions.

Social implications (if applicable)
In order to achieve the sustainability goals of the agenda 2030, strategies for the topics of sustainable mobility, sustainable logistics, logistics training and Sustainable Urban Mobility Plan / Sustainable Urban Logistics Plan will be developed in the project in an ongoing stakeholder process in order to implement proposed solutions together with cities, municipalities or companies and bring them into action.

Original/value
This work enables stakeholders to deal with the dynamic developments in mobility and logistics and offers them the impact of some instruments to be well prepared to cope with the future challenges.

Keywords: Evaluation design, sustainable mobility, last-mile, economic impacts, environmental impacts, social impacts, logistics
SUSTAINABLE DEVELOPMENT OF URBAN FREIGHT
A TRANSITION GOVERNANCE APPROACH

Mikael Kervall*
Henrik Pålsson*

* Lund University, Faculty of Engineering, Box 118, 221 00 Lund, mikael.kervall@plog.lth.se

* * Lund University, Faculty of Engineering, Box 118, 221 00 Lund, henrik.palsson@plog.lth.se

ABSTRACT

Purpose
The purpose is to examine the possibilities for a city to use insights from transition theory to affect and govern the development of the urban freight system toward environmental sustainability.

Design/methodology/approach
An analytical framework was developed, based on transition theory, to structure and describe transition processes in urban freight systems and to examine the city’s possibilities to affect the development. The framework was applied to data from a Swedish city to explore its value.

Findings
The analytical framework provides a processual overview of urban freight systems from a socio-technical perspective. It helps to place factors and forces affecting the development into a meaningful structure and provides guidance for the transition management work at different levels of a transition.

Research limitations/implications (if applicable)
The framework is abstract and could be further developed. Future studies could detail activities for execution of transition management, explore governance over time or focus on the governance of systematic learning in the process.

Practical implications (if applicable)
City officials and other stakeholders can apply the analytical framework and get inspiration from the case presented.

Social implications (if applicable)
The analytical framework supports sustainable development of urban freight systems. This is valuable for both urban environment and inhabitants.

Original/value
The main contribution is the application of an analytical framework for transition governance on urban freight system transitions. The study also contributes to theoretical insights by identifying a broad range of structures which can prevent development of urban freight systems, as well as forces which can be used to stimulate development in these systems.

Keywords: urban, freight, transport, transition, management, governance, sustainable development, strategy
The evolution of early warning effectiveness
Recommending proactive measures in the event of an early warning and resulting learning effects

Daniel Langner *
Tim Auer **

* University of St.Gallen, Institute of Supply Chain Management, Dufourstrasse 40A, 9000, St.Gallen, Switzerland, daniel.langner@unisg.ch.

** University of St.Gallen, Institute of Supply Chain Management, Dufourstrasse 40A, 9000, St.Gallen, Switzerland, tim.auer@unisg.ch.

ABSTRACT

Purpose
For years, global supply chains have been lulled into a sense of complacency, prioritizing cost containment and efficiency, leading to a continuously increasing degree of complexity, rigidity, and loss of control by outsourcing and globalization. Since supply chain risk management could not cope with this development, essential but overdue development steps are required. An early warning system in supply chain management is powerful if the additional preparation time is used effectively in uncertain situations.

Design/methodology/approach
By combining design science research (DSR) and the qualitative data analysis of interviews, the study develops a framework to increase early warning effectiveness for supply chain disruptions. We chose this approach because early warning in SCM is in an exploratory stage.

Findings
We have established a framework for the purposeful evolution of early warning effectiveness.

Practical implications (if applicable)
This paper identifies a crucial framework for practitioners to increase early warning effectiveness and simultaneously develops a catalog of actionable measures in case of an early warning. Therefore, it provides practical guidelines for managers to take the right action steps when a supply chain disruption is imminent.

Original/value
This paper is among the first contributions to explore the evolution of early warning by investigating the learning effect and providing a catalog of proactive measures in case of early warning.

Keywords: Supply chain risk management, early warning systems, weak signals, supply chain disruptions
The severity of supply chain disruptions and related network characteristics

Till Sahlmüller *
Bernd Hellingrath**

* Westfälische Wilhelms-Universität Münster, Chair for Information Systems and Supply Chain Management, Leonardo-Campus 3, 48149, Münster, Germany, till.sahlmueller@ercis.uni-muenster.de.

** Westfälische Wilhelms-Universität Münster, Chair for Information Systems and Supply Chain Management, Leonardo-Campus 3, 48149, Münster, Germany, bernd.hellingrath@ercis.uni-muenster.de.

ABSTRACT

Purpose
Disruptions pose significant threats to supply chains, whose effects are particularly detrimental in case they ripple through supply chain networks affecting supply chain performance and finally resulting in lower revenues and profits. To reduce the impacts of disruptions, the resilience of supply chain networks needs to be increased. This paper aims at identifying firstly those parts of supply chain networks whose disruption is likely to trigger the ripple effect and, secondly, those network characteristics that allow assessing supply chain networks towards these vulnerabilities.

Design/methodology/approach
We conducted nine interviews to identify characteristics of detrimental disruptions and analyse how disruption severity can be assessed by investigating the underlying supply chain network structure.

Findings
Our research shows that disruptions of transportation routes have severe impacts on supply chain performance. We furthermore identify network characteristics that allow assessing the supply chain network's resilience towards transportation-related vulnerabilities.

Research limitations/implications (if applicable)
This research is limited to German companies. Also, interviewees' responses might be driven by recent disruptions, which overemphasizes their significance.

Practical implications (if applicable)
The results of this research will help practitioners identify possible vulnerabilities in their supply chain networks.

Original/value
This paper addresses a shortage in studies of supply chain resilience in examining the most detrimental disruptions for supply chains and linking the resilience of supply chain networks to specific network characteristics.

Keywords: Supply Chain Resilience, Supply Chain Disruptions, Ripple Effect, Qualitative Research
The interplay between uncertainty management and sustainability performance in circular supply chains

Felipe Alexandre de Lima *
Stefan Seuring **

* University of Kassel, Chair of Supply Chain Management, Kleine Rosenstraße 1-3, 34109, Kassel, Germany, felipelima@uni-kassel.de.
** University of Kassel, Chair of Supply Chain Management, Kleine Rosenstraße 1-3, 34109, Kassel, Germany, seuring@uni-kassel.de.

ABSTRACT

Purpose
Circular supply chains (CSCs) have elicited a lively debate in operations and supply chain management. However, a gap remains regarding how firms align circular economy (CE) with uncertainty management and sustainability performance in CSCs. By applying contingency and alignment theory, this paper analyzes the interplay between uncertainty management and sustainability performance in CSCs.

Design/methodology/approach
A single case study on manufacturing CSCs is conducted with nine firms as embedded units of analysis, using 27 semi-structured interviews that were triangulated with secondary data.

Findings
The case study unveils alignments between CE, uncertainty management, and sustainability performance in CSCs. Implementing preventive and reutilization practices (Rs) increases complexity and uncertainty in CSCs, thereby requiring proactive uncertainty management to enhance sustainability performance. Reducing uncertainty strategies can proactively manage uncertainties and lead to breakthroughs in sustainability performance in CSCs.

Practical implications
Aligning CE with uncertainty management and sustainability performance enables firms to understand the implications of employing Rs in their operations. Firms need to complement CE implementation with proactive uncertainty management and the triple bottom line approach.

Original/value
This paper fills a critical gap in supply chain uncertainty management by unveiling its alignment with sustainability performance. Empirical insights from manufacturing CSCs are provided to guide scholars and practitioners interested in CE implementation.

Keywords: Supply chain uncertainty management, Sustainability performance, Triple bottom line, Circular economy, Circular supply chain, Manufacturing sector, Contingency theory, Alignment theory, Case study.
ABSTRACT

Purpose
The purpose of this research is to investigate the impact of supply chain processes on risk management and particularly information systems security resilience, a growing area of concern as we strive to eliminate downtime in supply chain information systems. We want to understand where we start in supply chain to impact information systems security resilience and by extension supply chain resilience.

Design/methodology/approach
This work takes a multi-phase methodological approach to develop and test a construct from supply chain resilience, adapted and tested in information systems security resilience.

Findings
Thus far in this work it has become clear that dynamic capabilities are essential to resilience and that supply chain processes are essential to information systems security resilience.

Research limitations/implications
This work is limited by the fact that it is focused on the manufacturing sector and there could be additional findings looking at the service sector, healthcare and others.

Practical implications
Supply chain managers can use the information in this study to motivate their teams to identify information systems vulnerabilities that currently exist in supply chain processes. Managers need to consider that information systems security resilience is highly interdependent with supply chain resilience, and supply chain processes and practices.

Original/value
This discovery opens new opportunity to supply chain organizations to contribute to risk management in the organization, especially in heretofore unidentified cyberthreats.

Keywords: Supply Chain, Information Systems, Security, Resilience, Cyberthreat, Cyberattack, Cybersecurity, Risk Management, Dynamic Capability, Resource Based View
EFFECT OF PERFORMANCE-BASED CONTRACTING:
THE MEDIATING ROLE OF PERFORMANCE MEASUREMENT

Florian Henne *
Andreas H. Glas*
Michael Eßig*

* Bundeswehr University Munich, Procurement and Supply Management, W. Heisenberg-Weg 39, 85577 Munich, Germany; andreas.glas@unibw.de (corresponding author)

ABSTRACT

Purpose
Key performance indicators are important elements of the performance-based contracting (PBC) approach. With references to control theory, KPIs in PBC are seen as an interplay of formal outcome control mechanisms. The purpose is to investigate this interplay.

Design/methodology/approach
For this purpose, research hypotheses are tested on a sample of PBC-informants applying structural equation modelling. Respondents (N=126) informed about their PBC, the applied performance measurement, as well as contract success.

Findings
The results show that performance measurement is the enabling link, fully mediating performance specification and incentive payments of PBC with management behaviour and contract success. In other words, this research empirically proves that PBC only develops its full potential when performance measurement practices are implemented.

Research limitations/implications (if applicable)
The implications highlight the potential of a combined use of formal control mechanisms. Often, research focused on informal, relational control mechanisms. This work is a call to further research the interplay of formal controls on different implementation levels, as today’s world of data-driven work might increase their relevance.

Practical implications (if applicable)
Managers should be aware that they could only exploit the full potential of a PBC if they implement a reliable performance management system. This might justify effort invested in performance measurement activities during design and execution phases of a PBC.

Original/value
Research on PBC distinguishes incentives, risk, and performance dimensions and often incentives and risk are focused. This study shows that in PBC outcome-based formal controls are mediated by behavior-based formal controls of performance measurement, what points to a more balanced view on PBC dimensions.

Keywords: Performance Based Contracting, Performance Management, Structural Equation Modelling; Control Mechanism; Key Performance Indicators
Supply Chain Transparency: A Facilitator of Adaptability and Flexibility

Tyler R. Morgan *
Anthony S. Roath *
Robert Glenn Richey *

* Auburn University, Department of Supply Chain Management, 405 West Magnolia Ave., Suite 403 Lowder Hall, Auburn, AL 36849, USA; Corresponding Author Email: TRM0047@Auburn.edu

ABSTRACT

Purpose
The current research explores supply chain transparency and its application in developing supply chain responsiveness capabilities. Specifically, we examine the role of supply chain transparency as a driver of supply chain responsiveness, considering both adaptability (structural change) and flexibility (policy change). The role and contribution of supply chain transparency reflect knowledge management, by which a collaborative effort to jointly create knowledge changes the nature of supply chain operations in uncertain and dynamic markets.

Design/methodology/approach
Drawing on the theoretical lens of the knowledge-based view, a theoretical model is proposed and tested using data collected from 212 supply chain professionals using structural equation modeling.

Findings
The results reveal that supply chain transparency is a driver of knowledge creation. Specifically, the relationship between flexibility, a dimension of responsiveness, and risk management is partially mediated by supplier transparency and knowledge creation.

Research limitations/implications
This study investigates market risk as a motivator for developing firm resources through supply chain transparency. These resources are captured through joint knowledge creation and contribute to firm responsiveness. Supply chain transparency research is underdeveloped in the academic literature and future studies should expand on the nomological network of antecedents and outcomes related to this phenomenon.

Original/value
The concept of supply chain transparency is discussed as a mechanism to collect, translate, and disseminate knowledge within a partnership, leading to the development of tangible dynamic capabilities. This study uses joint knowledge creation as a critical factor that mitigates market risks and enhances responsiveness.

Keywords: Transparency, Responsiveness, Knowledge Management, Knowledge-Based View, Adaptability, Flexibility.
Knowledge sharing for sustainable logistics in close LSP-shipper relations
Insights from a longitudinal dyadic case study

Maria Björklund*
Uni Sallnäs*
Niklas Simm*

* Linköping University, Department of Logistics and Quality Management, Linköping University, SE-581 83, Linköping, Sweden, maria.bjorklund@liu.se, uni.sallnäs@liu.se, niklas.simm@liu.se.

ABSTRACT

Purpose
Knowledge sharing between supply chain partners is central for a successful implementation of green logistics practices. The aim of this paper is therefore: to increase the understanding on how knowledge is shared in the transformation towards environmentally sustainable logistics.

Design/methodology/approach
A longitudinal case study approach has been applied including one logistics service provider (LSP) and one of its most proactive customers. Five strategical meetings with several participants from both organizations have been the main source of empirical data.

Findings
An informal and interactive dialogue between different managers from both organisations is the main type of knowledge sharing applied. The knowledge exchanged are commonly familiar and local for one actor, while very distant for the other. The knowledge shared can to a large extent be described as complex and thereby difficult to codify and imitate.

Research limitations/implications (if applicable)
The study provides insights to not only how and what forms of knowledge is shared, but also on why and when a close, but also time-consuming, form of interaction is needed. A research agenda for future studies within knowledge sharing for sustainable logistics is suggested.

Practical implications (if applicable)
This study provides insights to both LSPs and Shippers on how to share knowledge to facilitate a rapid transfer towards greener logistics.

Social implications (if applicable)
Provides insights supporting the greening of logistics as well as the social aspects of supply chain interaction.

Original/value
This study targets a research gap in terms of providing a deeper understanding on the type of knowledge shared and the different forms of knowledge sharing.

Keywords: Sustainable supply chain management, Information exchange, learning, Sustainable Collaboration,
EXPLORING VOLUME AND WEIGHT PHENOMENA IN PHYSICAL DISTRIBUTION
A SYSTEMATIC LITERATURE REVIEW

Noor Faizawati Badarudin*
Daniel Hellström **
Henrik Pålsson***

* Lund University, Department of Design Science, Faculty of Engineering, Box 118, 22100, Lund, Sweden, noor_faizawati.badarudin@plog.lth.se
** Lund University, Department of Design Science, Faculty of Engineering, Box 118, 22100, Lund, Sweden, daniel.hellstrom@plog.lth.se
*** Lund University, Department of Design Science, Faculty of Engineering, Box 118, 22100, Lund, Sweden, henrik.palsson@plog.lth.se

ABSTRACT

Purpose
The purpose is to consolidate the literature on volume and weight in physical distribution in order to provide an integrated view of the literature published on all aspects and facets of volume and weight in physical distribution.

Design/methodology/approach
A systematic literature review that follows the transparent and coherent pragmatic four-stage approach is used, i.e. planning the review; developing and validating the search strategy; conducting the search; synthesizing literature and advancing theory.

Findings
A diverse range of research disciplines that form a set of multi-faced streams of literature was found. The phenomena are emerging with strong growth in academic publications. The selected publications published in distinct scientific journals.

Research implications
This paper can be a reference point for scholars to increase their knowledge and understanding about volume and weight phenomena in physical distribution.

Practical implications
This paper can be a reference point for supply chain actors who aim to improve performance along the supply chain through volume and weight efficiency in physical distribution.

Social implications
This paper may serve as an inspiration for the relevant stakeholders, within government and industry, to improve environmental issues through volume and weight efficiency in physical distribution.

Original/value
No systematic literature review of volume and weight phenomena in physical distribution yet exists, thus this paper will provide valuable input to researchers and practitioners

Keywords: Volume, Weight, Distribution, Efficiency
AN EXTENDED FRAMEWORK OF SUPPLY CHAIN ORIENTATION: INSIGHTS FROM IKEA

Aurélien Rouquet *
Diego Vega **

* NEOMA Business School, France, aurelien.rouquet@neoma-bs.fr
** Hanken School of Economics, Finland, diego.vega@hanken.fi

ABSTRACT

Purpose
The concept of Supply Chain Orientation (SCO) is the subject of a small but growing literature. Esper et al. (2010) integrative conceptual framework, put forward that a SCO cannot be understood without incorporating both a firm’s strategic intention to compete via supply chain capabilities and the firm’s internal structural elements. The purpose of the present research is to test and extend this theoretical framework.

Design/methodology/approach
The article is based on an analysis of IKEA, an organization that appears to be extremely supply chain oriented. The data used for the analysis consists of 57 academic publications that used the organization as the focus of their study.

Findings
The IKEA case confirms the existence of Esper et al.’s SCO conceptual framework. Nevertheless, the findings show that the organization’s strong supply chain orientation is manifested not only at strategic and structural levels, but also through the marketing strategy. Our results expand the current framework to include Marketing as a third perspective of SCO.

Research limitations/implications (if applicable)
This research is based on the analysis of a single organization. In order to generalize these results, further research needs to be carried out.

Originality
Although SCO research is still in its infancy compared with the marketing orientation, the value of this article is to show in detail how a strongly supply chain-oriented organization functions. Further, it creates a link between supply chain management research and marketing.

Keywords: Supply Chain Orientation, Strategic orientation, IKEA, Marketing, Case study.
LOGISTICS GROWTH IN THE ARMED FORCES:
DEVELOPMENT OF A THEORETICAL FRAMEWORK AND RESEARCH PROPOSITIONS

Imoh Antai*, Imoh.Antai@fhs.se
Roland Hellberg*, Roland.Hellberg@fhs.se
Per Skoglund*, Per.Skoglund@fhs.se

* Swedish Defence University, Department of War Studies, Drottning Kristinas väg 37, 115 93, Stockholm, Sweden.

ABSTRACT

Purpose
Military logistics growth is a particularly chaotic phenomenon. Given the changing security situation in parts of Europe, militaries are seeking new ways to grow and counter such risks. However, there is a rarity of militaries or armed forces addressing logistics growth within literature. Thus, this paper seeks to identify logistics growth concepts that can enable militaries develop, conduct and grow logistics in the military to achieve its operational objectives.

Design/methodology/approach
Paper undertakes extant literature analysis of three relevant theories of growth as a means to review for understanding firm growth. A theoretical framework presents the relationships between logistics growth and three theories in order to develop propositions. Paper also analyzes industry practice-based growth concepts.

Findings
Paper argues that that the development of the concept of logistics growth within the armed forces require support not just from the established theories but also from established practice within the logistics and supply chain management industry in order to fully develop a true concept of logistics growth for a military perspective. Growth from a theoretical perspective can occur in two ways; organic and non-organic growth. Nine propositions reflecting antecedent relationships amongst theoretical variables for growth are developed.

Original/value
Study serves as a point of departure for further research on military growth in general and military logistics growth in particular and provides guidance for military leaders in assessing the value of logistics as an antecedent for growth.

Keywords: Military growth, Logistics growth, Governance measures, Hybrid growth, Theoretical antecedents, Performance measures.
Automated online order picking systems in omnichannel grocery retail

Ebba Eriksson

Lund University, Department of Industrial Management and Logistics, SE-22100 Lund, Sweden, ebba.eriksson@tlog.lth.se

ABSTRACT

Purpose
Omnichannel logistics and material handling is undergoing a significant transformation. A key to omnichannel success in grocery retail is decreasing material-handling costs and increasing service levels, which is often done by investing in new automated online order picking systems. Shedding light on this critical but under-researched topic, this paper aims to explore and understand automated online order picking systems in omnichannel grocery retail.

Design/methodology/approach
Applying contingency theory as a theoretical lens, a case study was performed with two grocery retailers representing two different types of warehouses with automated online order picking systems. Interviews were conducted with several informants, representing a range of perspectives.

Findings
Several contextual factors were identified influencing the configuration of automated online order picking systems in omnichannel grocery retail. The study highlights differences in contextual factors, such as logistics' strategic focus, investment capabilities, and overall omnichannel strategy, which seem to influence type of warehouse. Still, a significant finding is the important role the external context play for the configuration of automated online order picking systems. Seven propositions are formulated to contextualize the findings to the context of omnichannel grocery retail.

Original/value
This study is original by exploring and understanding automated online order picking systems in omnichannel grocery retail. It contributes to theory and practice by contextualizing the configurations and providing a first in-depth mapping of different automated systems in this specific context.

Keywords: Omnichannel, Grocery retail, Logistics network, OFC, Automation, Material handling, Order picking systems
ABSTRACT

Purpose
Home delivery services are a current trend and its demand is expected to continue expanding along with the growth of e-commerce. Home delivery of groceries, particularly, entails high requirements to ensure that the quality and safety of the products are maintained until the delivery. To be efficient, these services must function in agile and well-synchronised logistics systems. The purpose of this paper is thus to clarify the means to improve the logistics performance of home delivery of groceries.

Design/methodology/approach
The research design entails a systematic literature review on the most recent research on the topic. The sample is analysed to find, structure and compile the current knowledge on logistics performance of home delivery of groceries, as well as the challenges and suggested approaches.

Findings
The analysis identified several themes: transport, delivery (drop-off), cold chain and packaging. Under these themes several challenges were identified, “inefficient routes”, “low fill-rates” and “failed deliveries” being some of the main represented ones in the sample. For each of these challenges, some of the approaches proposed in the literature are presented too.

Original/value
Even though there are many literature reviews on the topic, this study is designed to analyse and deconstruct the state of the art on logistics performance of home delivery of groceries, as well as to measure and map the processes that impact that performance.

Keywords: E-commerce, Groceries, Home delivery, Logistics, Performance.
ABSTRACT

Purpose
The purpose of this study is to investigate warehouse automation from a strategic point of view. We explore three questions: i) what are the strategically important logistics challenges that warehouse automation can resolve; ii) what are the evaluation criteria for selecting a certain automation technology; and iii) to what extent does logistics strategy define the choice of warehouse automation technology, and vice versa.

Design/methodology/approach
An exploratory survey is conducted with 30 leading Swedish retailers in different segments.

Findings
The study suggests that investing in automation technology is a complex decision with many influencing factors. It is also an important decision as warehousing is critical for addressing and balancing a range of logistics challenges. The findings indicate an interdependence between logistics strategy and warehouse automation technology; that is, a retailers different long-term strategy influences the degree and choice of technology and, interestingly, that the selected automation technology may impact future logistics strategy decisions.

Research limitations/implications (if applicable)
Based on the findings, future research avenues are pointed out. Particularly, it is relevant to study how automation technology can help combining seemingly opposing strategic goals, and to what extent automation technology influences future logistics strategy.

Practical implications (if applicable)
The findings highlight the importance of understanding context for investing in warehouse automation technology and emphasize the critical role and influence of warehousing and technology adaptation on a retailer’s future logistics strategy.

Original/value
This is, to best of the authors’ knowledge, the first study to empirically investigate investments in warehouse automation from a strategic point of view.

* * *

Keywords: Warehouse, Automation, Technology, Innovation, Logistics, Strategy, Context
Closed loop supply chain as an enabler of increased circularity within the retail supply chain: An illustrative single-case study of Lindex

Fredrik Lindblad*
Åsa Gustafsson**

* Department of Accounting and Logistics, Linnaeus University, Sweden, fredrik.lindblad@lnu.se
** Department of Accounting and Logistics, Linnaeus University, Sweden, asa.gustafsson@lnu.se

ABSTRACT

Purpose
The improvement of production processes has in many cases shortened the product lifecycle, changing consumer behavior and leading to increased use of natural resources. The study describes the reverse logistics flow of garments in a closed loop supply chain (CLSC) as well as proposes improvements to the reverse logistics flow. The purpose is to increase the knowledge of how a logistics service can enable a high level of circularity within the retail supply chain. By identifying challenges within the CLSC propose improvements from a logistics perspective.

Design/methodology/approach
The retail CLSC has not been extensively studied from a theoretical perspective; therefore, this project complements the general CLSC theories with grey literature. A case study method has been used and is appropriate for conducting exploratory research, to empirically illustrate a reverse logistics flow of garments. Empirical information was collected through semi-structured interviews, intending to identify possible improvements.

Findings
Uncertainties in the CLSC is hindering development and planning, restricting possibilities to reach economies of scale as a driver for change and development. However, increased transparency from Governmental organizations related to their view towards a sustainable society greatly increases the success of the CLSC.

Research limitations/implications (if applicable)
The practical model derived from the case study is a contribution to the development of CLSC models in research.

Practical implications (if applicable)
Practitioners can be inspired by the gap analysis, which can assist in developing new CLSC within the retail industry.

Original/value
Only limited research related to this scope of the CLSC for the retail industry is identified, why the study demonstrates originality.

Keywords: Supply chain management, Sustainable fashion industry, Closed loop supply chain, Processes, Reverse logistics.
Circular Supply Chain: A Fancy Word for Closed-Loop Supply Chain or More?

Jayani Ishara Sudusinghe *

* University of Kassel, Chair of Supply Chain Management, Kleine Rosenstraße 1–3, 34109 Kassel, Germany, Jayani_Sudusinghe@uni-kassel.de

ABSTRACT

Purpose
Integrating circular economy (CE) into supply chains (SCs) is a nascent topic in the sustainable supply chain management (SCM) discourse. However, there is confusion on the use of terminology. Many scholars identify SCs in the CE context as closed-loop and open-loop SCs, while the term “circular supply chains (CSCs)” is becoming established. Hence, the purpose of this study is to elucidate the terminology while conceptualizing CSCs with a theoretical approach.

Design/methodology/approach
We combined well established theoretical approaches from SCM and CE scholarly debates to conceptualize CSCs. These archetypes were further illustrated through real-world examples while juxtaposing their characteristics.

Findings
CSCs are conceptualized as complex adaptive systems with different SC actors who support product/End-of-Life product/material flows while overcoming certain limitations intrinsic to CE. Different CSCs archetypes such as closed-loop, open-loop SCs are presented, connecting them to different CE implementation strategies such as reuse, reduce, repurpose and recycling.

Research limitations/implications
The conceptual nature of the study needs further validation. Hence, future research can focus on empirical work such as case studies and surveys.

Practical implications
Practitioners can benefit from this conceptualization by comprehending the potentials and boundaries of CSCs. This study hints at the importance of understanding the compatibility among resource flows to ensure improved sustainability in CSCs while directing the practitioners to identify potential collaboration opportunities with non-traditional stakeholders to improve sustainability performance in CSCs.

Original/value
This is one of the first attempts to revert to the roots of the SCs and understand how CSCs should be improved beyond terminologies, overcoming certain critiques toward CE.

Keywords: Circular economy, circular supply chain, closed-loop supply chain, open-loop supply chain, supply chain management, sustainability
Exploring service as a mechanism to improve collection efficiency in reverse logistics:

An ABC classification approach

Bente Flygansvær *
Mehdi Sharifyazdi *

* BI Norwegian Business School, Norway, bente.flygansvaer@bi.no, mehdi.sharifyazdi@bi.no

ABSTRACT

Purpose
The purpose of this paper is to investigate service as a mechanism to improve collection efficiency in reverse logistics.

Design/methodology/approach
Different methods for ABC classification of customers are explored, based on various criteria (such as volume of waste, number of containers, value of contracts) as well as on different proportions of customers in each class. Secondly, differentiated service levels, i.e., frequency of emptying waste containers, are considered for each class. Then, each method is simulated to measure different KPIs such as total cost, capacity utilization of resources, risk of unsatisfied customers. At the end, the methods are compared based on KPIs to recommend an ABC classification approach. The context is municipal waste.

Findings
The results show that ABC classification of customers in waste collection has significant effect on KPIs such as cost and service level. They also show that the way the analysis is carried out, has significant effect on the performance as well.

Research limitations/implications (if applicable)
A classic logistical tool of ABC-analysis, combined with service definitions, demonstrates how one can understand the waste management customer.

Practical implications (if applicable)
This research contributes to knowledge of how customer service is a tool to improve collection efficiency in reverse logistics and will provide businesses within the waste management industry with practical advice and tools.

Original/value
ABC analysis is used and simulated in a new field. It demonstrates the value of applying basic logistics models and tools in new settings and contexts.

Keywords: ABC analysis, Differentiation, Reverse Logistics, Municipal waste, Customer service, Simulation
Digital solutions for port access processes
A business model perspective

Sara Rogerson *
Vendela Santén*
Per Wide *

* SSPA Sweden AB, Chalmers Tvärgata 10, Box 24001, SE-400 22 Gothenburg, Sweden. Sara.Rogerson@sspa.se

ABSTRACT

Purpose
Trucks arriving at port terminals do often not have access to the right containers at the right time, resulting in wasted time. To improve this, several services that innovate a port operator business model by using digital information exchange can be implemented. The purpose is to outline business model innovation for hinterland connections between a port and hinterland transports to generate understanding for efficiency improvements for hinterland connections.

Design/methodology/approach
Semi-structured interviews are conducted with port operators, hauliers and rail operators in the various European ports to understand how services for hinterland connection are implemented in ports, drivers and barriers for stakeholders, and crucial elements of business models.

Findings
This ongoing study preliminary indicates that hauliers may resist the implementation of time slots and explores how such resistance has been managed. To outline business model elements, relationships between the stakeholders and value propositions are investigated.

Research limitations/implications
Focus is on European container port terminals.

Practical implications
Understanding crucial elements of business models can guide successful implementation of hinterland connection services in port terminals.

Social implications
Reduced queuing implies reduced negative environmental impact.

Original/value
How services for hinterland connections correspond to important criteria for key stakeholders is addressed.

Keywords: Business models, Intermodal transport, business model innovation, seaports, hinterland connections
CONTAINER SHIPPING VIA THE NORTH SEA ROUTE
OPPORTUNITIES AND CHALLENGES

Henrik Ringsberg *
Li Zhiyuan *
* Chalmers University of Technology, Sweden, Henrik.Ringsberg@chalmers.se, zhiyuan.li@chalmers.se

ABSTRACT

Purpose
Impact of global warming have increased the interests in containerised shipping via the North Sea Route (NSR). The purpose of this paper is to explore opportunities and challenges in feasibility in containerised shipping via the NSR as an alternative to the Suez Canal route (SCR).

Methodology
A structured literature review on navigational, economic, and geopolitical feasibility was conducted. Mixed methods approach was applied in a case study of containerised shipping between Rotterdam and Shanghai. Simulations were used to evaluate the navigational and economic feasibility of an ice-classed ship, semi-structured interviews were used to evaluate operational costs and geopolitical feasibility.

Findings
Containerised shipping via the NSR is not a navigational, economic, and geopolitical feasible option. Using the NSR create opportunities to decrease voyage time 11,5-14,7%, voyage cost by 15,7%, prevent congestion, increase goods volume in European ports. Using the NSR include challenges in increased operational costs, costs of insurance premiums, protection of the Arctic environment, and changes in geopolitical relationships.

Research limitations
A container ship used between Rotterdam and Shanghai, insurance and maintenance costs are included. Further empirical studies should include other routes, ships and crew costs to ensure generalisability.

Practical implications
A conceptual framework to evaluate containerised shipping via the NSR is presented.

Social implications
The Arctic Shipping Corporate Pledge to protect the Arctic environment is included.

Original/value
The paper is one of the few which evaluate containerised shipping based on navigational, economic, and geopolitical feasibility.

Keywords: North Sea Route, navigational feasibility, economic feasibility, geopolitical feasibility.
THE POTENTIAL OF INFORMATION SHARING IN THE PORT CALL PROCESS: THE CASE OF GÄVLE

Abdalla Mubder *
Anna Fredriksson *

* Linköping University, Department of Science and Technology, Communication and Transport System, Sweden, abdalla.mubder@liu.se, anna.fredriksson@liu.se

ABSTRACT

Purpose
Port calls involve many actors providing different services to calling ships, making them difficult to coordinate. Improved coordination between these actors can increase the efficiency of port calls. The purpose is to explore how digitalization of information flows can improve the operational coordination of the port call process, and the potential efficiency improvement that can be achieved by improved operational coordination.

Methodology
A single case-study was conducted at Port of Gävle’s (PoG) energy terminal for tankers, focusing on a Port Community System to facilitate information sharing. 22 interviews – with agents, stevedores, pilots, cargo-owners, port-, shipping- and terminal-managers –, documents and meeting-participation were used for data-collection.

Findings
Port-actors’ information needs are the estimated time of arrival, completion, and departure of ships (ETA, ETC, and ETD), delay-information, real-time weather condition (RTWC), and incoming ships on a quay-level. Agents can benefit of incoming ships’ information, ETD, and delay information to inform captains about quay-availability to avoid queues or adjust speed. RTWC improves the loading-plan – as weather affects the draught of the ship which limits how much loading is possible – and decisions about resource-needs (e.g., stormy weather may require additional tugboat). ETA, ETC and ETD improve planning opportunities for pilots and stevedores. The interviews reveal agent’s physical presence improve information availability.

Research limitations
The study is limited to a single case about tankers’ port call process at PoG.

Practical implications
Identified information needs and their potential benefits allow managers to understand the value of information and how it can be utilized to improve port call coordination.

Original/value
The study is part of the development of a Port Community System, one of the first of its kind. It provides clarity to port-actors motive to take part in the development-process and provide value showing the potential of digitalizing information-sharing, compared to phones-calls and e-mails used today. Such systems are essential to implement environmental clauses to reduce emissions from shipping.

Keywords: Port call coordination, Information sharing, Port Community System, liquid bulk transports.
THE STRUCTURAL ELEMENTS OF A GREEN SUPPLIER COLLABORATION PROGRAM

Sofie Adamsen (soadamsen@grundfos.com)\textsuperscript{a}
Maria Camila Rincon\textsuperscript{a}
Jonas Nygaard Uhrenholt\textsuperscript{a, b}
Steffen Foldager Jensen\textsuperscript{a}
Jesper Hemdrup Kristensen\textsuperscript{a}
Brian Vejrøm Wæhrens\textsuperscript{a}

\textsuperscript{a} Center for Industrial Production, Department of Materials and Production, Aalborg University, 9220 Aalborg øst, Denmark
\textsuperscript{b} Technology and Business Department, University College of Northern Denmark, 9200 Aalborg SV, Denmark

ABSTRACT

Purpose
While ambitious goals for climate impact reduction exist, they rarely result in significant progress and even less if we look for systematic climate impact reduction in upstream supply chains. This paper aims to identify the structural elements of a green supplier collaboration program.

Design/methodology/approach
Based on a literature review within the topic of program management and green supplier collaboration programs, a conceptual model is developed.

Findings
This paper suggests the program type goal-oriented programs, an architecture of three life cycle phases and four different management mechanisms. Some are focusing on short-term activities and some on long-term and continuous efforts to form an organization that supports the execution of the program. Furthermore, it aims to accommodate the complexity, that green activities often bring when working cross-functional internally and externally.

Research limitations/implications
31% of programs are discontinued due to project failures, and 53% are reported to underperform. This paper suggests structural program elements to accommodate these challenges.

Practical implications
Organizations with a large supplier base experience great complexity in helping suppliers reduce their CO2 emissions. A well-structured program will increase the opportunity of anchoring the activities internally and gaining environmental performance improvement externally.

Original/value
A study in integrating sustainability in the structural elements of a collaboration supplier program.

Keywords: Program theory, Green Supplier Collaboration, Sustainable Supply Chain Management
DIGITALIZATION OF RURAL SUPPLY CHAINS
STRIKING GAP IN LITERATURE

Petr Kolar *
Günter Prockl **

* Prague University of Economics, Department of Logistics, 130 67, Prague 3, Czech Republic, petr.kolar@vse.cz.
** Copenhagen Business School, Department of Digitalization, Solbjerg Pl. 3, 2000 Frederiksberg, Denmark, gp.digi@cbs.dk.

ABSTRACT

Purpose
Published supply chain research explicitly recognizes the rural areas almost exclusively through the lenses of urban or city logistics, lacking the holistic point of view. Based on the systematic literature review in this working paper, the authors identify the gap and suggest possible directions in which the research in the field of rural supply chain management should be conducted further.

Design/methodology/approach
Geographically scoped, the authors conducted systematic literature review of peer-reviewed qualitative and quantitative studies touching the emerging topic of rural supply chains.

Findings
It is striking the complete combination of specified keywords identified beyond the abstract or title, excluding the potentially predatory journals, produced only extremely low number of outcomes meeting the review criteria. Such a finding itself justifies the necessity to explore the topic with the introduction or development of new models or collection and analysis of empirical data.

Research limitations/implications
The study supports the very limited number of published sources framing the emerging theory of rural supply chain management. Its major limitation is the primary focus on European environment and its context.

Practical implications
Since social equity is one of the sustainable development dimensions, the research suggests further research direction and framework addressing the challenges of living and doing business in rural areas the policy makers and rural development stakeholders shall deal with.

Original/value
The multidimensional view on rural life and relevant supply chains of the study reflects and investigates the relatively resilient environment with the potential to thrive no less than the urban and sub-urban areas while engaging the potential of digitalization and its applications.

Keywords: Digitalization, Digital transformation, Rural supply chain management, Sustainability.
ABSTRACT

Purpose
Antibiotic resistance is a global threat, worsened when manufacturers release resistance-causing materials into the local environment. To lessen environmental impact, medicine procurers can introduce environmental criteria into their tendering procedures. Yet, at the same time, medicine shortages are an increasing global problem, partly due to few manufacturers. Strict environmental criteria could result in no eligible manufacturers of an essential antibiotic. Yet, this paper examines if environmental criteria can be applied in such a way to improve sustainability.

Design/methodology/approach
A case study of antibiotics was conducted in cooperation with the Norwegian Hospital Procurement Trust.

Findings
Awarding fulfillment of environmental criteria through higher prices makes the market potentially more interesting for some suppliers. Environmental incentives in tenders also provide a secondary benefit - it may increase supply chain transparency, allowing procurers to understand where active ingredients and finished products are produced. With this increased knowledge (which is unavailable today), procurers can also attempt to incentivize geographically diverse manufacturers, potentially alleviating shortages.

Research limitations/implications
The study provides initial understanding of how to improve sustainability in medicine supply chains.

Practical implications
Stakeholders are provided with increased understanding of how environmental criteria can benefit supply chain transparency and supplier longevity, and thus potentially reducing shortages.

Social implications
Hindering antibiotic resistance while bolstering sustainable medicine supply chains are vital to maintain population health and to ensure health systems operate effectively.

Original/value
The paper reports on one of the first attempts to use environmental criteria in procurement of medicines and find that applying such criteria can improve sustainability, also through more transparency, allowing longer-term profitability, environmental and social considerations.

Keywords: medicine, shortage, antibiotics, sustainability, environment, procurement, transparency.
INFORMATION ASYMMETRY IN GREENING HUMANITARIAN SUPPLY CHAIN
A CASE STUDY OF A SEQUENTIAL PRINCIPAL-AGENT RELATIONSHIP

Qifeng Yan *
Gyöngyi Kovács *
Diego Vega *

* Hanken School of Economics, Finland, qifeng.yan@hanken.fi, gyongyi.kovacs@hanken.fi, diego.vega@hanken.fi

ABSTRACT

Purpose
The paper explores how information asymmetry arising from a sequential principal-agent relationship will impact on the efforts to green the humanitarian supply chain.

Design/methodology/approach
The paper is based on a case study with a humanitarian organization as its focal organization. Data was collected via semi-structured interviews and documents from this supply chain.

Findings
There is a sequential principal-agent relationship between donors, the focal organization, and its implementing partners. With regards to greening, the focal organization faces three challenges: resistance from local implementing partners, lack of systematic monitoring, and limited resources.

Research implications
This paper provides an interesting case in which agency theory is applied in the humanitarian supply chain context. The case studied is defined as a sequential principal-agent relationship, and all parties have their interests and priorities while working towards the same goal. Importantly, information asymmetry is not only prevalent upstream and downstream the supply chain but also within the focal organization.

Practical implications
The paper explores the dilemma of humanitarian organization in which a compromise must be made because of limited resources.

Original/value
In addition to the principal-agent relationship externally, this paper also explores the principal-agent relationship internal to the focal organization. Therefore, this paper provides a good case to examine how principal-agent relationship can be better managed across organizational boundary, and inside the organization.

Keywords: information asymmetry, green supply chain management, agency theory, monitoring.
The role of logistics in a Swedish total defense concept

Roland Hellberg* (corresponding author)
Imoh Antai**

* Swedish Defence University, Department of War Studies and Military History; Functions and Perspective Division, Drottning Kristinas väg 37, 114 28 Stockholm, Sweden, Roland.Hellberg@fhs.se
** Swedish Defence University, Department of War Studies and Military History; Functions and Perspective Division, Drottning Kristinas väg 37, 114 28 Stockholm, Sweden, Imoh.Antai@fhs.se

ABSTRACT

Purpose
Total defense includes activities needed to prepare Sweden (or similar nations) for conflict. Total defense consists of military and civil defense. The aim of the study is to shed light on the role and need for logistics in a total defense perspective, since Swedish society does not currently have an organized logistics concept for the civilian part of total defense.

Design/methodology/approach
A review of selected literature on Swedish total defense, including military logistics and the role of civilian logistics support, constitutes the basis for the study. Swedish society's ability to adapt and support each other illustrated by a parallel action during the Corona epidemic.

Findings
The total defense bases mainly on civil society taking responsibility (responsibility principle). The state of logistics organisation and infrastructure, at given time is critical to a sufficient non-military logistics contribution within the total defence concept. For defence effectiveness over time, the non-military logistics functions must be supportive to both parts of total defence.

Research implications
This study provides basis for further research in logistics' significance for total defence.

Originality
Logistics input within total defence has until now, to a small degree received attention in the literature. Given the knowledge gap, this study is of original value.

Keywords: total defence, civil defence, defence logistics, civilian responsibility.
DEVELOPING CONSTRUCTION LOGISTICS SERVICES IN THE CONSTRUCTION EQUIPMENT RENTAL COMPANY-CONTRACTOR DYAD

Petter Haglund¹
Mats Janné²

¹ Linköping University, Dep. of Science and Technology, Norrköping, Sweden, petter.haglund@liu.se, +46-11-36 34 94
² Linköping University, Dep. of Science and Technology, Norrköping, Sweden, mats.janne@liu.se, +46-11-36 32 92

ABSTRACT

Purpose
The understanding of how to develop or expand logistics service offerings to the construction industry has received limited attention in the research community. The purpose of this study is to investigate how construction equipment rental companies (CERCs) can approach the challenge of expanding their service offerings to include construction logistics services.

Design/methodology/approach
The study builds on a descriptive case study to analyse how a CERC has approached developing logistics services for construction through the lens of New Service Development literature.

Findings
The study shows that the CERC’s ongoing transition from a construction equipment supplier to a logistics service provider requires both back-end and front-end service development. The New Service Development process extends into sales and delivery of solutions where the company’s established customer-base in the construction industry can be beneficial.

Research limitations/implications (if applicable)
The study is limited to the Swedish construction context and further studies are needed to generalize the findings. Future studies should investigate how well service offerings match the contractor’s needs.

Practical implications (if applicable)
The study can be used by contractors and prospective logistics service providers for developing logistics services.

Original/value
The study contributes to construction logistics literature by addressing how construction logistics services can be developed by adopting a New Service Development approach.

Keywords: construction logistics, logistics service provider, contractor, dyad, new service development.
ABSTRACT

Purpose
The transport sector is one of the major contributors to total carbon emissions. The transition toward a carbon-neutral transport sector requires extensive investment. Reliant on previous estimations, this study provides a system analysis aimed at refining existing estimations of investment needs and related costs for the sustainability transition of the road transport sector.

Design/methodology/approach
The model relies on mathematical modeling with the aid of Python programming to build a time-variant model designed to calculate current and future investment needs, the capital cost, and operational expenses.

Findings
The model determines the total cost of a system for the sustainability transition of the road transport sector. A plausible scenario was applied to test the model, highlighting the cost variance in response to different policies.

Research limitations/implications (if applicable)
This model enables us to investigate the effects of financial policies, and charging strategies on system costs.

Practical implications (if applicable)
Practitioners and policymakers can employ this model to test plausible scenarios for the future of the transport system and to evaluate the effects of policies.

Social implications (if applicable)
This study provides estimations of how much and where to direct financing to accelerate the transition.

Original/value
We contribute to the rapidly growing literature on the sustainability transition of transport systems by including financing costs in our analysis.

Keywords: Sustainability transition, Decarbonization, Road transport system, Cost, Finance.
ESTIMATING THE TOTAL COST OF SUSTAINABILITY TRANSITION OF THE ROAD TRANSPORT SYSTEM:
A CASE OF THE SWEDISH HEAVY-DUTY FLEET

Elmira Parviziomran *
Rickard Bergqvist *

* University of Gothenburg, Sweden, elmira.parviziomran@gu.se, rickard.bergqvist@handels.gu.se

ABSTRACT

Purpose
This study aims to project the potential cost of the sustainability transition for the Swedish road transport system under six different scenarios.

Design/methodology/approach
Interviews with experts are used to project the future pathway for the road transport sector in Sweden's heavy-duty fleets and set up the scenarios. Based on these projections we calculate the cost of the system under different scenarios.

Findings
The results show that in scenarios with both dominant battery-electric trucks and a mix of battery-electric trucks and fuel cells when the speed of transition is high and 100% market share is taken by carbon-neutral vehicles by 2050, the lower fuel and maintenance costs can offset the higher investment cost. Our results also confirm a significant fuel cost variance under different charging/refueling strategies showing the importance of charging/refueling strategic decisions on the operational cost and therefore different vehicle technologies' competitiveness.

Practical implications (if applicable)
The results can be used to inform strategic decision-making about charging/refueling strategies for commercial transportation and a direction for policymakers in Sweden to facilitate the use of strategies through redirecting their investments towards optimized options.

Social implications (if applicable)
Our results provide a better understanding of the cost of the sustainability transition for Sweden’s road transport system.

Original/value
This study combines qualitative and qualitative research to project the cost of transition. The significant influence of charging strategies on technologies' competitiveness and system cost has been highlighted in this research.

Keywords: Sustainability transition, Decarbonization, Road transport system, Cost, Finance.
Process management for greening the Swedish Road Freight transport

Priscilla Navarro* and Linnea Haag*

* Linköping University, Division of Logistics and Quality management, Campus Valla, 581 83, Linköping, Sweden, priscilla.navarro@liu.se; linnea.haag@liu.se.

ABSTRACT
Purpose
The purpose of this paper is to investigate the support of dynamic capabilities and process management for enhancing environmental sustainability within Swedish Road Freight Transport.

Design/methodology/approach
This paper includes a narrative literature review, as well as interviews, document studies and observations at two Road Freight Transport companies (RFTs) in Sweden. The empirical data was collected using an action research approach.

Findings
Partnerships with customers, suppliers, and governmental institutions support and stimulate the design and development of environmental initiatives. Process management provides structure and system thinking to support the development of dynamic capabilities. Moreover, process management principles and internal and external antecedents support competitive advantage in RFTs.

Research limitations/implications
This paper contributes to filling the gap on the support of process management for greening RFT. Moreover, it contributes to dynamic capabilities theory by associating environmental practices at RFTs to antecedents for dynamic capabilities. A limitation is the availability of information due to confidentiality from the partners.

Practical implications
Practitioners from RFT could use this paper as an introduction for understanding the importance of cooperation within their supply chain. It also provides examples of environmental initiatives within RFT, which can be useful for practitioners.

Social implications (if applicable)
By enhancing the environmental sustainability of RFT, this study has both social and environmental implications in the quality of life for the Swedish people.

Original/value
This paper is a novel combination between the research fields of quality management, green logistics, and dynamic capabilities.

Keywords: process management, road freight transport, environmental sustainability, dynamic capabilities.
Digitalization of Supply Chain Risk Management
Eliciting Potential and Barriers with Qualitative Interviews

Lucas Stampe *
Bernd Hellingrath **

* University of Münster, Department of Information Systems, Leonardo Campus 3, 48149, Münster, Germany, lucas.stampe@ercis.uni-muenster.de
** University of Münster, Department of Information Systems, Leonardo Campus 3, 48149, Münster, Germany, bernd.hellingrath@ercis.uni-muenster.de

ABSTRACT

Purpose
The great potential of digitalization for Supply Chain Risk Management (SCRM) stands in stark contrast to the actual degree of technology utilization with measurement and reporting of disruptions lagging behind the demands of ever-increasing (global) incidents. This is despite the fact that IT-supported processes and software tools are positively associated with supply chain resilience. This study seeks to identify potentials and barriers of introducing IT-supported SCRM with the aim of facilitating adoption.

Design/methodology/approach
Existing literature is reviewed, highlighting previous efforts concerning the effects of digitalization on SCRM, followed by a series of semi-structured expert interviews on structured SCRM application and IT-support including modelling and monitoring of risks with practitioners from SCRM, SCM or RM situated in Germany.

Findings
The findings reveal a range of cultural, technological and organizational barriers such as awareness, difficulties in measuring the impact of successful risk management and data integration along the supply chain or even single locations. Similarly, identified potential include a change towards data-driven, rational culture and positive effects on other functional areas of an organisation.

Research limitations/implications
Limitations include the number of interview partners and their respective practical background. Future research may be concerned with creating a structured approach towards lowering the identified barriers and introducing SCRM into organisations, realizing the identified potentials.

Practical implications
This paper raises awareness of issues surrounding SCRM adaption and may consequently help practitioners in analyzing their own organization accordingly.

Originality
The approach allowed to gather first-hand information from practitioners in the field with regard to potentials and barriers of SCRM.

Keywords: Supply Chain Risk Management, Supply Chain Management, Supply Chain Digitalization, Risk Management, Information Systems
Conceptualising Blockchains in Supply Chains

Stefan Seuring*
Oliver Bischoff*

* University of Kassel, Chair of Supply Chain Management, 34117 Kassel, Germany.

ABSTRACT

Purpose
There are now multiple papers presenting research on blockchains in supply chains. By now, there are even more than 20 literature review papers, typically looking at different facets of the field. Yet, the findings are so diverse, that a conceptual consolidation would be useful.

Method
The research builds on eleven in-depth interviews with authors in the field that contributed to the development of the field many of their blockchain related papers being well cited. Data was analysed employing content analysis and consolidated by

Findings
Based on the interviews, key potential benefits of the application of blockchains in supply chains can be identified: visibility and transparency, trust, shared data access, efficiency gains, product safety, secure and integrating technology. Barriers are organisational, human and technical, while there might be a lack of data quality so that all factors would lead to a lack of trust. A list of ambivalent aspects could be identified, among them cost and sustainability.

Research limitations/implications
The research condenses the diverse debate on blockchains in supply chains building on primary data. This allows consolidating the debate in the field and establishes a firm ground for future research.

Practical implications
The findings contribute to deepening the comprehension of how blockchains can be applied in supply chains.

Social implications
Transparency and visibility of enabled through blockchains could be used to monitor social aspects such as working conditions in supply chains.

Original/value
While the paper confirms many already discussed topics, it sums them up in a comprehensive manner building on expert opinions. Further, it points to several open, ambiguous topics demanding further research.

Keywords: supply chain management, blockchain, expert interviews, barriers and benefits.
REVISITING THE BULLWHIP EFFECT: HOW CAN AI BE ENABLED TO SMOOTHEN THE BULLWHIP PHENOMENON?

Eric Weisz*
Sebastian Kummer*
David M. Herold*

* Vienna University of Economics and Business, Institute for Transport and Logistics Management, Welthandelsplatz 1, 1020 Vienna, Austria

ABSTRACT

Purpose: Although artificial intelligence (AI) provides a foundation to smoothen the bullwhip effect in the supply chain, only little research has examined this phenomenon. In this article, we conceptualize a framework that allows for a more structured management approach to examine the bullwhip effect using AI. In addition, we conduct a systematic literature review of this current status of how management can use AI to reduce the bullwhip effect and locate opportunities for future research.

Design/methodology/approach: Guided by the systematic literature review approach from Durach et al. (2017), we review and analyze key attributes and characteristics of both AI and the bullwhip effect from a management perspective.

Findings: Our findings reveal that literature examining how AI can enable management to reduce the bullwhip effect is a rather under-researched area that provides an abundance of research avenues. Based on identified AI capabilities, we propose three key management pillars that form the basis of our Bullwhip-Smoothing-Framework (BSF): (i) digital skills, (ii) leadership, and (iii) collaboration. We also critically assess current research efforts and offer suggestions for future research.

Originality: This is the first study that reviews management literature specifically focused on how artificial intelligence can help to smoothen the bullwhip effect in supply chain.

Keywords: bullwhip effect; supply chain; artificial intelligence; literature review
ABSTRACT

Purpose
Russia is Europe’s largest internet market and have provided huge opportunities for foreign companies to increase their e-commerce sales. First, the paper highlights the state of e-commerce in Russia and logistics solutions from Finland to Russia before Russian invasion of Ukraine. Second, the paper updates the current situation in cross-border package deliveries in May 2022.

Design/methodology/approach
The paper is based on semi-structured interviews carried out in March 2021 that include three companies and one logistics service provider. In addition, data was collected through parcel tracking experiment, literature studies and an interview in May 2022.

Findings
Two major barriers found that affect companies when aiming for the Russian e-commerce market are lack of knowledge and language barrier. Companies would benefit from receiving more information about the delivery process and the practicalities related to it. However, after the Russian invasion of Ukraine the cross-border deliveries are radically reduced but not stopped. The sanctions of luxury goods and restrictions on money transfers have had the main impact on e-commerce deliveries. Also, the availability and increased costs of truck deliveries hamper the deliveries.

Research limitations/implications
The study is based on a limited number of interviews from Finland. However, the challenges may be similar from deliveries from other EU countries too.

Practical implications
The study provides updated information about Russian e-commerce market and current challenges of cross-border deliveries for e-commerce companies, logistics service providers and public organizations.

Original/value
The paper highlights the cross-border e-commerce logistics and its challenges between Finland and Russia. The paper provides up-to-date information about the impacts of sanctions.

Keywords: Russia, e-commerce, package delivery, sanctions, cross-border logistics
ABSTRACT

Purpose
This paper aims to find out prerequisites from a logistics perspective for replacing single use packages with reusable packaging, with a focus on the reverse logistics activities such as collection, washing, storage, transportation and redistribution of packaging.

Design/methodology/approach
The methodology includes qualitative semi-structured interviews with companies in different parts of the supply chain within fast-moving consumer goods packaging. Five cases will be explored from a logistics perspective, to understand the needs for logistics in the different cases.

Findings
The preliminary results suggest that existing infrastructure for the different reverse logistics activities can partly be used depending on the context of the case. For some cases, there is no existing infrastructure for example for washing the packaging and those should be established. Empty reverse flow capacity should be used as much as possible, to limit the need for more transports.

Research limitations/implications
This paper is limited to reusable consumer packaging logistics, and thus business-to-business packaging will only be included in terms of learnings from existing literature that can be transferred to reusable consumer packaging logistics.

Practical implications
An outlook of the logistics prerequisites is explored in this research, providing an opportunity for practice to find possibilities in reusable packaging logistics solutions.

Social implications
This paper contributes to the ways that logistics of reusable packaging could contribute to circulating the packaging without having to produce new packaging each time and decreasing waste from single-use packaging.

Originality
There is little research on reusable consumer packaging logistics. This paper aims to contribute to this gap.

Keywords: reusable consumer packaging logistics, reverse logistics, closed-loop supply chains, circular economy
A SCORECARD FOR ASSESSING THE IMPACT OF PACKAGING INNOVATION ON LOGISTICS PERFORMANCE

Henrik Pålsson *
Daniel Hellström **

* Lund University, Department of Design Science, Faculty of Engineering, Box 118, 22100, Lund, Sweden, henrik.palsson@plog.lth.se
** Lund University, Department of Design Science, Faculty of Engineering, Box 118, 22100, Lund, Sweden, daniel.hellstrom@plog.lth.se

ABSTRACT

Purpose
Packaging and packaging innovation affect companies’ logistics performance. The purpose of this paper is to develop and apply a scorecard for assessing the packaging innovation process and its impact on logistics performance.

Design/methodology/approach
A general conceptual framework from innovation theory is adjusted and applied to packaging innovation. This links the packaging innovation process to logistics and supply chain performance. It also supports the researchers’ development of a scorecard for assessing the packaging innovation process. This scorecard is applied in a case study covering packaging innovation at IKEA of Sweden. Data were collected with semi-structured interviews, document analysis and business management data.

Findings
Seven interrelated sub-processes together define packaging innovation. These sub-processes are linked to logistics and supply chain performance in a conceptual framework. A scorecard describes how to measure the sub-processes. The application of the scorecard in a case study shows how the content covered in packaging innovation subprocesses impacts the performance of logistics.

Research limitations/implications (if applicable)
The scorecard for assessing the packaging innovation process and its impact on logistics performance should be tested in other contexts than the current case study.

Practical implications (if applicable)
A scorecard for assessing the performance of sub-processes within packaging innovation helps companies to improve packaging innovation and thus their logistics performance.

Original/value
The theoretically based scorecard for assessing packaging innovation is novel in logistics research. It links the packaging innovation process to logistics performance and helps companies to identify improvement possibilities. The paper shows how a scorecard helps to address packaging strategically by measuring the activities conducted in the packaging innovation process with links to logistics performance.

Keywords: Innovation, Management, Packaging, Performance, Process, Scorecard.
ABSTRACT

Purpose
The objective of the paper is to further elaborate and support the expanding research on the topic of e-commerce related to the logistics facility location problem. In recent years, there has been a significant growth in e-commerce, which has resulted in clear changes and shifts in shopping practices and consumer behaviour. This growth is reinforced by the COVID-19 pandemic, which has accelerated the transition to e-commerce and the needs of supply chains.

Design/methodology/approach
The paper focuses on the analysis and data mining of secondary data related to customers’ online grocery shopping experiences, which is linked to the research focusing on the selection and optimal location of inventory facilities related to the e-commerce of perishable goods. It aims to characterise the respondents according to various sociodemographic factors. The data has been extracted using the Market & Media & Lifestyle I database. The database consists of a sample group of 15,000 respondents from different regions in the Czech Republic.

Findings
The customers’ preferences for online grocery shopping can enhance the business strategies of certain retailers to ‘go online’ and location selection of logistics centres based on demand and supply perspective in the logistics real estate market.

Original/value
The added value of the research can be used for theory and research, where the research seeks to bring a new perspective on the optimal location of logistics objects linked to e-commerce depending on a wide range of factors.

Keywords: e-commerce, logistics objects, inventory location, sociodemographic factors, data mining, Market & Media & Lifestyle, perishable goods
PERFORMANCE OF LIGHT ELECTRIC FREIGHT VEHICLES IN THE LAST MILE: A NORDIC CASE STUDY

Niklas Arvidsson *, Tale Ørving **

* Swedish National Road and Transport Research Institute, Sweden, niklas.arvidsson@vti.se
** Institute of Transport Economics, Norway, tale.orving@toi.no

ABSTRACT

To assess the introduction and performance of LEFVs, more specifically cargo cycles in major 3PL organizations in a Nordic country. The results from the studied cases, interviews, and the collected data show that LEFVs can outperform conventional vans in last mile delivery operations of ecommerce parcels. We account for when this might be the case, during which circumstances and why. A novelty is the access of very detailed data from before the implementation of new vehicles and the data after the implementation from a large international company. A fair comparison is made possible by the operational structure, area of delivery, number of customers, customer density, type of packages, and to some extent number of packages being quite similar. This is valuable information for organizations that are thinking of trying LEFVs in operations as well as municipalities/local authorities that are interested.

Purpose of this paper

To assess the introduction and performance of LEFVs, more specifically cargo cycles in major 3PL organizations in at least two Nordic countries.

Design/methodology/approach

Case studies. Interviews. Company data on performance before the introduction as well as after the introduction. Study of differing business models as well as operational setups.

Findings

The results from the studied cases, interviews, and the collected data show that LEFVs can outperform conventional vans in last mile delivery operations of ecommerce parcels. We account for when this might be the case, during which circumstances and why.

Research limitations/implications

Inherent limitations of the case study approach, specifically on generalization. Future research could be to include a more Public-private partnership, multi actor approach for scalability.

Practical implications

Adding to knowledge on public sector facilitation necessary to succeed with implementation.

What is original/value of paper

One novelty is the access of very detailed data from before the implementation of new vehicles and the data after the implementation. A fair comparison is made possible by the operational structure, area of delivery, number of customers, customer density, type of packages, and to some extent number of packages being quite similar. This is valuable information for organizations that are thinking of trying LEFVs in operations as well as municipalities/local authorities that are interested.

Keywords: City logistics, Last mile distribution, LEFVs
GREEN POTENTIALS OF URBAN CONSOLIDATION CENTRES

Henrik Gillström*
Maria Björklund*

* Linköping University, Division of Logistics and Quality Management, Department of Management and Engineering, 581 83, Linköping, Sweden, henrik.gillstrom@liu.se and maria.bjorklund@liu.se

ABSTRACT

Purpose
Studies present different results regarding the environmental potentials when implementing urban consolidation centres (UCCs). This study aims to create a deeper understanding of these potentials, taking into consideration the different contexts and designs of UCCs.

Design/methodology/approach
Articles and research reports that have quantified the environmental effects of UCCs are used as point of departure. Cross case analysis is applied to compare the results as well as identification of underlaying differences between the studies.

Findings
Increased consolidation and implementation of fossil-free fuels are often described as the largest environmental potentials of implementing UCCs, but surprisingly, new activities implemented in the terminal building show the greatest environmental potential.

Research limitations/implications (if applicable)
This study shows the large potentials hidden in inter-organizational interaction in order to increase green potentials of UCCs. The study also highlights different performance indicators and the need to enlarge the scope by including, e.g. energy consumption as an evaluator.

Practical implications (if applicable)
There are large environmental potentials often overseen in the implementation of UCCs, such as the use of the terminal for facilitating more close loop supply chains in the society.

Social implications (if applicable)
This study shows the large, sometimes hidden, environmental potentials in UCCs.

Original/value
Few studies quantify the potentials of UCCs, and among those who does, little (no) focus is directed towards comparing the results of different studies.

Keywords: city logistics, urban mobility, green logistics, performance indicators, closed loop supply chains.
ABSTRACT

Purpose
To explore how cross-sectoral collaborations can contribute to closing the loops in humanitarian supply chains.

Design/methodology/approach
We will explore the constellations formed in response to the issues and waste created in the use of a specific product sent to refugee camps (i.e. Better Shelter). We will investigate what type of constellations were formed and which part of the humanitarian supply chain loop of the product they closed.

Findings
Local adaptability and achieving active and coordinated participation by end users (i.e. the refugees) is essential for reverse logistics.

Research limitations
Our case study is geographically limited to Brazil. The main case organization is UNHCR and the product in focus is “Better Shelter”. Additional data will be added later on. We focus solely on the relationship between the actors in the supply chain.

Practical implications
The potential implications for end-user participation in humanitarian supply chains are significant.

Social implications
Our case highlights the need for humanitarian aid workers to partner especially with governments, to achieve partnership models that prioritize refugee autonomy, dignity, and participation, aligning sustainable logistical priorities with ethical ones.

Originality
We illustrate the importance of an efficient and socially inclusive partnership model when it comes to closing the loops in the humanitarian supply chain.

Keywords: Closed-loop supply chains, Humanitarian sector, Reverse logistics
EMERGENCY RESPONSE TO NATURAL HAZARDS IN SWEDEN
NEEDS FOR IMPROVED PLANNING AND DECISION SUPPORT

Viktor Sköld Gustafsson *
Tobias Andersson Granberg**
Sofie Pilemalm ***
Martin Waldemarsson ****

* Linköping University, Department of Science and Technology, 601 74, Norrköping, Sweden, viktor.skold.gustafsson@liu.se.
** * Linköping University, Department of Science and Technology, 601 74, Norrköping, Sweden, tobias.andersson.granberg@liu.se.
*** * * Linköping University/University of Agder, Department of Science and Technology, 601 74, Norrköping, Sweden, sofie.pilemalm@liu.se.
**** * * * Linköping University, Department of Science and Technology, 601 74, Norrköping, Sweden, martin.waldemarsson@liu.se.

ABSTRACT

Purpose
Climate change and the increased risk of multiple (simultaneous or cascading) natural hazards challenge the planning and decision making in emergency response (ER) systems, especially in areas with inexperience of such events. The purpose of this paper is to identify key planning and decision activities of ER to natural hazards, and related decision support needs.

Design/methodology/approach
Interviews were conducted with 12 representatives from the Swedish ER system. Thematic coding was applied to identify important planning and decision activities. Activity theory was applied to identify needs of decision support.

Findings
We found needs of decision support connected to eight identified key activities concerning consequence analysis, national reinforcements, and resource management. The results illuminate a lack of technology to support planning and decision activities during ER to both single and multiple natural hazards.

Research limitations/implications
Studying the needs in other countries is suggested, to provide deeper insights and enable case comparisons. Future work on the identified needs can help improve the response efficiency in Sweden and countries with similar governance and/or inexperience of multiple natural hazards.

Practical implications
The findings can inform policy makers in ER of where to concentrate the development of collaborative preparedness and response work to cope with future challenges from natural hazards.

Original/value
The contribution is a theoretical understanding and examination of key activities influencing the ER to multiple natural hazards, and a set of support needs to improve planning and decision activities.

Keywords: emergency response, multiple natural hazards, planning, decision support.
OUTSOURCING SUPPLY CHAIN MANAGEMENT OF SMALL-SCALE FOOD PRODUCERS

Ville Hinkka *, Stefan Walter *, Veijo Heinonen **

* VTT Technical Research Centre of Finland Ltd, Tekniikantie 21, 02150 Espoo, Finland. firstname.surname@vtt.fi
* * Martika Oy, 02100, Espoo, Finland. firstname.surname@martika.fi

ABSTRACT

Purpose
If small-scale food producers, importers, and farmers wish to stand out on the market, they will face difficulties reaching customers at reasonable cost. We aim to address this challenge by developing innovative logistics services that could overcome barriers to market entry of them.

Design/methodology/approach
The paper starts with a literature search related to supply chain management (SCM) as a service and fifth-party logistics (5PL) or similar which could work as an outline for developing innovative logistics services. Based on the literature search and expert insights, a logistics service model is developed and proposed. The proposed service is tested by a logistics service provider, and that company’s operations are analysed. Finally, the paper evaluates the success factors of logistics services that would enable small-scale food producers to fully outsource their distribution at reasonable cost.

Findings
The development of certain technologies has broadened the possibilities of outsourcing SCM. Based on the study, the most critical success factors are use of e-commerce technologies, open platforms, and information systems that are able to combine different logistics chains.

Research limitations/implications
This paper concentrates on developing logistics services for outsourcing SCM of small-scale producers. Literature uses terms like 5PL or software-as-a-service to describe this type of solution. Therefore, although the studied phenomenon is not new, recent technological developments and operational models like open ecosystems have created new possibilities for its realization and hence new motivations for research.

Practical implications
The presented logistics service will offer huge opportunities for small producers to broaden their customer base and reach wider markets at reasonable cost.

Social implications
The proposed solution will enable small companies to compete with bigger rivals and could limit the power of large retailers.

Originality
This paper contributes to the literature on outsourcing SCM by presenting a novel distribution model for small consumer goods producers.

Keywords: Outsourcing, 5PL, Supply Chain Management as a Service, Logistics Service Provider (LSP), e-commerce, Information Systems
ABSTRACT

Purpose
Despite the UK being ranked 6th out of 113 countries in 2021 on the Economist Intelligence Unit’s global Food Security Index, there are about 10.2 million British residents living in food deserts, approximately 12% of these in deprived areas. This paper takes a closer look at the food systems in four UK cities (Plymouth, Tower Hamlets, Whitley-Reading and Brighton and Hove) and how food supply chains (FSC) can better supply food to the disadvantaged in these communities.

Design/methodology/approach
The report gathers and analyses under a systematic manner secondary data from academic literature, books, reports, online publications, government reports and local newspapers on the state of the local food systems as they are experienced by the disadvantaged in these communities.

Findings
Findings indicate that, despite the variety and uniqueness of the challenges in the four communities, the role that FSCs play within the current systems and how the principles of supply chain management could help address them are woefully underexplored.

Social and Practical implications
The findings give a better understanding of the food systems in terms of access and affordability inequalities in the UK and provides a strong basis for appropriate practical interventions.

Original/value
The paper presents one of the first studies into the role of supply chain management in food supply to disadvantaged communities in the UK by exploring existent food systems from a supply chain perspective.

Keywords: Food supply chains, Disadvantaged communities, Food insecurity, United Kingdom.
Towards a digital and sustainable transformation of supply chains

Lara Schilling *
Stefan Seuring **

* University of Kassel, Faculty of Business and Economics, Supply Chain Management, Kleine Rosenstraße 1-3, 34109 Kassel, Germany, lara.schilling@uni-kassel.de
** University of Kassel, Faculty of Business and Economics, Supply Chain Management, Kleine Rosenstraße 1-3, 34109 Kassel, Germany, seuring@uni-kassel.de

ABSTRACT

Purpose
Digital transformation bears opportunities and risks for the sustainability of global supply chains. This study aims to show how the adoption of digital technologies applied at the structural, process, and plant levels are related to (sustainable) supply chain management practices and associated sustainable outcomes.

Design/methodology/approach
64 peer-reviewed English journal articles on the intersection of digital supply chains and sustainability identified via Scopus and the Web of Science are systematically reviewed. Based on a practice-based view perspective and a conceptual framework comprising elements from the digital transformation and (sustainable) supply chain management literature, content, frequency, and contingency analyses are conducted with the help of MAXQDA and IBM SPSS Statistics.

Findings
The study reveals three main topics in the literature: a mainstream eco-efficiency debate (1), supplemented by a data-driven more comprehensive perspective on environmental sustainability (2), and overlooked, hard-to-measure (social) sustainability aspects that can be fostered by selective monitoring and certification (3). Research gaps exist regarding the relationship between structural level technologies, lean SCM practices, and top management orientation as well as plant level technologies and collaboration.

Practical and social implications
We propose that a more integrated perspective of the three identified streams is needed to truly improve sustainability and prevent unintended negative consequences.

Original/value
This paper scrutinizes the interlinkage between digitally enabled supply chain management practices and related sustainable outcomes. This is essential to improve practitioners’ understanding of causal chains.

Keywords: Digital technologies, sustainable supply chains, practice-based view
WIP

Climate Change Adaption in Maritime Logistics

Rainer Müller *

* Institute of Shipping Economics and Logistics, Universitätsallee 11-13, 28359 Bremen, Germany, rmueller@isl.org

ABSTRACT

Purpose
Extreme weather events, for example heavy rainfall, storms and heatwaves, have effects on maritime logistics and hinterland transport. This paper presents the current case on supply chain risks caused by global climate change. Focus of this study is adaption measures for the different sectors of maritime logistics.

Design/methodology/approach
First, for the risk analysis, interviews with practitioners of the maritime logistics domain were held. Second, a literature review on adaption measures was carried out. Afterwards, three workshops with practitioners were organized to identify and to create additional controls.

Findings
Usage of emergency plans, on-call duties and local weather forecasts are suitable for most companies. Ports should take the forecasted sea level rise for infrastructures into account and should use heat-resistant materials. For barge operations, water level forecast, new functions for River Information Services and the development of new vessel types are good adaption measures. Train operators should implement vegetation-management in order to prevent trees fall on train tracks. Heat-resistant asphalt and additional pumps in tunnels are adaption measures for road infrastructure.

Research limitations/implications
This paper gives insights into adaption measures and supports to close a gap in a field with limited existing research.

Practical implications
Results of this paper show how risks in the global climate change domain can be tackled with adaption measures.

Original/value
Findings from a literature review and experiences of practitioners in global climate change on maritime logistics are presented.

Keywords: Global climate change, extreme weather events, adaption measures, supply chain risk management, maritime logistics.
ABSTRACT

Purpose
Achieving the goals of a fossil-free society requires an efficient transport system as well as a shift towards a more circular economy. The purpose of this paper is to investigate the ports’ role when developing logistics setups enhancing circularity of materials. The material value of waste is typically low and cost-effective logistics solutions including sea transportation are therefore needed if those materials are to be circulated.

Design/methodology/approach
The study is exploratory, including three cases of circular material that is transported by sea today. Interviews with ports, commodity owners and waste management companies have been conducted and port sites were visited. The data is analysed based on transport-related activities, value-added activities, and stakeholder relations.

Findings
The study finds that ports can enhance circularity of material in their role as a logistics node and by offering value-added services, such as warehousing, stuffing, and cost-efficient handling. Still, their role depends on the type of port and type of material handled. To increase the learnings in new circular supply chains about sea transport options, the port can act as a knowledge communicator.

Research limitations/implications (if applicable)
The study is conducted in Sweden.

Practical implications (if applicable)
The results could be used as decision basis for ports who want to develop their businesses towards enhancing circularity of materials and the use of sea transportation in a circular economy.

Social implications (if applicable)
Policy makers can use incentives to push ports and its stakeholders towards increased circularity.

Original/value
The paper suggests logistic setups to enhance circularity with focus on the role of ports.

Keywords: Circularity, Logistics setup, Ports, Waste management, Sea transportation.
Actors’ Drivers and Barriers when switching to Biomethane: An Embedded-case Study

Mary Catherine Osman *, Maria Huge-Brodin **, Linea Kjellsdotter Ivert ***

* Linköping University / VTI, Sweden, mary.catherine.osman@vti.se
** Linköping University, Sweden, maria.huge-brodin@liu.se
*** VTI, Sweden, linea.kjellsdotter@vti.se

ABSTRACT

Purpose

Implementation of biomethane in the supply chain requires the involvement of multiple actors, each of which have different drivers and barriers from undergoing the switch. The aim of this research is to begin to explore drivers and barriers among different actors when switching to biomethane.

Design/methodology/approach

A multiple case study was performed, interviewing representatives from each actor. The drivers and barriers from the respective actors were compared across the actors in the network.

Findings

The case study resulted in seven dimensions for drivers and barriers, as a dimension can function as both drivers and barriers: technology, customer, management, costs, relationships, society and political. The overarching result was a finding that these dimensions are connected and impact each other.

Research limitations/implications

While there are multiple possible fossil-free fuels to be used in the future, this research looked deeper into the implantation of biomethane within an established and functioning network.

Practical implications

Understanding the impact from drivers and barriers for each actor in the network during the initial implementation of a fossil free fuel will allow further organizations to properly prepare for the switch.

Original/value

Little research on alternative fuel use has been completed from the perspective of logistics actors, namely the Haulier and Freight Forwarder. Studying these previously understudied actors help in moving forward towards a more comprehensive understanding of the network.

Keywords: fossil-free fuels, drivers and barriers, network relationship, biomethane, multiple-case study
DRIVERS AND BARRIERS TO CIRCULARITY IN HOUSEHOLD WASTE SUPPLY CHAIN: A DEVELOPING ECONOMY PERSPECTIVE

Burçin Özdamar*
Aysu Göçer**

* Izmir University of Economics, Department of Logistics Management, Sakarya Street, No:156, 35330, Balcova, Izmir, Turkey, burcin.ozdamar@ieu.edu.tr
** Izmir University of Economics, Department of Logistics Management, Sakarya Street, No:156, 35330, Balcova, Izmir, Turkey, aysu.gocer@ieu.edu.tr

ABSTRACT

Purpose
There is no clear definition of household waste supply chain (HWSC) processes, as well as the responsibilities and interactions of logistics network actors in terms of circular economy (CE) practices in developing countries. However, there is a global need for a transformation from open loop HWSC business models to closed loop systems. This research aims to assess current HWSC in terms of circularity, and outline key drivers and barriers for designing circular value co-creating (c-VCC) HWSC business models in developing countries.

Design/methodology/approach
Data was collected through semi-structured interviews. HWSC professionals from different levels were selected to assess circularity for various waste types. Interview data was transcribed and coded through content analysis.

Findings
This paper presents a broad network of actors (including invisible ones; e.g. waste scavengers, scrap dealers), describes complex relationships and interactions among these actors and outlines the bottlenecks in processes of opening the loops of HWSC in developing countries. Findings report the drivers for and barriers against the enhancement of close loop HWSC to sustain circularity.

Practical Implications
This research introduces a leaner and more sustainable HWSC business model that enhances collaboration and coordination among stakeholders through re-defining their roles and value expectations in a circular system.

Originality
This study examines the factors for c-VCC in HWSC, and recommends a circular HWSC business model designed to close the loop within business ecosystem in developing countries.

Keywords: circular supply chain, household waste, value co-creation, closed loop supply chain, circular economy, developing countries
**WIP**

**Better together?**

Co-opetition between NPOs and municipal waste management companies in post-use textile collection

Anna Zhuravleva *

* Hanken School of Economics, HUMLOG Institute, Supply Chain Management and Social Responsibility, Helsinki, Finland, anna.zhuravleva@hanken.fi

**ABSTRACT**

**Purpose**
On their journey to building a national collection system for post-use textiles, waste management companies (WMCs) made collaboration attempts with non-profit organizations (NPOs) that also run their own charitable textile collection. The study creates an understanding of how an inclusion of NPOs can enhance the national collection system.

**Design/methodology/approach**
The case study is qualitative, explanatory. Semi-structured interviews are the main data source. A researcher’s role is categorized as interventionist.

**Findings**
NPOs can support WMCs in achieving collection targets for recyclable post-use textiles, improving quality of post-use textile streams collected, and preserving most valuable stream of post-use textiles – reusable clothing, from being directed to textile recycling. The study also identifies related challenges.

**Research limitations**
The case is limited to Finland as a case country, which intends to implement the EU Directive on establishing separate textile collection ahead of defined timeline.

**Practical implications**
Cooperation between WMCs and NPOs is a potential way to minimize export of low-quality post-use textiles to developing countries. In past years, Nordic countries increased textile export by 25%.

**Social implications**
NPOs offer vast knowledge on collection, sorting, and development of consumer sorting practices for reuse. Inclusion of NPOs brings a valuable social element to the collection system due to their non-profit, social mission.

**Original/value**
The study discusses co-opetition in reverse supply chains between actors of different kind, from the non-profit and public sectors.

*Keywords:* textile, reuse, recycling, non-profit, waste management, co-opetition.
ABSTRACT

Purpose
Humanitarian organisations have frequently been criticised for not taking care of their waste that has resulted from delivering inappropriate items or excess packaging. Recognising this, several humanitarian organisations have joined an endeavour to reduce and manage the waste they generate. This paper supports this endeavour with reviewing academic and practitioner literature to further the understanding of the reverse logistics challenges and potential solutions in the humanitarian context. The purpose of this paper is to create a framework of waste management and reverse logistics in the humanitarian context.

Design/methodology/approach
This literature review combines academic with practitioner literature on waste management, reverse logistics, humanitarian logistics and disaster management. Academic literature has been identified through keyword searches and complemented with case reports from waste management programmes.

Findings
Numerous greening endeavours exist across humanitarian organisations. Yet the research and documentation of waste management and reverse logistics is limited in this context. The analysis of the literature identified three main themes: the umbrella theme of environmental sustainability, and the specific subthemes of waste management and reverse logistics, with specific unique topics attributed to each.

Research limitations/implications (if applicable)
This paper maps out the current state of research and practice in waste management and reverse logistics in the humanitarian context. It highlights challenges and defines contextual differences and gaps that will guide future research.

Practical implications (if applicable)
The paper contributes to the learning across humanitarian organisations and their programmes.

Social implications (if applicable)
The focus of this paper is on the ecological side of humanitarian logistics. The identified challenges bear important policy implications locally, as well as for global donors.

Originality
This paper lays the foundations of a joint endeavour across humanitarian organisations in the area of waste management and reverse logistics. By bringing in insights from grey literature, it extends on the so far purely conceptual stream of literature in this area.

Keywords: Humanitarian supply chain, humanitarian logistics, waste management, reverse logistics
Remanufacture of warranty returns as experimental outsets towards product take-back

Steffen Foldager Jensen*, Jonas Nygaard Uhreholt**, Maria Camila Rincol***, Sofie Adamsen****, Jesper Hemdrup***** , Brian Vejrum Waehrens******

*Center for Industrial Production, Department of Materials and Production, Aalborg University, 9220 Aalborg Øst, Denmark
** Center for Industrial Production, Department of Materials and Production, Aalborg University, 9220 Aalborg Øst, Denmark. Technology & Business Department, University College of Northern Denmark, 9200 Aalborg SV, Denmark
*** Center for Industrial Production, Department of Materials and Production, Aalborg University, 9220 Aalborg Øst, Denmark
**** Center for Industrial Production, Department of Materials and Production, Aalborg University, 9220 Aalborg Øst, Denmark
***** Center for Industrial Production, Department of Materials and Production, Aalborg University, 9220 Aalborg Øst, Denmark
****** Center for Industrial Production, Department of Materials and Production, Aalborg University, 9220 Aalborg Øst, Denmark
******* Center for Industrial Production, Department of Materials and Production, Aalborg University, 9220 Aalborg Øst, Denmark

ABSTRACT

Purpose
Gathering learnings through experimentation is considered a key lever for the implementation of product take-back. Based on an industrial case, this study explores how remanufacture of warranty returns can generate learnings, foster capabilities, and thus act as an experimental outset towards take-back of end-of-life products.

Design/methodology/approach
The study adopts a single case study methodology. Data is collected through semi-structured interviews with practitioners from the case company, a large Danish mechatronics manufacturer.

Findings
The study finds that targeting the existing return flow of warranty cases offer fruitful learning conditions due to pre-existing inspection and analysis capabilities. Not having to focus on product acquisition reduces complexity, and companies can instead experiment with remanufacturing to accumulate knowledge on product behaviour, reliability, and subsequent sales strategies. However, it comes with limitations.

Research limitations/implications
As the study is based on a single case, generalizability of the findings is limited. Future research is encouraged to remedy this through multiple case studies, possibly across industries.

Practical implications
The study introduces an approach to reduce uncertainties of product take-back and remanufacturing, which can be adopted by practitioners as vehicle for learning and enable them to instigate a circular transition.

Social implications
The study aids to decoupling virgin resource consumption from growth ambitions.

Original/value
The study adds coveted industrial insights to the implementation of product take-back and remanufacturing, and provides an approach to reduce uncertainty of the change process.

Keywords: Circular economy, sustainability, reverse logistics
WHAT TO TAKE-BACK?

Decision-making factors for functional value product exploitation

Maria Camila Rincon a, Steffen Jensen a,
Sofie Adamsen a, Jonas Nygaard a,
Jesper Kristensen a, Brian Wæhrens a

*Center for Industrial Production, Department of Materials and Production, Aalborg University, 9220 Aalborg øst, Denmark, mcrq@mp.aau.dk

ABSTRACT

Purpose
Industries struggle to realize economically feasible take-back (TB) programs. Literature indicates that pursuing functional value is more environmentally and economically beneficial than exploiting material value, but also more costly and risky to achieve. The aim of this paper is to develop a decision method to identify products with the greatest potential for TB when pursuing functional value exploitation.

Design/methodology/approach
The factors were determined through literature review and interviews with industrial practitioners (in different business areas). The evaluation of their relative importance was determined using the Analytic Hierarchy Process. The method was validated on a case company in the mechatronic industry.

Findings
A hierarchical model of factors to be considered when selecting the product(s) to take back. The weighting process balances trade-offs between physical characteristics, regenerative process conditions, and market considerations.

Research limitations/implications (if applicable)
From an economic perspective, the best regeneration trajectory should be determined on a product basis rather than using a general approach for many products, as the health state of the product plays an essential role in the trajectory decision. The use of one case study limits the generalizability of the findings. The hierarchy found aims at improving economic and environmental performance, prioritizing functional value exploitation and providing a starting point for future research on balancing the trade-offs when cascading (functional and material).

Practical implications (if applicable)
The findings will help practitioners to choose the most appropriate product to take back.

Social implications (if applicable)
As the disassembly and regenerative activities are manual, the implementation of take-back programs contributes to job creation and engagement of low-skilled people.

Original/value
Theoretical and practical insights to choose the adequate EoL regenerative process offer insights on what factors and product variables to consider when targeting a specific loop such as remanufacturing.

Keywords: Reverse logistics, Closed-loop logistics, Product design, Functional value.
Additive Manufacturing Supply Chains in Circular Economy: Prospects and Challenges

Biman Darshana Hettiarachchi *
* University of Kassel, Chair of Supply Chain Management, Kleine Rosenstraße 1–3, 34109 Kassel, Germany, Biman.Hettiarachchi@uni-kassel.de

ABSTRACT

Purpose
Additive manufacturing (AM) offers various opportunities and empowers supply chains to adopt the circular economy (CE). Technologies can stimulate the adoption of CE positively. However, CE holds several native constraints which restrict achieving its true potential. Therefore, it is important to explore how to alleviate those constraints. Hence, this study explores how technology-driven supply chains such as AM supply chains successfully adopt CE while overcoming CE’s native constraints.

Design/methodology/approach
We systematically analysed peer-reviewed journal articles published in English by employing the content analysis method. Articles were extracted using an extensive search string based on keywords covering AM, CE and supply chain aspects.

Findings
The analysis revealed that AM supports overcoming the constraints of CE. Since AM allows distributed local manufacturing, it minimises the network complexity by reducing the number of stakeholders involved in the supply chain.

Research limitations/implications
The conceptual findings of this study are based on content analysis. Hence, empirical studies are needed to further validate the findings.

Practical implications
From practitioners’ viewpoint, this study proposes guidance for organisations on adopting CE in AM supply chains while dampening the constraints of CE using the inherent features of AM technology.

Original/value
This study contributes to the industry and academia by exploring the prospects of how AM supply chains could adopt CE while mitigating the constraints.

Keywords: Additive Manufacturing, 3D printing, Supply chain Management, Circular Economy
Supply chain capabilities in the circular textile-to-textile recycling supply chain

Erik Sandberg *

* Linköping University, Sweden, erik.sandberg@liu.se

ABSTRACT

Purpose
The textile and fashion industry currently undergoes a shift towards more circular practices, and post consumer used textiles are increasingly brought into circular flows typically including reuse, resell and repair. To decrease the share of landfill and incineration, large-scale textile-to-textile recycling practices need to be developed as a complement to these reuse-alternatives. The purpose of this study is to explore supply chain capabilities required in the textile-to-textile recycling supply chain.

Design/methodology/approach
Based on an action research approach, empirical data to this study has been collected at a large fashion retailer, currently involved in a pilot project aimed at understanding the end-to-end, fibre-to-fibre recycling supply chain practices and its involved stakeholders.

Findings
Three major supply chain capabilities were identified: standardisation of products, managing inventories, and designing supply chains. Their content and importance are elaborated in the context of the textile-to-textile recycling supply chain, which is characterised by rapidly increasing volumes, consumer requirements, and technology developments.

Research limitations/implications
Recent technology developments such as chemical fibre-to-fibre recycling and automated textile sorting are currently accelerating the development of new circular supply chains of low-value textile waste. Supply chain capabilities are imperative for efficient and effective logistics operations in these supply chains.

Original/value
In contrast to circular business models focused on reuse-alternatives, the textile-to-textile recycling supply chain is much less explored, despite it is anticipated to play a major role in a future, more circular, textile and fashion industry.

Keywords: textile recycling, circular economy, supply chain capabilities
DISRUPTIONS TO MARITIME SUPPLY CHAINS: EFFECTS AND MEASURES DURING THE PANDEMIC

Sara Rogerson*
Martin Svanberg*
Ceren Altuntas Vural* *
Sönke von Wieding*
Johan Woxenius** *

* SSPA Sweden AB, Box 24001, SE-400 22 Gothenburg, Sweden, sara.rogerson@sspa.se, martin.svanberg@sspa.se, sonke.vonwieding@sspa.se.
* * Chalmers University of Technology, Department of Technology Management and Economics, SE-412 96 Gothenburg, Sweden, ceren.altuntasvural@chalmers.se
* ** University of Gothenburg, Department of Business Administration, Box 610, SE-405 30 Göteborg, Sweden. johan.woxenius@gu.se

ABSTRACT

Purpose
During the Covid-19 pandemic, severe disruptions to supply chains have been noted, e.g. port closures, congestion, shortages in shipping capacity and related inland transport, propagating and affecting many. The purpose is to provide insights regarding important characteristics of disruptions to increase knowledge on how to limit effects in maritime supply chains by comparing effects and measures related to the pandemic to those of a port conflict.

Design/methodology/approach
Semi-structured interviews with shipping lines, shippers, forwarders and ports provided data on effects and measures during the pandemic, comparing it to the Gothenburg port conflict.

Findings
Similarities and differences between the pandemic and port conflict are identified. Both involve long duration, capacity shortages and flexible measures. The pandemic was global and started further away, highlighting differences in control. Sweden’s peripheral location in the maritime transport system emphasises resource prioritisation, e.g. containers. The pandemic also features capacity shortages in vessel fleets, air, rail, and challenges related to carrier, volume and temporal flexibility.

Research limitations/implications
Focuses on container flows to and from Sweden.

Practical implications
The multi-actor perspective illustrates the value of understanding relevant mitigation strategies when actors react to measures by others. Prioritisation has implications for contracts.

Original/value
Comparing effects and measures in a pandemic versus port conflict provides insights regarding important characteristics of disruptions and relevance of mitigation strategies, specific to maritime supply chains.

Keywords: Disruption management, container shipping, Covid-19, capacity
REALIZING SUPPLY CHAIN AGILITY UNDER TIME PRESSURE:
AD HOC SUPPLY CHAINS DURING THE COVID-19 PANDEMIC

Jasmina Müller *
Kai Hoberg **
Jan Fransoo* **

* Kühne Logistics University, Operations and Technology, Großer Grasbrook 17, 20457 Hamburg, Germany, jasmina.mueller@the-klu.org
** Kühne Logistics University, Operations and Technology, Großer Grasbrook 17, 20457 Hamburg, Germany, kai.hoberg@the-klu.org
* * Tilburg University, Management, Warandelaan 2, 5037 AB Tilburg, Netherlands, Jan.Fransoo@tilburguniversity.edu

ABSTRACT

Purpose
In response to the unprecedented demand shock for personal protective equipment (PPE) early in the COVID-19 pandemic, many companies from different industries built ad hoc supply chains. When building ad hoc supply chains, companies displayed supply chain agility, allowing them to find new suppliers, ramp-up production, and distribute to customers within weeks or even days. In our study, we examine how companies realize supply chain agility to build ad hoc supply chains.

Design/methodology/approach
We designed a multiple case study to explore inductively which capabilities companies deploy to reach supply chain agility when building ad hoc supply chains. We sampled 34 German companies that built supply chains for PPE during the COVID-19 pandemic and conducted in total 52 interviews with representatives of these companies.

Findings
We developed a theoretical model identifying three enablers of building ad hoc supply chains at an extreme speed: dynamic capabilities allow companies to leverage internal and external capabilities purposefully; an entrepreneurial orientation guides companies to build ad hoc supply chains immediately; and a temporary orientation focuses companies on the limited need for ad hoc supply chains by temporarily adapting structures and processes to speed up.

Original/value
The central contribution of our study is an emergent theoretical model that explains how companies realize speed when building ad hoc supply chains which advance the theoretical understanding of ad hoc supply chains.

Keywords: COVID-19 pandemic; personal protective equipment; ad hoc supply chains; supply chain agility; dynamic capabilities
Impacts of the COVID-19 pandemic on supply chains
A Delphi study from a process perspective

Marcus Brandenburg *,***
Philipp Sauer **
Sadaf Aman ***
Chen Qian ***
Ronak Warasthe *,***
Stefan Seuring ***

* Flensburg University of Applied Sciences, School of Business, Kanzleistr. 91-93, 24943 Flensburg, Germany, marcus.brandenburg@hs-flensburg.de.
** EM Strasbourg Business School, Université de Strasbourg, HuManiS (UR 7308), 61 Avenue de la Forêt-Noire, 67 085 Strasbourg, France.
*** University of Kassel, Chair of Supply Chain Management, Kl. Rosenstr. 1-3, 34117 Kassel, Germany.

ABSTRACT

Purpose
This study investigates impacts of the COVID-19 pandemic on global supply chains (SCs) and their management. The study elaborates on vulnerabilities, response measures, resilience building and restoring operations of global SCs from a process perspective.

Design/methodology/approach
A Delphi study with three rounds of online-based, structured questionnaires has been conducted with SCM researchers in industrialized and emerging countries. The results were evaluated under consideration of four areas: vulnerabilities, response measures, resilience building, restoring operations. The first-round results were condensed to nine constructs by inductive content analysis. In the second round, the nine constructs were framed against SCOR processes. The results were validated in the third round.

Findings
The experts’ responses hardly show any similarity between the processes. No construct has turned out to be highly relevant to all three SCOR processes “source”, “make” and “deliver”. This suggests difficulties to conceptualize and implement an integrated SC risk & resilience management in the face of a global pandemic.

Research implications
The study illustrates how a pandemic impacts global SCs and their operational processes. It sheds light on SC vulnerabilities and response measures to improve resilience and to restore operations.

Practical implications
The study may help practitioners reducing SC vulnerabilities, improving SC resilience and restoring operations.

Original/value
The study is among the first ones that investigate SC impacts of a pandemic from a process perspective.

Keywords: Supply chain management, Delphi study, COVID-19 pandemic, SC vulnerabilities, SC resilience.
ABSTRACT

Purpose
The purpose of this paper is to increase understanding of exposure and vulnerability of nations to pandemic disasters. Pandemics are unique disasters, due to their global impact and peculiar exposure and vulnerability characteristics.

Design/methodology/approach
A secondary dataset of explanatory variables is assembled, drawing on sources such as the World Risk Report, and analysed using regression techniques.

Findings
Migration, urbanization, civil liberties, and adult obesity explain a substantial share of national exposure, measured by number of cases of COVID-19. Deaths are explained by median age and adult obesity rates.

Research limitations/implications
Though the models explain a fair amount of the variance in national COVID-19 cases and deaths, they include a limited set of variables. Future research is needed to expand the set of explanatory variables.

Practical implications
The study should help disaster risk reduction professionals and national pandemic planners understand the uniqueness of pandemics, facilitating response to such disasters in the future. Hopefully, next time, the response will be more proactive as opposed to reactive.

Social implications
Several important current social issues (e.g. human migration, civil liberties and adult obesity) appear to be related to exposure and vulnerability. Resolving these matters is likely to enhance preparation and response to the next pandemic.

Original/value
This paper makes an original contribution by revealing that pandemic exposure factors are quite different than exposure factors for other disasters, such as earthquakes and cyclones. In addition, it uses social indicators to explain pandemic exposure and vulnerability. Disaster risk reduction specialists should find value in this research.

Keywords: COVID-19 pandemic, disaster risk reduction, exposure, vulnerability.
UNDERSTANDING HOW ELECTRIFICATION AFFECTS THE LOGISTICS SYSTEM – A LITERATURE REVIEW

Henrik Gillström *
My Jobrant **
Uni Sallnäs***

* Linköping University, department of Management and Engineering, Campus Valla, 581 83, Linköping, Sweden, Henrik.gillstrom@liu.se.
** Linköping University, department of Management and Engineering, Campus Valla, 581 83, Linköping, Sweden, My.jobrant@liu.se.
*** Linköping University, department of Management and Engineering, Campus Valla, 581 83, Linköping, Sweden, Uni.sallnas@liu.se.

ABSTRACT

Purpose
Electrification of freight transports is an area that is under fast development, and there is a need to capture the current status of the research. The purpose is to create an overview of the area of electrified freight transport and describe how logistical aspects have been taken into consideration in the literature.

Design/methodology/approach
A systematic literature review has been carried out to create the overview and laying the foundation for identification of research gaps.

Findings
The results suggest that there has been a lack of focus on qualitative methods, on actors in general, and inclusion of logistical aspects when studying electrification of freight.

Research limitations/implications
Based on the overview of the area, a future research agenda has been proposed that highlight different gaps in the current literature.

Practical implications
Within the area of electrification of freight transports, the industry and research are evolving simultaneously, and the proposed research agenda can thereby function as a guide for both.

Social implications
Electrification is important in reducing the sector’s negative impact on the environment.

Original/value
This paper is one of the first to provide an overview of electrification of freight transport with the perspective on the effects on logistics systems.

Keywords: Electrification, logistics systems, electric vehicles, batteries, research agenda
SUSTAINABLE SEAPORT MODERNIZATION

ASSESSING THE TRADE-OFFS OF ELECTRIC POWER

Dr. Dawn M. Russell

Dr. Dawn M. Russell, University of North Florida, Department of Marketing & Logistics, 1 UNF Drive, Jacksonville, Florida, USA, dawn.russell@unf.edu

ABSTRACT

Purpose
If the modernization of container seaports is to offer long-term benefits it must be approached with an eye toward sustainability. This work considers the question: What is the right suite of energy and technology to support a modernized sustainable container seaport transfer facility without sacrificing performance?

Design/methodology/approach
This work considers sustainable logistics and supply chain management in the context of the wicked problem (Camillus 2008). This work uses a diffusion of innovation (Rogers 2003) approach, garnering qualitative and quantitative inputs from two proof-of-concept projects.

Findings
Thus far work has been completed to design the proof-of-concept projects: (1) electrifying the power packs for refrigerated containers, and (2) electrifying the on-dock rail capability. These projects were selected because they were determined to be the most impactful areas on which to test electric power for eventual scaling.

Research limitations/implications
This work is limited by the fact that it is tested on specific acute solutions at one port facility as a starting point. Future research needs to be conducted on additional equipment at additional container seaports.

Practical implications
Managers can use the findings from these proof-of-concept projects to demonstrate the capability and trade-offs in using electric power for infrastructure and equipment at container seaports.

Social implications
From a social perspective, these projects lead to improved environmental impact that can be scaled to improve environmental impact nationally and internationally.

Original/value
This work is valuable to academics and companies who strive to create clean energy solutions at ports and across the supply chain.

Keywords: Supply Chain, Container Seaports, Sustainability, Environmental Impact, Carbon Emissions, Electric Power, Wicked Problem, Diffusion of Innovation
AUTONOMOUS ELECTRIC VEHICLES IN URBAN LAST-MILE DELIVERIES
ADV deliveries as a service and part of the urban landscape

Virva Tuomala *
Anna Aminoff *
Niklas Arvidsson **

* Hanken School of Economics, Finland, virva.tuomala@hanken.fi, anna.aminoff@hanken.fi
** VTI, Sweden, niklas.arvidsson@vti.se

ABSTRACT
Purpose
The last mile of the supply chain is the most labour, emission, and cost intensive part of the delivery. This paper analyses an autonomous electric vehicle making parcel deliveries in an urban area of Helsinki. The vehicle contains several parcel lockers, and consumers were able to select it as a delivery option in addition to stationary pick-up points.

Design/methodology/approach
A survey was sent to residents of the neighbourhoods, including questions about the usability of the vehicle, as well as its presence in the city.

Findings
The findings of the survey and interviews are generally positive towards the autonomous vehicle. The neighbourhood where the vehicle operated is recently built, so the infrastructure is favourable to it i.e., the streets are wide, there are many pedestrian areas, and the area is densely populated. The vehicle is appreciated for its novelty and convenience, but there were concerns regarding cargo safety and communications from the company.

Research limitations/implications
The survey was done based on a pilot for the autonomous delivery vehicle in one neighbourhood in Helsinki, meaning that the findings are specific to that area and context.

Practical implications
The findings are relevant information to the company who built the vehicle, as well as the city of Helsinki. They will be used to determine the success of the pilot and future pilots they will conduct.

Originality
Last-mile deliveries are a new area of research, and autonomous vehicles are an innovation increasing sustainability in that field. Empirical data of a practical pilot with real delivery experiences and perspectives of an ADV in the urban landscape.

Keywords: urban last-mile, delivery, autonomous vehicle, parcel lockers
THE ADOPTION OF BATTERY ELECTRIC VEHICLES
CHALLENGES FROM THE PERSPECTIVE OF COMMERCIAL
VEHICLE MANUFACTURERS

Jorge Gutierrez Chiriboga *
Maria Huge-Brodin **

* Scania CV AB, Innovation Office, SE-151 87, Södertälje, Sweden, jorge.gutierrez@scania.com.
** Linköping University, Department of Management and Engineering, Linköping University, SE-581 83, Linköping, Sweden, maria.huge-brodin@liu.se.

ABSTRACT

Purpose
Electrification of transports is one way to improve environmental sustainability in logistics. To facilitate this transformation, an understanding of supply chain actors’ perspectives is crucial. The purpose of this paper is to identify and classify the perceived challenges of the adoption of Battery Electric Vehicles. The paper takes the commercial vehicle manufacturers perspective.

Design/methodology/approach
The paper is built on semi-structured interviews of two commercial vehicle manufacturers. In the analysis, challenges are classified and discussed primarily in relation to the role of the commercial vehicle manufacturers. In addition, challenges for hauliers are discussed from a commercial vehicle manufacturer’s perspective.

Findings
Preliminary results include a range of challenges, classified as technological, operational, and financial. These overall themes are relevant for challenges for vehicle manufacturers and hauliers, however they differ in details due to the actors’ respective position in the supply chain. The analysis resulted in potential conflicts, such as the responsibility to finance the new freight transport solutions.

Research limitations/implications
The research is based on interviews with commercial vehicle manufacturers. To complement the present findings, the haulier perspective, alongside perspectives of other supply chain actors can be added.

Practical implications
The paper’s results can support commercial actors in the transformation towards electrified freight, by better understanding the challenges they encounter.

Social implications
The results will support the transition towards electrified freight, with great potential to improve environmental sustainability.

Keywords: electromobility, green logistics, sustainable supply chain management, barriers, vehicle manufacturers, hauliers.
DESIGNING THE TRANSPORT ORGANIZATION OF A SMART FACTORY FOR THE MASS RETROFIT OF HOUSES IN SWEDEN

Bennet Zander *
Sascha Timmann**
Kerstin Lange *

* Jade University of Applied Sciences, Department of Maritime and Logistics Studies, 26931 Elsfleth, Germany, (bennet.zander, kerstin.lange)@jade-hs.de.
** EJOT SE & Co. KG, 57334 Bad Laasphe, Germany, saschatimmann@web.de

ABSTRACT

Purpose

Growth in population and urbanization led to the infrastructure project "Swedish Million Programme". One million dwellings were built in the 1960s. Today, most of these buildings generate excessive CO\textsubscript{2} emissions due to their architectural standard. This enormous number of dwellings to be renovated marks a challenge for production and logistical processes. To tackle the need for rapid renovations, the project INDU-ZERO was initiated. A smart factory is designed to speed up the renovation pace to 15,000 dwellings per year. This paper aims to find out which transport modes are best suited for these renovations.

Methodology/approach

The study follows the design-science research process. The research gap was identified based on a literature review. Understandings gained in this process were further compared within the INDU-ZERO case study.

Findings

In order to renovate the large number of buildings and organize their transportation planning, a transport calculation tool was designed, which determines the most efficient mode of transport after entering the parameters destination and number of apartments.

Research limitations/implications

Since not all houses can be considered individually, a clustering into cities and regions is carried out.

Practical implications

The paper presents a calculation tool for the specified use case that combines economic and sustainable aspects and carries out a choice of transport mode, a cost consideration as well as a CO\textsubscript{2} balance.

Original/value

For the first time, the logistical supply of construction sites for industrialized renovation of specific buildings in Sweden is studied.

Keywords: Swedish Million Programme, building industry, smart factory, route-planning, transport network
WIP

Increasing the organizational efficiency of large and heavy transports in XXL scale

Kerstin Lange *
Bennet Zander **
Roger Heidmann ***

*) Jade University of Applied Sciences, Department of Maritime and Logistics Studies, 26931 Elsfleth, Germany, E-mail: kerstin.lange@jade-hs.de, Tel. +49 4404 9288-4160
***) Jade University of Applied Sciences, Department of Maritime and Logistics Studies, 26931 Elsfleth, Germany, E-mail: bennet.zander@jade-hs.de, Tel. +49 4404 9882-4326
***) LSA Logistik Service Agentur GmbH, 28357 Bremen, Germany, E-mail: roger.heidmann@logistik-service-agentur.de, Tel. +49 421 2447925

ABSTRACT

Purpose
Large-volume and heavy-load transports in XXL scale exceed all dimensions at once. Length, width, height, weights and axle loads, including cargo, do not fit on ordinary routes. Extensive and cost-intensive route assessments are required for approval. The aim of the paper is to facilitate the planning of such transports with the help of an open source intelligent database.

Methodology/approach
Prior to the development of the database, extensive research on already realized transports is carried out. Databases are searched as well as shipper and logistics service provider surveys are conducted. The paper deals with the questions whether recurring patterns are recognizable and whether knowledge, experience and histories can be digitally processed.

Findings
With the help of this database, information about possible combinations of transport goods, vehicles and routes are offered as soon as relevant technical data is generated. The results show that it is possible to avoid recurring route assessments.

Research limitations/implications
The scope refers to routes in Northern Germany. Since XXL transports are currently not systematically recorded, this knowledge cannot be drawn upon.

Practical implications
Parties involved in XXL transports are supported. Route assessments and approval procedures are significantly simplified. Reference decisions can be used as guidance for planners and road authorities.

Original/value
For the first time, scales of XXL transports are systematically researched. They are analyzed and categorized with parameters. Their influence on planned projects and feasibility is evaluated compared to ordinary large-volume and heavy-load transports.

Keywords: High and Heavy Transport, intelligent open database, Transport planning, approval procedure
Sustainability in Last Mile Delivery
Exploring the Cognitive Frames of Retailers and LSPs

Helleke Heikkinen *

* Hanken School of Economics, Supply Chain Management & Social Responsibility,
Arkadiankatu 22, 00100 Helsinki, Finland, helleke.heikkinen@hanken.fi

ABSTRACT
Purpose
The increasing amount of last mile deliveries (LMD) pose many sustainability challenges, that retailers and logistics service providers (LSPs) can alleviate. This study explores the underlying sustainability interpretations of retail and LSP managers in the context of LMD, utilizing cognitive frames as a lens.

Methodology
The methodological approach is a comparative multiple case study, including both retailers and LSPs as cases. The data consists of retailer and LSP interviews and secondary data.

Findings
Both retailers and LSPs interpret sustainability primarily as environmental sustainability and social sustainability is not considered. Most managers have a hierarchical cognitive frame regarding sustainability, where sustainability is an important topic, but is subversive to economic interests. The frame content attributes differ between retailers and LSPs.

Research limitations
The generalizability of the findings is limited by the case method and the data, gathered from companies and respondents primarily active in the Nordics.

Practical implications
Managers focus on environmental sustainability and those working with LMD could take a closer look at what social sustainability means for their operations. There also seems to be an imbalance between how retailers and LSPs see information being shared and utilized.

Social implications
This study can help retailers and LSPs be more aware of their sustainability decision-making in LMD and become more active regarding sustainability externalities, thus enabling better urban solutions.

Value
This study builds on previous conceptual work on cognitive frames in supply chain management by applying cognitive frames empirically in an LMD context.

Keywords: last mile delivery, sustainability, retailer, LSP, cognitive frames.
THE POTENTIAL OF MASS LOGISTICS CENTRES TO INCREASE TRANSPORT EFFICIENCY

Mats Janné
Micael Thunberg
Anna Fredriksson
Kristina Lundberg

1 Linköping University, Dep. of Science and Technology, Norrköping, Sweden, mats.janne@liu.se, +46-11-36 32 92
2 Linköping University, Dep. of Science and Technology, Norrköping, Sweden, micael.thunberg@liu.se
3 Linköping University, Dep. of Science and Technology, Norrköping, Sweden, anna.fredriksson@liu.se
4 EcoLoop, Ringvägen 100, Stockholm, Sweden, kristina.lundberg@ecoloop.se

ABSTRACT

Purpose
Lately, mass logistics centres (MLCs) have emerged to increase transport efficiency in soil and rock (mass) material transports. However, the impact of these MLCs has received limited attention. The purpose of this study is to explore the potential of MLCs to increase transport efficiency in terms of number of transports, distance travelled, transport work, and emissions.

Design/methodology/approach
The purpose is fulfilled through a scenario analysis of an MLC and its effect on distance travelled, transport work, fuel consumption, and emissions as well as the traditional measure of number of transports.

Findings
The study finds that the traditional transport efficiency measure “number of transports” is insufficient in describing transport efficiency in MLCs and similar logistics setups. A logistics centre will lead to more transports but with the correct setup, transport work, distance travelled, fuel consumption and emissions can be reduced.

Research limitations/implications
This study is limited to one MLC in Sweden. Future research should investigate other MLCs and go deeper into how MLCs should be designed to increase transport efficiency.

Practical implications
Contractors and municipalities can find support on how to evaluate the transport efficiency effects an MLC has.

Social implications
This study is an important step in analysing the potential of MLCs as a tool for reducing the negative impact of mass transports.

Originality
This is one of the first in-depth studies of how MLCs affect mass transport flows from a transport efficiency perspective.

Keywords: mass logistics centres, soil and rock materials, transport efficiency, environmental impact.
AI impacts on the performance in supply chains

Stefan Walter

VTT Technical Research Centre of Finland Ltd., Kaitoväylä 1, 90571 Oulu, Finland, stefan.walter@vtt.fi

ABSTRACT

Purpose
The integration of cross-company activities to form global supply chains (SC) reduces costs, energy and resource waste, and builds relationships for improvement of all network actors. However, the more tiers of suppliers and customers there are, the more difficult it is to monitor processes and assess and address problems. This puts the continuity of the SC at risk.

The EU knowlEdge project addresses the need for automatic monitoring and learning in the SC and proposes artificial intelligence (AI) solutions that are flexible, distributed, scalable, standardised and collaborative. As a result, rigid organisation is replaced by flexible networks, involving algorithms for self-learning and automatic value creation. This facilitates knowledge sharing.

Research approach
Technologies from different domains, including AI, data analytics, and edge and cloud computing, are unified into a software architecture. The selected use case shows a need for AI-based adaptations to address supply chain challenges.

Findings
The architecture constitutes a systemic solution as compared to an incremental improvement. It leapfrogs SC performance, including adaptability and autonomy.

Research implications
The research explores agile production and improved quality and robustness of processes through AI applications. It also impacts on understanding future management and learning in SC.

Practical implications
Industry will move towards adaptive strategies using their SC. Managers will be able to rapidly change production in accordance with evolving customer requirements, while deviations in planned processes can be addressed better.

Social implications
The research promotes human engagement and can increase trust in AI.

Originality
The paper adds to the literature by presenting a novel IT architecture for AI SC applications. It will have relevance to researchers and managers alike.

Keywords: Digitalisation; artificial intelligence; supply chain; manufacturing; cognitive technologies; IT architecture
Factors Affecting Implementation of Supply Chain Analytics – Results from an Interview Study

Sebastian Lodemann *, Wolfgang Kersten*

*Hamburg University of Technology, Institute of Business Logistics and General Management, Am Schwarzenberg-Campus 4, 21073 Hamburg, sebastian.lodemann@tuhh.de

ABSTRACT

Purpose

Facing large amounts of data accumulated through a variety of sources, improving supply chain processes based on data analytics (i.e. Supply Chain Analytics, SCA) is a major opportunity for corporations.

While this potential benefit is commonly accepted across organizations, the realization of the potentials inherent in the collected data remains a challenge for many companies. Among the reasons for the discrepancy between potential and actualized value of the technological opportunities is sub-optimal implementation.

Design/methodology/approach

We utilize an expanded Technology-Organization-Environment (TOE)-Framework combined with an expert interview study among 24 interviewees at the intersection of Data Analytics and Supply Chain Management.

Findings

We primarily establish the necessity of varying organizational structures. This involves internal definition of structures in which SCA is conducted, as well as processes and governing systems. These should be adapted to the specific case, we outline some advantages and drawbacks of different modes of organizational setup.

Research limitations/implications (if applicable)

We consider the literature on SCA implementation and consider additional factors according to our own empirical findings. In future research, we aim to provide a closer link between implementation success and business value. Our primary limitation lies in the limited breadth of our empirical data, which is nonetheless valuable due to its depth.

Practical implications (if applicable)

Notably, non-technical factors seem to have faced reduced attention in previous research but turn out to be highly relevant in affecting implementation success. We aim to provide insights for organizations to enhance their implementation processes to generate more business value through Supply Chain Analytics.

Original/value

The overarching aim of our work is a holistic assessment of SCA implementation that is theoretically grounded and empirically validated. Considering a diverse set of interdependencies between factors influencing implementation success and thus increasing expected value of SCA initiatives.

Supply Chain Analytics, Technology Organization Environment, Supply Chain Management, Implementation, Adoption
A systematic categorization process facilitating the selection of demand forecasting methods

Júlíus Ingi Guðmundsson *

* University of Iceland, IVT, Hjarðarhagi 6, 107, Reykjavík, Iceland, jig3@hi.is.

ABSTRACT

Purpose
The purpose is to develop a categorization process that facilitates the selection of appropriate demand forecasting methods. The process aims to identify the underlying demand patterns of stock keeping units (SKUs) and subsequently to further categorize the SKUs in a data set with relevant alternative approaches.

Design/methodology/approach
A literature review created the foundation for a single case study. The underlying demand patterns of SKUs are identified with the SBC categorization scheme and the alternative approaches include a trend analysis, seasonality detection and ABC analysis. The forecasting performance of various combinations of categorizations are analysed for each demand pattern and the top performing categorizations are highlighted.

Findings
A data set from The State Alcohol and Tobacco Company of Iceland contained 6,167 SKUs, where 1,514 SKUs were determined to have an intermittent demand pattern, 1,316 were lumpy, 2,630 were smooth and 707 were erratic. The forecasting results generally showed that the trend analysis led to the lowest MASE value for intermittent and lumpy demand patterns while the ABC analysis produced lower MASE values for smooth and erratic demand patterns. Furthermore, the ABC analysis led to the lowest RMSE value for all the demand patterns.

Research limitations/implications
Only a small number of additional categorizations and forecasting methods were tested. A more extensive analysis is needed to expand the categorization process and to verify the obtained results. Next steps could include a cluster analysis for new SKUs, measuring the run time of subgroups and considering inventory implications.

Practical implications
The categorization process provides clarity for the choice of forecasting method at any given time for each SKU since demand planning software can be perceived as a black box due to its complexity.

Original/value
Multiple categorizations have been extensively researched and the effectiveness of combining different categorizations into one unified process to facilitate the selection of forecasting methods is analysed in this study.

Keywords: Demand forecasting, categorization, intermittent demand, stock keeping units.
Exploiting Supply Chain Visibility
Propositions Regarding Value Creation, Delivery and Capturing

Günter Prockl *
Alexander Pflaum **
Marcel Papert***

* Copenhagen Business School, Department of Digitalization, 2000 Frederiksberg, Denmark, gp.digi@cbs.dk.
** University of Bamberg, Chair for Supply Chain Management, 96052 Bamberg, Germany, alexander.pflaum@uni-bamberg.de.
*** University of Bamberg, Chair for Supply Chain Management, 96052 Bamberg, Germany, marcel.papert@uni-bamberg.de, corresponding author.

ABSTRACT

Purpose
Supply Chain Visibility (SCV) is often seen as an enabler for performance improvements although scientific literature indicates a black box between visibility and the realization of valuable benefits. Therefore, the authors aim to review this gap by considering aspects of value creation and by adopting a managerial view under consideration of business model views.

Design/methodology/approach
Based on a theoretical discussion, the authors demonstrate a missing link between visibility and related benefits. Drawing on a systematic literature review, we further elaborate ideas towards closing this gap. Further on, the authors apply business model views to substantiate these ideas and to posit four propositions for providing and exploiting SCV.

Findings
We provide two principal thoughts for linking SCV with benefits and four propositions that can help to provide SCV and to exploit its value for supply chain actors. The propositions focus on agency, attribute quality, interactive quality and ecosystem exploitation.

Research limitations/implications
This research develops propositions from existing literature. These propositions represent a starting point for further, empirical studies to analyse and validate preconditions for realizing SCV benefits.

Practical implications
For supply chain actors, the propositions provide first insights into important preconditions to provide SCV. Especially actors, who regard themselves as a “supply chain visibility provider”, can consider these propositions in their business model.

Original/value
The authors shed light on the realization of SCV and related benefits. In this context, a focus on value creation and roles for provision of value is introduced supporting a managerial view to exploit SCV.

Keywords: Supply Chain Visibility, Value, Business Model, Internet of Things, Supply Chain Management 4.0
Retail 4.0: How can brick-and-mortar stores survive in an omnichannel retail environment?

A spatial analytical approach

Tianmin Liu *
Hyunwoo Lim **

* INHA University, Graduate School of Logistics, 100 Inha-Ro, Michuhol-gu, 22212, Incheon, South Korea, tianaliutianmin@163.com
** INHA University, Asia Pacific School of Logistics, 100 Inha-Ro, Michuhol-gu, 22212, Incheon, South Korea, hwlim@inha.ac.kr

ABSTRACT

Purpose
The purpose of this study is to provide a systematic e-fulfilment store location and product allocation strategy in an omnichannel retail environment.

Design/methodology/approach
We propose a data-driven approach integrating the spatial cluster detection method and market basket analysis based on the online customer order data from an omnichannel retailer in South Korea.

Findings
The suggested framework is as follows. First, product categories suitable for in-store order fulfilment services are determined based on consumer behaviour and historical sales records for the target month of the year. Second, hotspot analysis is performed to detect spatial clusters of high-demand locations for the specific product groups. Then, stores desirable for e-fulfilment service are determined based on their accessibilities to hotspots of the online orders. Finally, store-specific product groups are suggested based on association rule mining for customer orders within the service area of each chosen store.

Practical implications
The outcome of this study can provide store-specific customized marketing strategies to improve the effectiveness of the in-store order fulfilment services.

Original/value
The existing literature on omnichannel retailing did not address specific issues for store location and product allocation strategies based on the actual customer order data. The originality of this thesis lies in its data-driven approach to address such problems by combining spatial cluster detection and conventional association rule mining for identifying location-specific product sales patterns.

Keywords: Market area, in-store order fulfillment, spatial cluster detection, accessibility, association rule mining, omnichannel retailing
ABSTRACT

Purpose
In June 2021 the German parliament has passed the Act on Corporate Due Diligence in Supply Chains (Lieferketensorgfaltspflichtengesetz) committing large enterprises to comply to sustainability standards along their supply chains (SCs). We analyze the measures to put the requirements into practice, the perception of risks and opportunities and the impacts on sustainability performance.

Design/methodology/approach
Nine semi-structured interviews are conducted with German firms from different industry sectors with business in Africa. Expert knowledge helps identifying implications for SC sustainability that result from this act.

Findings
The implementation of social sustainability is considered challenging due to different cultural interpretations of human rights measures. The act does not consider such challenges, as it is designed from a Western perspective.

Research limitations/implications (if applicable)
The concept of chain liability on sustainable supply chain management could be an adequate theoretical underpinning for this specific topic. The paper highlights the influence of legal requirements for sustainable supply chain management thereby outlining the complexity of the topic.

Practical implications (if applicable)
The in-depth analysis may also help to directly address sustainability challenges in SCs tied to Africa. Practitioners find insight into issues and opportunities of the act.

Original/value
Since the act was recently passed, related studies are scarce and mostly published in German language. A particular focus is put on risks and opportunities of the act and the resulting sustainability performance impacts.

Keywords: German Due Diligence Act, Social Sustainability, Risk Management
ABSTRACT

Purpose
In previous research, academics have addressed logistics value and logistics value co-creation in commercial supply chains, where the objective is financial outcomes. However, they have paid less attention to logistics value co-creation in defence supply chains, where the objective is operational outcomes. The purpose is to investigate how suppliers and customers can co-create logistics value in a defence setting.

Design/methodology/approach
The research uses literature reviews, interviews and workshops in an abductive research approach.

Findings
The research defines logistics value, and describes value co-creation, in a defence setting.

Research limitations/implications
The study basis its findings on research in a Swedish context. Further research is required for generalisation of the results to the wider defence sector and the public sector in general.

Practical implications
The findings will enable the defence industry to better understand the requirements of its military customers, and what they can do together to satisfy these requirements. The findings will also inform the military customers of how working together with industry may benefit them.

Original/value
The value of the research is to extend the extant body of academic knowledge into the defence sector and serves as a first step towards logistics value co-creation in defence supply chains, which could contribute to increasing the competitiveness of the defence industry and the operational capability of the Swedish Armed Forces.

Keywords: Logistics value co-creation, defence supply chain, military logistics.
Flexible and scalable defence logistics network – The Swedish restart of enhanced value co-creation

Martin Lundmark *, Per Skoglund *, Susanne Hertz **

* Swedish Defence University, Sweden, martin.lundmark@fhs.se, per.skoglund@fhs.se
** Jönköping Business School, Sweden, susanne-hertz@ju.se

ABSTRACT

Purpose
The Swedish defence logistics organization was down-sized from 2000 to 2015. The government stated in 2020 that the military logistics capability needs to be reinforced, the relationship state-defence industry shall be developed to create a flexible, robust and resilient defence logistics for peace, crisis and war. The study focuses in how triad relationships can develop to create long-term trust based relations.

Design/methodology/approach
The study is a part of a larger study and is performed in cooperation with four industries and two public authorities. This study is based on interviews, workshops and literature studies.

Theoretical scope is from the Uppsala network school, business models for defence logistics, combined with theories on supply chain, value co-creation and management of complex systems.

Findings
Both industry and public authorities experiences considerable uncertainty and insufficient long-term strategic synchronization vis-à-vis each other.

Research limitations/implications (if applicable)
This study builds on a small sample to get a context-understanding ad to develop a theoretical framework for the next research step. Increased understanding of required defence logistics relationships, suggestions to improve the relationships

Practical implications (if applicable)
The study will be the first step to contribute to more appropriate relationships; stronger logistic capability for actors; robust business models for industry.

Original/value
Novelty connects to state-industry relationships for flexible defence logistics under globalized supply chains.

Vast importance for included actors and Swedish military capability and readiness.

Keywords: Business models; Relationships; Defence Logistics; Networks; Value co-creation; State-Industry.