CHALMERS | GÖTEBORGS UNIVERSITET

NORTHERN LEAD

Northern LEAD

Logistics Research Centre

Project cavalcade

A selection of ongoing/finished projects.
Do not hesitate to take contact if you are interested.

A joint research centre between
Chalmers University of Technology and
University of Gothenburg

Version December 2022

CHALMERS | GÖTEBORGS UNIVERSITET

NORTHERN LEAD

MANAGING FREIGHT FLOWS DURING MAJOR DISRUPTIONS: ROBUST AND ADAPTIVE SUPPLY CHAINS (2023-2024)

PURPOSE

The overall purpose is to identify the interplay and interfaces (IF) between the supply chain (SC) and transport system (TS) domains, and explore potential benefits, trade-offs, drivers and barriers of SC-TS-IF coordination and integration during major disruptions.

PROBLEM

Manufacturers and trading firms in the SC try to be more responsive, but they often lack visibility into the TS and cannot consider transport system issues when balancing demand-supply or making sourcing decisions when disruptions occur.

CONTACT

Patrik Jonsson
Chalmers, Department of Technology Management and Economics
patrik.jonsson@chalmers.se
Johan Woxenius,
University of Gothenburg, Department of Business Administration
johan.woxenius@gu.se

SFO/Area of Advance Transport

UNIVERSITY OF GOTHENBURG
SCHOOL OF BUSINESS, ECONOMICS AND LAW

CHALMERS

RENTING MODELS: STUDY OF BUSINESS MODELS WITHIN THE TEXTILE AND GARMENT INDUSTRY FOR RESOURCE EFFICIENT EVERYDAY USE

PURPOSE

The project focuses on opportunities and barriers for new business models and especially renting models that can contribute to a more sustainable textile and garment industry. Start-ups developing those business ideas will be involved as well as established firms.

PROBLEM

The textile and garment industry is one of the most resource intensive industries and studies have shown that a large share of clothes is only used once or twice. There are emerging ideas that can facilitate change, such as renting systems, where some of them are launched by start-up companies.

CONTACT

Frida Lind, frida.lind@chalmers.se ,
Department of Technology Management / Division of Supply and Operations Management, Chalmers

DESIGN FÖR
ENERGIEFFEKTIV VARDAG
Ett program från
Energimyndigheten med
SVID som koordinator

CHALMERS | GÖTEBORGS UNIVERSITET

NORTHERN LEAD

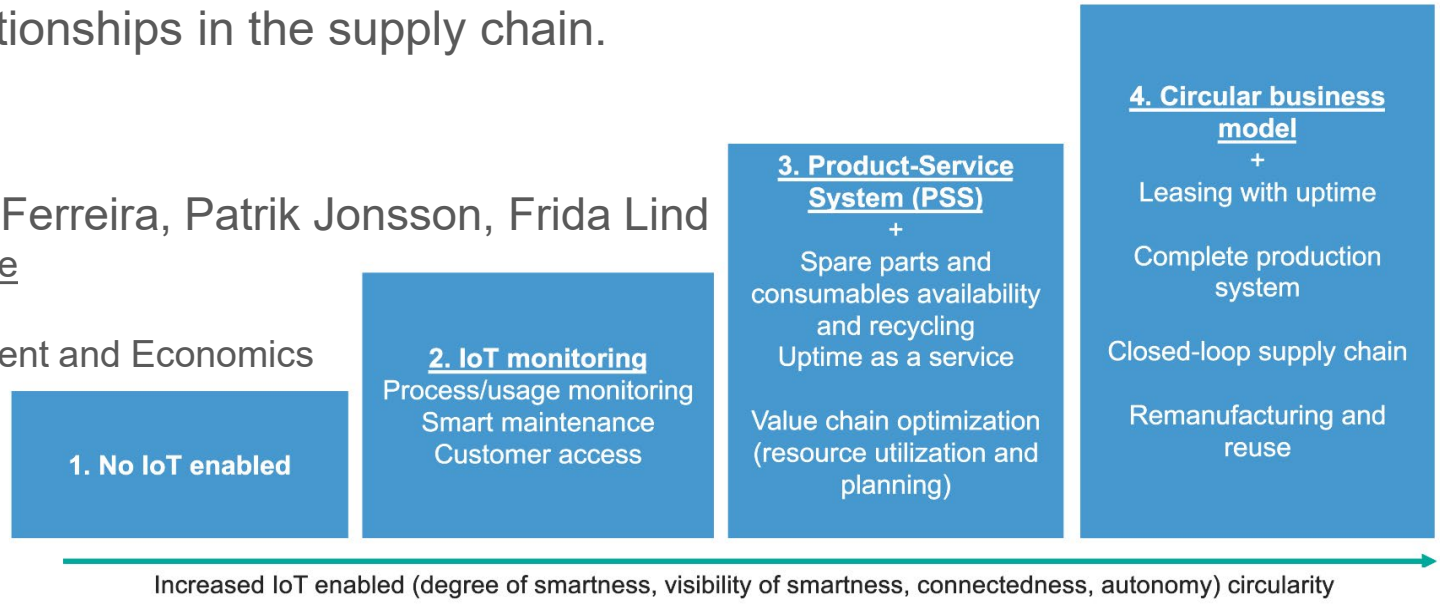
TRANSITIONING TO IOT ENABLED CIRCULAR PRODUCTION SYSTEMS AND VALUE CHAINS

PROBLEM AND PURPOSE

Even though manufacturers are increasingly using digital technologies and are piloting circular models, companies are still in the early stage of this transition. This project will explore and develop sustainable circular models for manufacturers through innovations in Operations Planning and Control (OPC), enabled by Internet of Things (IoT) and changing business relationships in the supply chain.

CONTACT

Patricia van Loon, Carla Ferreira, Patrik Jonsson, Frida Lind
Patricia.van.loon@chalmers.se
Chalmers,
Dept of Technology Management and Economics



TRANSPORT A CHALMERS AREA OF ADVANCE

CHALMERS UNIVERSITY OF TECHNOLOGY

RESPIRE: RETHINKING THE MANAGEMENT OF UNEXPECTED EVENTS TO CREATE RESILIENT AND SUSTAINABLE PRODUCTION SYSTEMS

PURPOSE

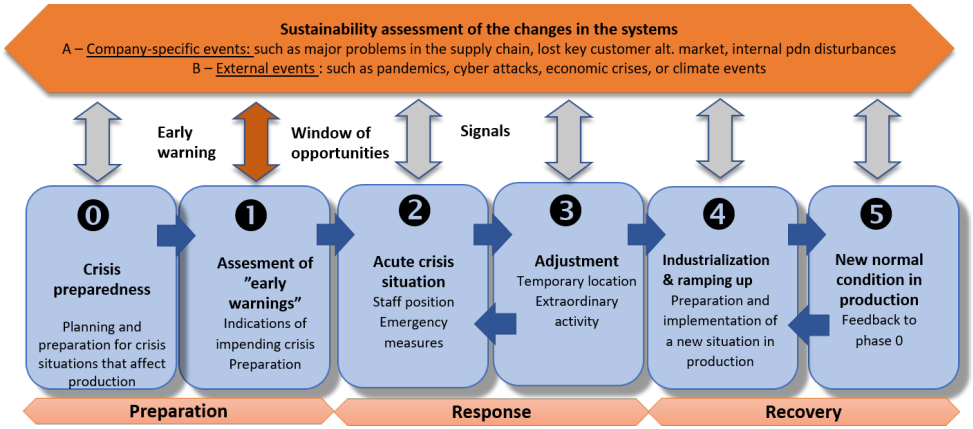
Contribute to the industrial and societal resilience needed to handle the dynamics and crises of the future,
Creating resilient and sustainable production systems by rethinking the management of unexpected events

PROBLEM

Rethink and update current processes and methods for crisis management
Manufacturing SMEs improve their production system resilience.

CONTACT

Ala Arvidsson
Ala.arvidsson@chalmers.se Chalmers, Supply and Operations Management
Patrik Jonsson
Chalmers, Supply and Operations Management



REGIONALISED SUPPLY CHAINS AND ITS EFFECTS ON SHIPPING (2022-2023)

PURPOSE

To analyse how changes in geopolitics, production systems and supply chains affect shipping.

PROBLEM

The demand for shipping is derived from world trade and after a period of rapid globalisation, manufacturing and trading firms reconsider the design of their supply chains. A potential outcome is to keep sourcing and sales within each economic region with significant effect on global shipping.

https://infonomics-society.org/

CONTACT

Johan Woxenius,
University of Gothenburg, johan.woxenius@gu.se

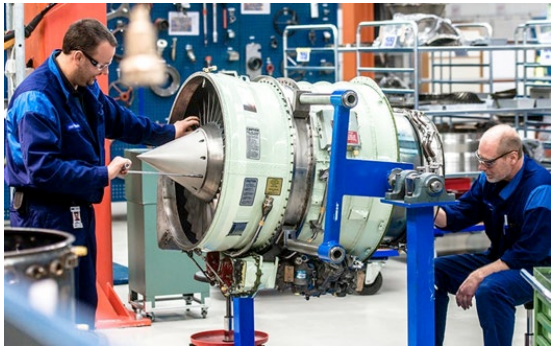
CHALMERS | GÖTEBORGS UNIVERSITET

NORTHERN LEAD

TACTICAL RESOURCE ALLOCATION FOR EFFICIENT CAPACITY UTILIZATION

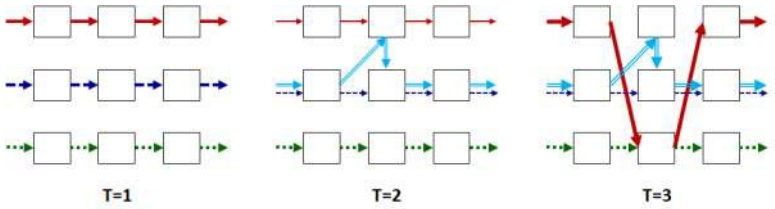
PURPOSE

Evaluate the potential of employing a tactical resource utilization while ensuring efficient production flows in the long-term, via multi-objective and robust optimization modeling.



PROBLEM

Mathematical modelling of a tactical allocation of processing operations to production resources, combined with resource and capacity planning, in a production system for low volumes.



CONTACT

Ann-Brith Strömberg, Sunney Fotedar,
anstr@chalmers.se
Chalmers // Mathematical Sciences

VINNOVA CHALMERS GKN Aerospace JÖNKÖPING UNIVERSITY

CHALMERS | GÖTEBORGS UNIVERSITET

NORTHERN LEAD

CO-LOOP: CROSS-SECTOR PARTNERSHIPS FOR SUSTAINABLE INNOVATIONS AND CLOSING THE LOOPS IN THE HUMANITARIAN SUPPLY CHAIN

PURPOSE

The project shows how cross-sectoral arrangements are used to close the loops in supply chain management, which implies a movement towards improved sustainability of shelter operations.

PROBLEM

Cross-sector partnerships (CSPs) are frequently used in approaching wicked problems such as sustainability. In the era of the Sustainable Development Goals (SDGs) 2030, the interconnectedness of societal sectors is essential in order for systemic issues to be tackled.

CONTACT

Ala Arvidsson
Ala.arvidsson@chalmers.se
Chalmers, Supply and Operations Management

CHALMERS

HANKEN

UNIVERSITY OF HELSINKI

Ekon. dr Peter Wallenbergs Stiftelse för Ekonomi och Teknik

CHALMERS | GÖTEBORGS UNIVERSITET

NORTHERN LEAD

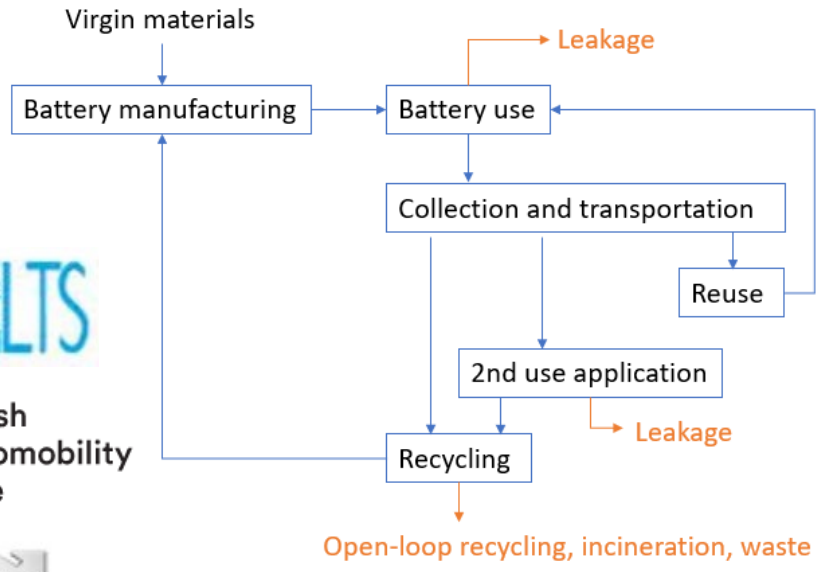
HIGH PERFORMING CIRCULAR BATTERY FLOWS

PURPOSE

The aim of the project is to determine optimal circular battery flows through analysing the effect of different collection set-ups on reuse possibilities in same and 2nd use application, on recycling, and on use of material in production of new batteries.

PROBLEM

There is fast-growing demand for batteries for vehicle and stationary applications. Batteries contain rare and toxic material that need to be handled carefully. Ideally, batteries should be reused before being recycled. How to set-up such circular system in the most efficient way is currently unclear.



CONTACT

Patricia van Loon, Martina Petranikova,
Sara Fallahi, Mats Johansson, Tayana Ortix Lopes
Patricia.van.loon@chalmers.se

LOGISTIK TRANSPORT STIFTELSEN LTS

Swedish Electromobility Centre

TRANSPORT A CHALMERS AREA OF ADVANCE

CHALMERS UNIVERSITY OF TECHNOLOGY

nilar

SCANIA

RI. SE

VOLVO

Göteborg Energi

umicore

CHALMERS | GÖTEBORGS UNIVERSITET

NORTHERN LEAD

SYNERGIES IN AUTONOMOUS TRANSPORTATION (2021-2023)

PURPOSE

Develop new concepts and prototypes for end points in the supply chain to end customers for last-mile robots at Campus Johanneberg (Chalmers). Develop a new application of connected & shared technical solution on how robots and buses can interact
Project leader: Hugo Delivery AB.

PROBLEM

Estimate the benefits of collaboration between autonomous robots and buses. Prepare need owners in the real estate industry & the city for the transition to autonomous sustainable transportation and develop business models that work for autonomous deliveries.

HUGO Hugo Delivery AB

Johanneberg Science Park

Göteborgs Stad

CHALMERSFASTIGHETER

ERICSSON

CHALMERS UNIVERSITY OF TECHNOLOGY

GÖTEBORGS UNIVERSITET HANDELSHÖGSKOLAN

Funded by

CONTACT

Ivan Sanchez-Diaz, Lokesh Kalahasthi (TME) Lars Ola Bligård, Fredrick Eckman (DIMS)
ivan.sanchez@chalmers.se klokesh@chalmers.se
lars-ola.bligard@chalmers.se fredrick.ekman@chalmers.se
Chalmers, Dept of Technology Mgmt & Economics; Dept of Industrial & Materials Science

Jon Williamsson, Michael Browne
jon.williamsson@handels.gu.se
michael.browne@handels.gu.se
University of Gothenburg, Department of Business Administration

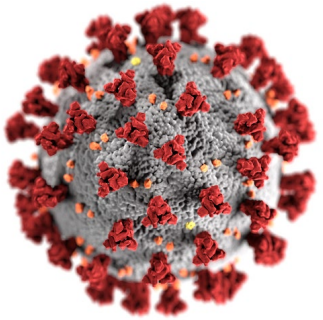
DEVELOPMENT OF A MASS VACCINATION PROCESS

PURPOSE

The purpose is to develop a concept for covid-19 mass vaccination centres and apply this concept to one or several centres.

PROBLEM

The system needs to have unprecedented capacity, while the resources in terms of manpower is scarce. At the same time, delivery quality has to be very high and the operation as well as the process design is object to large uncertainties.



CONTACT

Per Medbo, Mats Johansson
per.medbo@chalmers.se, Chalmers, Division of Supply and Operations Management

CHALMERS | GÖTEBORGS UNIVERSITET

NORTHERN LEAD

OPEN PLATFORM FOR SHARING CHARGING INFRASTRUCTURE

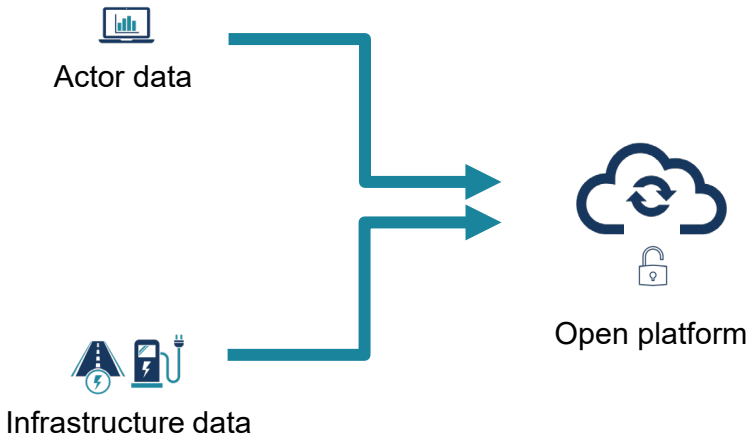
PURPOSE

To evaluate the potential of electrification and sharing charge infrastructure for transport of goods

- Networked business models
- Drivers and hinders for electrification
- Enablers for sharing charging infrastructure

PROBLEM

Which prerequisites are needed to implement a shared charging infrastructure?
Which actors are needed to enable a sharing charging infrastructure?
How will actors coordinate when sharing charging infrastructure?



CONTACT

Lisa Melander
lisa.melander@chalmers.se, Chalmers, Supply and Operations Management

TRANSPORT A CHALMERS AREA OF ADVANCE | CHALMERS | LUND UNIVERSITY | NOVOLEAP SUSTAINABLE LOGISTICS | VINNOVA | Convini | martin&servera MatHem.se | Grönsakshallen Sorunda | elis

CHALMERS | GÖTEBORGS UNIVERSITET

NORTHERN LEAD

SUPPLY CONTINUITY AND RESILIENCE: SEMICONDUCTOR SHORTAGE

PURPOSE

To investigate the purchasing strategies adopted by automotive Original Equipment Manufacturers (OEMs) in their supply networks for semiconductor and electronic components and how these strategies impacted OEMs' ability to prevent and react to supply disruptions caused by shortages.

PROBLEM

Automotive supply networks for semiconductor and electronic components have faced significant disruptions due to material shortages. The complexity of automotive supply networks and origin of disruptions at sub-suppliers, at times several tier levels away from the OEMs, points out to the need to investigate and understand supply networks as a whole.

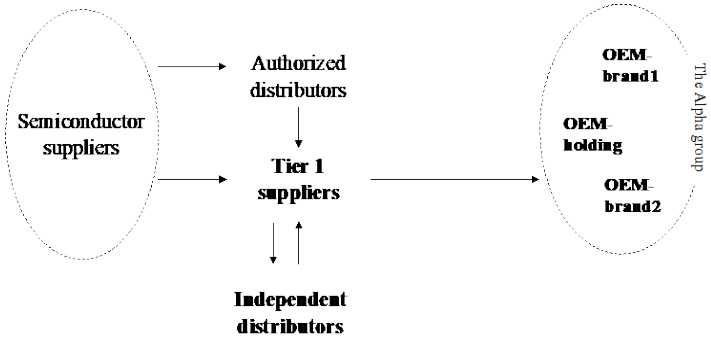


Figure: A schematic view of the semiconductor supply chain for the OEM (Source: Arvidsson et al. 2021)

CONTACT

Jose Garcia, Chalmers, Supply and Operations Management
Ala Arvidsson, Chalmers, Supply and Operations Management
Patrik Jonsson, Chalmers, Supply and Operations Management

CHALMERS

CHALMERS | GÖTEBORGS UNIVERSITET

NORTHERN LEAD

THE INTERDEPENDENCE BETWEEN FREIGHT AND PASSENGER TRANSPORT SERVICES – CONSEQUENCES OF THE CORONA-CRISIS

PURPOSE

The project will investigate the interdependence between freight and passenger transport services for different traffic modes.

PROBLEM

The recent events related to the outbreak of the Corona virus has highlighted a challenge in the transport system, namely the dependence between freight transport and passenger transport. For example, ferry services are being widely cancelled as passenger demand essentially has disappeared.

CONTACT

Jonas Flodén

Jonas.Floden@handels.gu.se

TRANSPORT A CHALMERS AREA OF ADVANCE

UNIVERSITY OF GOTHENBURG SCHOOL OF BUSINESS, ECONOMICS AND LAW

UNIVERSITY OF GOTHENBURG

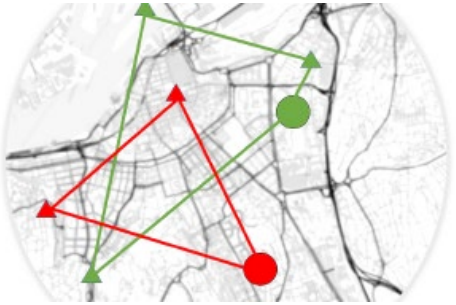
COLLECT: HORIZONTAL COOPERATION IN URBAN DISTRIBUTION LOGISTICS – A TRUSTED- COOPERATIVE ELECTRIC VEHICLE ROUTING METHOD

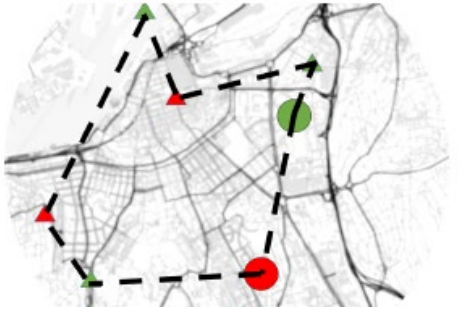
PURPOSE

We intent to analyze the effect of the horizontal cooperation among companies that have their own electric urban distribution vehicles or fleets. We will show that the (full or partial) co-design of vehicle routes will significantly reduce delivery and other connected costs. As such, cooperation contributes to competitiveness.

PROBLEM

The amount of goods to be transported steadily increases. It has even been amplified by the current pandemic situation, contributing to an even fiercer competition among suppliers. As a response, suppliers combat with their pricing policies, quality of service (including delivery time). Here, in order to preserve their competitiveness, they may collaborate with others, opening up the space for horizontal cooperation in the supply chain or network.





CONTACT

Balazs Kulcsar, kulcsar@chalmers.se Chalmers, department of electrical engineering
Ala Arvidsson, Chalmers, Supply and Operations Management
Fangting Zhou, Chalmers, department of electrical engineering

DEVELOPMENT OF A SUPPLY RISK MANAGEMENT FRAMEWORK BASED ON CASUAL RELATIONS OF RISK FACTORS

PURPOSE

We connect three research areas of supply risk management, analytics capability, and operations research to address the need to increase the resilience of supply chains, which has been proven to be of grave importance through the experiences from recent disruptions such as the Covid19 pandemic, or the East Asian Tsunami and earthquakes.

PROBLEM

We study the risks and interrelationships between the risks in vaccine supply chains to pandemics.

CONTACT

Shariar Sorooshian, Gothenburg University, department of electrical engineering
Ala Arvidsson, Chalmers, Supply and Operations Management
Patrik Jonsson, Chalmers, Supply and Operations Management

CHALMERS | GÖTEBORGS UNIVERSITET

NORTHERN LEAD

EU EMISSION TRADING SYSTEM - IMPACTS OF INCLUDING MARITIME TRANSPORTS

PURPOSE

The purpose of this project is to assess the impacts that an inclusion of shipping in EU ETS could have on the shipping industry in the European Economic Area (EEA), the Swedish transport sector and the related GHG and other air emissions.

PROBLEM

Analyse the consequences that different designs can have on the shipping industry in the European Economic Area (EEA), the Swedish transport sector, and on the associated emissions of climate and air pollution for the included shipping. The project will assess the potential environmental impact, the potential economic impacts, the potential impact on modal split, and analyse and present proposals of policy designs.

CONTACT

Jonas Flodén
Jonas.Floden@handels.gu.se

UNIVERSITY OF GOTHENBURG
SCHOOL OF BUSINESS, ECONOMICS AND LAW

ivl SVENSKA MILJÖINSTITUTET

WMU WORLD MARITIME UNIVERSITY

TRAFIKVERKET

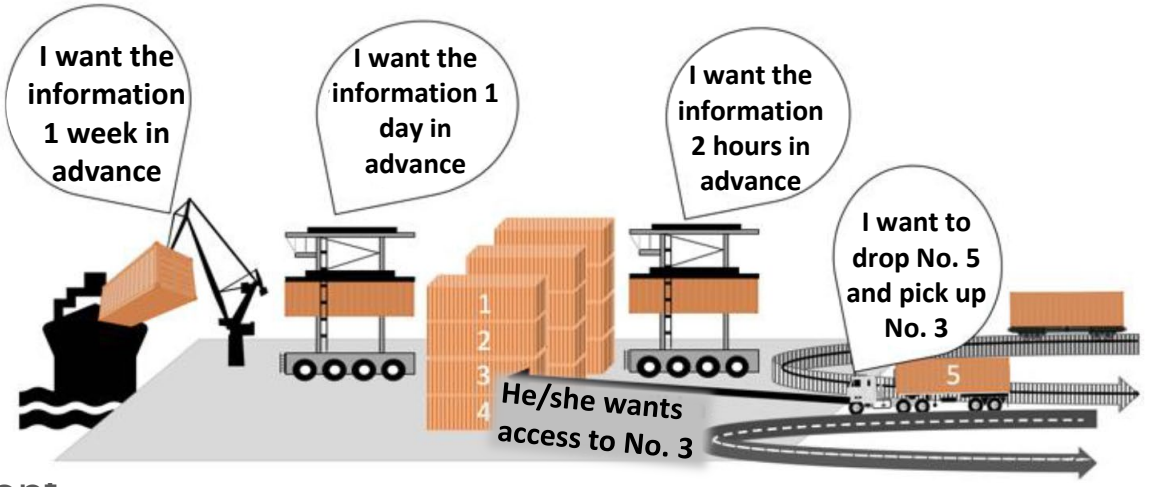
CHALMERS | GÖTEBORGS UNIVERSITET

NORTHERN LEAD

DREAMIT 2 – Efficient access management (2020-2023)

PURPOSE

To investigate how efficient access management can shorten turnaround times for tucks and trains in port terminals through automated exchange of relevant information



PROBLEM

Insufficient data exchange in the current intermodal transport system leads to high costs, long queus and negative environmental impact when exchanging containers in port terminals

CONTACT

Stefan Jacobsson, SSPA/Consenso
stefan.jacobsson@consenso.se
Johan Woxenius, University of Gothenburg
johan.woxenius@gu.se

TOMPOS - INCREASING TRANSPORT EFFICIENCY BY REDUCING POSITIONING OF EMPTY CONTAINERS

PURPOSE

The purpose of the project is to contribute to increasing transport efficiency by understanding how empty container positioning in the transport system can be reduced and made more efficient, through increased knowledge regarding the current situation, the potential and concrete suggestions for improvements.

PROBLEM

At present, there is excessive transport of empty containers in the Swedish transport system. Although movements of empty containers are necessary due to different locations of recipients and senders of goods, as well as imbalances between inbound and outbound goods flows in specific geographical areas, practitioners and researchers indicate a large potential for improvement.

CONTACT

Violeta Roso
violeta.roso@chalmers.se, Chalmers, TME/SML

CHALMERS | GÖTEBORGS UNIVERSITET

NORTHERN LEAD

FEASIBILITY STUDIES - ELECTRIFICATION AND STREAMLINING OF PORTS AND TERMINALS

PURPOSE

The project will lead to proposals on how to implement solutions for electrification and evaluate system support today and those that will be needed in the future to increase the efficiency of the electric and autonomous machines.

PROBLEM

Ports are aiming at reducing their environmental footprint but important questions is still unanswered regarding feasibility, especially for smaller harbours having mix of operations.

CONTACT

Mats Johansson
Mats.johansson@chalmers.se
Chalmers // Supply and Operations Management

Norrköpings Hamn

CHALMERS UNIVERSITY OF TECHNOLOGY

NOVOLEAP SUSTAINABLE LOGISTICS

LUNDS UNIVERSITET

NCC

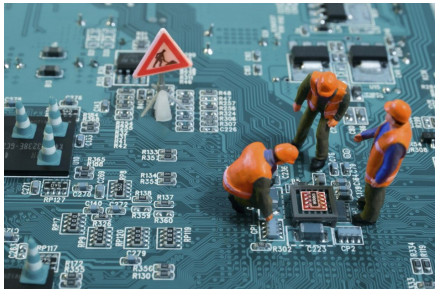
ncnielsen

Energimyndigheten

NEW TECHNOLOGIES FOR SUSTAINABLE TRANSPORT: ACTORS, COLLABORATIONS AND MOTIVATIONS

PURPOSE

- Identify actors, conditions, possibilities and policy restrictions for using new technologies to develop more sustainable transport of goods
- Understand how different actors collaborate and their motivations



PROBLEM

Network of actors that develop sustainable transport by using new technologies

.

CONTACT

Hannes Lindkvist, Lisa Melander and Frida Lind
lisa.melander@chalmers.se, Chalmers, Supply and Operations Management

CHALMERS | GÖTEBORGS UNIVERSITET

NORTHERN LEAD

TRANSPARENT INFORMATION MANAGEMENT AND COLLABORATION FOR INCREASED SECURITY IN THE TRANSPORT OF DANGEROUS GOODS (PRE-STUDY)

PURPOSE

To evaluate the transport of dangerous goods and the reason behind the accidents and their relationship to possible incorrect declaration of goods. Furthermore, this project aims to understand how actors in the transport chain act when transporting dangerous goods on container ships and RoRo vessels

PROBLEM

To undeclared or declare dangerous goods incorrectly can contribute to increase risk of accidents on ports, container vessels and also, Ro-Ro vessels.

CONTACT

Marta Gonzalez-Aregall
marta.gonzalez-aregall@gu.se
Lars-Göran Malmberg

UNIVERSITY OF GOTHENBURG
SCHOOL OF BUSINESS, ECONOMICS AND LAW

LIGHTHOUSE
SWEDISH MARITIME COMPETENCE CENTRE

Lifting Global Trade.
APM TERMINALS

RO
GOTHENBURG RORO TERMINAL

Trelleborgs Hamn AB
-Port of Trelleborg-

Stena Line

The Swedish Club

CHALMERS | GÖTEBORGS UNIVERSITET

NORTHERN LEAD

INNOVATION PROJECT: DIGITALISATION, AUTOMATION AND ELECTRIFICATION IN SMALL AND MID-SIZED SEAPORTS

PURPOSE

- Investigate how digitalisation, automation and electrification supports ports' sustainability efforts
- To overcome barriers for small and mid-sized ports by demonstrations and implementation analyses

PROBLEM

Large ports implement digitalisation, automation and electrification, but small and mid-sized ports often lack economy of scale and specialised personnel and should benefit from co-operation

CONTACT

Project manager: Sandra Haraldson, RISE
sandra.haraldson@ri.se
Contact person at UGOT: Marta Gonzalez-Aregall, University of Gothenburg
marta.gonzalez-aregall@gu.se

TRAFIKVERKET LIGHTHOUSE SWEDISH MARITIME COMPETENCE CENTRE

RI. SE

CHALMERS

UNIVERSITY OF GOTHENBURG
SCHOOL OF BUSINESS, ECONOMICS AND LAW

LANDSKRONA HAMN

Karlshamns Hamn
Port of Karlshamn – for tomorrow's business

KARLSKRONA KOMMUN

CHALMERS | GÖTEBORGS UNIVERSITET

NORTHERN LEAD

IMPROVING THE TRANSPORT EFFECTIVENESS AND ENVIRONMENTAL FOOTPRINT OF CLOTHING RETURNS

SYFTE

- Improve the transport efficiency of the clothing returns process
- Determine the reasons why consumers make returns
- Determine how they travel

PROBLEM

- High level of returns =
- Environmental costs

KONTAKT

Sharon Cullinane
sharon.cullinane@gu.se
University of Gothenburg, School of Business Economics and Law

Energimyndigheten

CONSTRUCTION SERVICES UNDER CONSTRUCTION

ENABLING CONTINUOUS IMPROVEMENTS OF LOGISTICS SERVICES IN A PROJECT-BASED CONTEXT

PURPOSE

The goals for the project are, to

(1) create a priority matrix for service quality improvements of construction logistics services

(2) aid in understanding actors and activities needed to support, manage and improve construction logistic solutions

(3) aid in prioritizing what logistics services to focus for improvements.

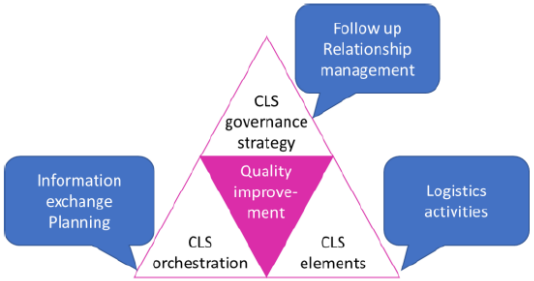


Figure 1: The construction logistics solution triangle

PROBLEM

Construction logistic services have great impact on efficiency and sustainability, and there is a great potential for improvements in complex coordination, inefficient processes, and waste of materials.

CONTACT

Ida Gremyr, Árni Halldórsson, Gabriella Gatenholm, Jenny Bäckstrand, Anna Fredriksson
ida.gremyr@chalmers.se, Chalmers // Service Management and Logistics

INNOVATIVE BUSINESS MODELS FOR A LARGE-SCALE DIFFUSION OF SOLAR PV

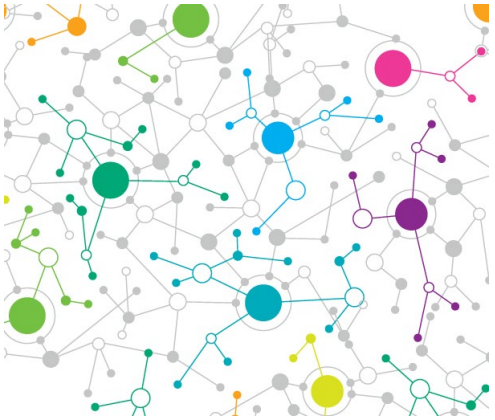
PURPOSE

- Identify actors, conditions, policy restrictions and business models in the context of solar electricity
- Understand how different actors within the supply chain collaborate in innovative business models

PROBLEM

Actor collaborations for increase of renewable electricity production.

.



CONTACT

Lisa Melander, Amanda Bankel and Ingrid Mignon
lisa.melander@chalmers.se, Chalmers, Supply and Operations Management

CHALMERS | GÖTEBORGS UNIVERSITET

NORTHERN LEAD

VALUE2SEA

PURPOSE

The project, a collaboration between Sweden, Denmark and Norway, aims to identify improvements in the transport chains of the ØKS area through the use of new technologies, logistics and transport concepts (such as dry-ports) for the benefit of the environment in an economically viable way.

PROBLEM

Increased number of road vehicles in ØKS region generates more traffic and congestion that impacts negatively on environment. Our aim is to reduce inefficient transport in the studied system; to facilitate modal shift to waterborne transport that would lead to less traffic and consequently reduce negative impact on the environment and economy.

CONTACT

Violeta Roso
violeta.roso@chalmers.se
Chalmers // Service Management and Logistics

Interreg Öresund-Kattegat-Skagerrak European Regional Development Fund | EUROPEAN UNION | CHALMERS UNIVERSITY OF TECHNOLOGY | SSPA | JULA | VALUE2SEA

SMART PARKING FOR FREIGHT VEHICLES

PURPOSE / SYFTE

Implement connected devices and data analytics to enhance the design and management of loading zones bringing benefits for freight companies and citizens

PROBLEM

Urban freight vehicles spend about 40% of time in loading zones (LZ). Also, they often spend time driving around to find available LZ and if they don't find one, they go to next customer or double park.
Very little is known about demand and use of public LZ. Both design and operations decisions lack hard-data support.

CONTACT / KONTAKT

Ivan Sanchez-Diaz
Ivan.sanchez@chalmers.se

Michael Browne
michael.browne@handel.gu.se

Lokesh Kalahasthi
klokesh@chalmers.se

CHALMERS | GÖTEBORGS UNIVERSITET

NORTHERN LEAD

TRANSPORT PURCHASING PANEL (Research network)

The Transport Purchasing Panel is a research network with the purpose to contribute to more effective purchasing of transports, through research in close cooperation with industry. Hereby, both logistic effectiveness and lower environmental impact can be reached. An important activity is longitudinal studies of development and trends, achieved by repetitive surveys and workshops.

Efficient transports are urgently important for Swedish industry and for Swedish export, and for achieving the environmental goals. Good procedures in the purchasing of transports crates good conditions for cost efficient and less environmental damaging transports.

CONTACT

Dan Andersson (Chalmers), Linda Styhre (IVL), Jonas Floden (GU)
dan.andersson@chalmers.se, linda.styhre@ivl.se, jonas.floden@handels.gu.se

CHALMERS

UNIVERSITY OF GOTHENBURG
SCHOOL OF BUSINESS, ECONOMICS AND LAW

IVL Svenska Miljöinstitutet

CHALMERS | GÖTEBORGS UNIVERSITET

NORTHERN LEAD

URBAN FREIGHT PLATFORM (2014-2024)

PURPOSE

Facilitate academic research on urban freight within the context of Northern LEAD at University of Gothenburg and Chalmers.

PROBLEM

Efficient urban freight distribution practices that are in line with urban livability and sustainability goals require innovative research, combining skills from multiple disciplines and articulating efforts from public sector, private sector and academia. Dissemination and network building are also important issues. The UFP organizes the VREF Conference on Urban Freight – most recently in March 2021.

UFP page link:
https://www.chalmers.se/en/centres/lead/urbanfreightplatform/Pages/default.aspx

VREF Conference on Urban Freight organised by the UFP in March 2021 link:
https://www.chalmers.se/en/centres/lead/urbanfreightplatform/vref-2021/Pages/default.aspx

CONTACT

Michael Browne, Ivan Sanchez-Diaz, Juan Pablo Castrellon, Konstantina Katsela.
email info@urbanfreightplatform.se

VREF

CHALMERS UNIVERSITY OF TECHNOLOGY | UNIVERSITY OF GOTHENBURG SCHOOL OF BUSINESS, ECONOMICS AND LAW

URBAN FREIGHT PLATFORM

CHALMERS | GÖTEBORGS UNIVERSITET

NORTHERN LEAD

ADVANCED ANALYTICS CAPABILITIES FOR FUTURE TRANSPORT MANAGEMENT

PURPOSE

To explore what capabilities are required in order to take advantage of the opportunities offered by digitalization in supply and transport management.

PROBLEM

Industries face major challenges in how to apply new and disruptive technologies, including digitalization, big data analysis, and advanced business analytics to improve business processes. In order to utilize the technology opportunities, a set of new capabilities needs to be implemented to manage data-driven decision making in the supply chain.

CONTACT

Patrik Jonsson, Riikka Kaipia, Ala Pazirandeh
patrik.jonsson@chalmers.se
Chalmers, Div of Supply and Operations Management

Gunnar Stefansson
gunnar.stefansson@chalmers.se
Chalmers, Div of Service Mgmt and Logistics

TRANSPORT A CHALMERS AREA OF ADVANCE

CHALMERS UNIVERSITY OF TECHNOLOGY

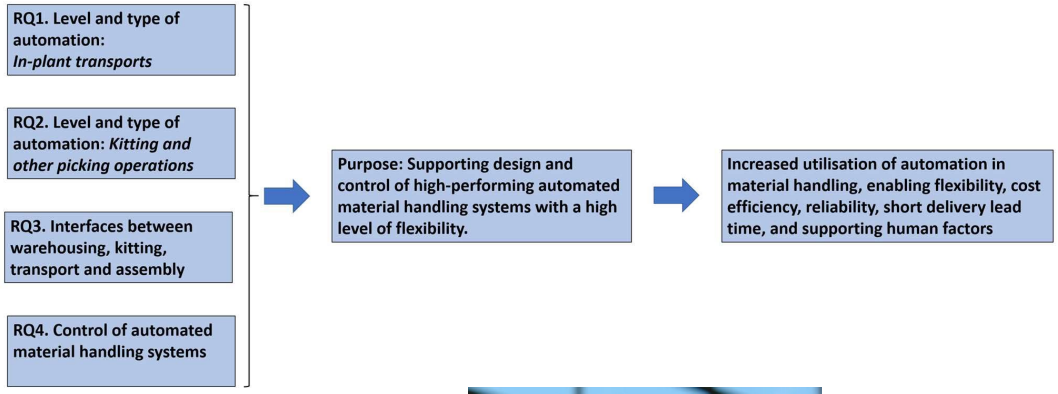
CHALMERS | GÖTEBORGS UNIVERSITET

NORTHERN LEAD

FAKTA – Flexible Automation of Kitting, Transport and Assembly

PURPOSE

Develop knowledge of how automation should be applied in material handling, considering levels of automation, technologies, as well as planning and control.



PROBLEM

Material handling is often performed manually. Potential to increase performance in terms of e.g. productivity and quality.

CONTACT

Robin Hanson, Mats Johansson, Lars Medbo, Nils Thylén
robin.hanson@chalmers.se
Chalmers // Department of Technology Management and Economics

CHALMERS · EJN · PRODUKTION2030 · FLEXLINK · VOLVO · SCHUNK · VINNOVA · ABB · VIRTUAL manufacturing. · DB SCHENKER · SCANIA · VÄDERSTAD

TRANSPORT PROCUREMENT - THE SHIPPER'S ROLE IN THE TRANSITION TO A FOSSIL FREE FREIGHT TRANSPORT SYSTEM

PURPOSE

The purpose is to contribute to the knowledge about how transport buying companies can contribute to the transition to a fossil free goods transport system.

PROBLEM

Sweden has decided to considerably decrease its carbon footprint and transport is one area that drastically has to improve. A transition to a fossil-free transport system requires not only new technical solutions, but a change of behaviour and demands of transport-buyers will also be required.

CONTACT

Dan Andersson
dan.andersson@chalmers.se

Javad Ghanei
javadg@chalmers.se

Linda Styhre
linda.styhre@ivl.se

Chalmers, Department of Technology Management and Economics

IVL

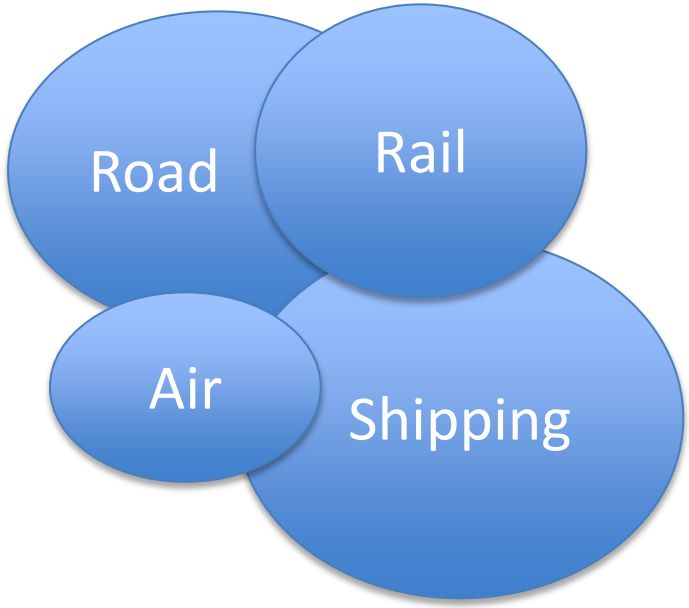
CHALMERS | GÖTEBORGS UNIVERSITET

NORTHERN LEAD

SHIFT TO FOSSIL LEAN TRAFFIC MODES – COMPETITION SURFACES NOW AND IN THE FUTURE

PURPOSE

Promotion of modal shift and/or intermodal transport to achieve environmental friendly, economically efficient and socially desirable outcomes, considering the future freight growth



PROBLEM

Transport systems have a great environmental impact, where road transport in particular contributes to large emissions of CO2. One tool for reducing the environmental impact is the transfer of goods to other more environmentally efficient modes of transport.

CONTACT

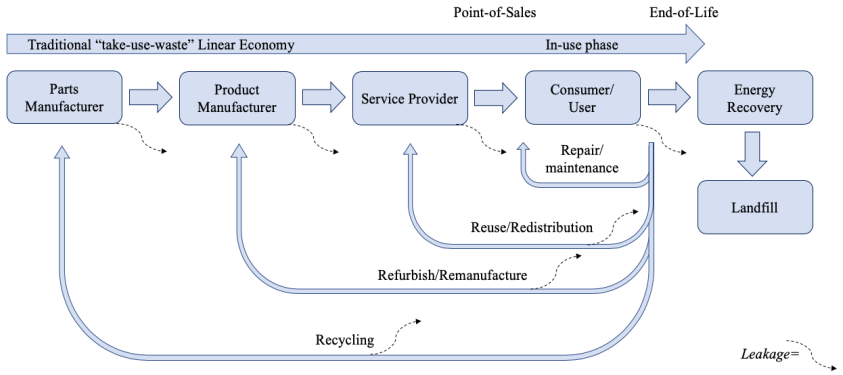
Project manager: Johan Woxenius, johan.woxenius@gu.se
Main supervisor for the PhD student: Jonas Flodén, jonas.floden@handels.gu.se
PhD student: Ayghir Aybalikh, ayghir.aybalikh@gu.se

UNIVERSITY OF GOTHENBURG
SCHOOL OF BUSINESS, ECONOMICS AND LAW

TRIPLEF
FOSSIL FREE FREIGHT

TRAFIKVERKET

ENHANCING CIRCULARITY IN AFTERMARKET SUPPLY CHAINS: CHALLENGES/REQUIREMENTS ON LOGISTICS SERVICES



PURPOSE

Analyse logistical challenges and barriers for OEMs that are engaged in circular solutions and services.

PROBLEM

- Replacing the linear economy with a circular economy offers a possible solution to meet new and increased material consumption patterns.
- To enhance circularity of materials, components and products to be delivered in after-market settings and for a 'second life', new and effective logistics services are required.
- Co-creation of logistics services and service development.

CONTACT

Gabriella Gatenholm, Árni Halldórsson, Jenny Bäckstrand
Gabriella.gatenholm@chalmers.se, arni.halldorsson@chalmers.se, jenny.backstrand@ju.se
Chalmers // Jönköping University

DIGITALISATION OF FREIGHT DELIVERIES AND COLLABORATIVE PUBLIC SECTOR INNOVATION (DIGIN)

PURPOSE

To study how digitalisation of freight transport challenges current organisational strategies and processes, policy and regulations at different institutional levels, and contribute to public sector innovation.

PROBLEM

The way freight deliveries are planned, ordered and executed will change and increase at a rapid speed, challenging public sector sustainability targets.

Project coordinator TOI, Norway.
Partners: University of Gothenburg and Vrije Universiteit Brussel (MOBI).
Funded by the Norwegian Research Council

CONTACT

Michael Browne
michael browne@handels.gu.se
University of Gothenburg
Dept. of Business Administration

CHALMERS | GÖTEBORGS UNIVERSITET

NORTHERN LEAD

SUSTAINABLE PLASTIC USE BY MANAGING UNCERTAINTIES FOR THE MARKET ACTORS

PURPOSE

Contribute to increased use of recycled plastics, and production of recycled plastic raw material, by better understanding and management of risks and uncertainties in the SC from waste generator to raw material buyer.

PROBLEM

For the use of plastics to be sustainable, plastic recycling and use of recycled plastic need to increase. A key in this is to reduce risks and uncertainties for companies that want to invest in the recycling system and for companies that want to use recycled plastics in their production.

CONTACT

Mats Johansson, Martin Kurdve
matjoh@chalmers.se, martin.kurdve@chalmers.se
Chalmers // Supply and Operations Management

PLASTAL

STENA

CHALMERS INDUSTRITEKNIK

VOLVO

polykemi

Energimyndigheten

CHALMERS

RI. SE

ATOMLER

Renova

SCANIA

MIMIC

PURPOSE

MIMIC aims to demonstrate how SMART Governance concepts can be used as an aid in the construction and city planning processes to facilitate and support logistics to, from and on urban construction sites to improve mobility and reduce congestion within cities.

PROBLEM

Construction projects contribute to more attractive, sustainable and economically viable urban areas once they are finished. However, transport and logistics activities related to construction works have negative impacts on the surrounding community if not handled appropriately.

CONTACT

Kajsa Hulthén
Kajsa.hulthen@chalmers.se, Chalmers // Supply and Operations Management

CHALMERS | GÖTEBORGS UNIVERSITET

NORTHERN LEAD

EFFECTIVE INSTALLATION MATERIAL FLOWS BY COORDINATED INFORMATION FLOW

PURPOSE

Increase resource efficiency in the construction industry by improvements in and coordination of the material and information flows relating to the installation companies.

PROBLEM

A large part of the material flow in construction is related to installations. However, these materials flow processes are rarely studied from the supplier and installation company perspective. The information flow and quality is key in achieving efficiency in the materials flow.

CONTACT

Mats Johansson
matjoh@chalmers.se
Chalmers // Supply and Operations Management

bravida
RAGN SELLS
TYRINGE
Pipe Chain FLOW ON DEMAND
PAROC
NCC
myloc
Lindab
INSTALLATÖRSFÖRETAGEN
IFS
DAHL
SBUF
LINKÖPINGS UNIVERSITET
CHALMERS
vti
Assemblin
Caverion
CS LOGISTICS

CHALMERS | GÖTEBORGS UNIVERSITET

NORTHERN LEAD

Transparent Information handling and cooperation for improved safety when transporting dangerous cargo (TISS)

PURPOSE

Develop safe transport of dangerous goods by road and rail

HYPOTHESIS

Improved information handling and cooperation by improved interoperability → improved transparency → improved adherence to regulation → improved safety

CONTACT

Projektledare: Thomas Erhag, thomas.erhag@law.gu.se
Department of Law, University of Gothenburg
Law, other researchers: Lars-Göran Malmberg, Ann-Sophie Sallander, Therese Bäckman
Applied IT: Urban Nuldén, Kalevi Pessi
Logistics: Jonas Flodén, Johan Woxenius

MSB Myndigheten för samhällsskydd och beredskap

CHALMERS | GÖTEBORGS UNIVERSITET

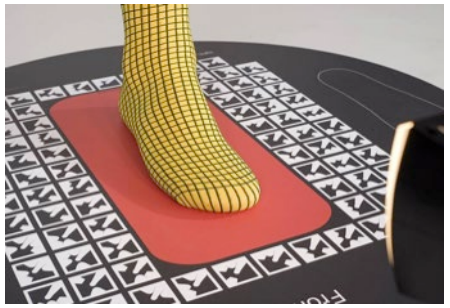
NORTHERN LEAD

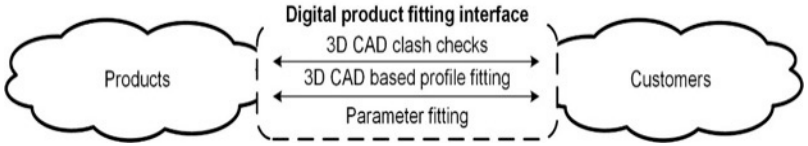
PLATFORM-BASED DIGITAL SHOE RETAIL (DigitalRetail)

PURPOSE

Introduce a digital product fitting platform across a network of retailers to innovate the physical retail business model.

- conduct digital product testing and analyse its effects for improving business model design
- design, finish and test a prototype of a shoe-and-feet matching database for multiple retailers





PROBLEM

Product variety and customer requirements makes retail supply chains of today costly and/or time consuming, Besides leading to environmental load from inventory and transports.

CONTACT

Emmelie Gustafsson, Patrik Jonsson, Jan Holmström
emmelie.gustafsson@chalmers.se
Chalmers // Supply and Operations Management

CHALMERS VINNOVA Handelsrådet THERNLUNDS corpus.e Burestads BROKEN BIRD BOOTMAKERS

CHALMERS | GÖTEBORGS UNIVERSITET

NORTHERN LEAD

RETAIL SHOPPING AND THE LAST MILE TRANSPORT: PAST, PRESENT AND FUTURE TRANSFORMATIONS

PURPOSE

The purpose of this project is to understand how the last mile transport in retailing shapes and is shaped by the transport system and its transformation in the past, present and the future.

PROBLEM

The project deals with retailing and the transport of goods from the point of acquisition to point of consumption. How these activities are carried out has great impact on the transport system and the sustainability impact of the supply chain. Today the majority of these transports are conducted by the consumers themselves, mainly by using their own car. This is partly a result of a significant transformation during the last decades towards an increasing number of shopping centres.

CONTACT

Kajsa Hulthén
kajsa.hulthen@chalmers.se
Chalmers, Department of Technology Management and Economics, Division of Supply and Operations Management

TRANSPORT A CHALMERS AREA OF ADVANCE

CHALMERS UNIVERSITY OF TECHNOLOGY

UNIVERSITY OF GOTHENBURG
SCHOOL OF BUSINESS, ECONOMICS AND LAW

CHALMERS | GÖTEBORGS UNIVERSITET

NORTHERN LEAD

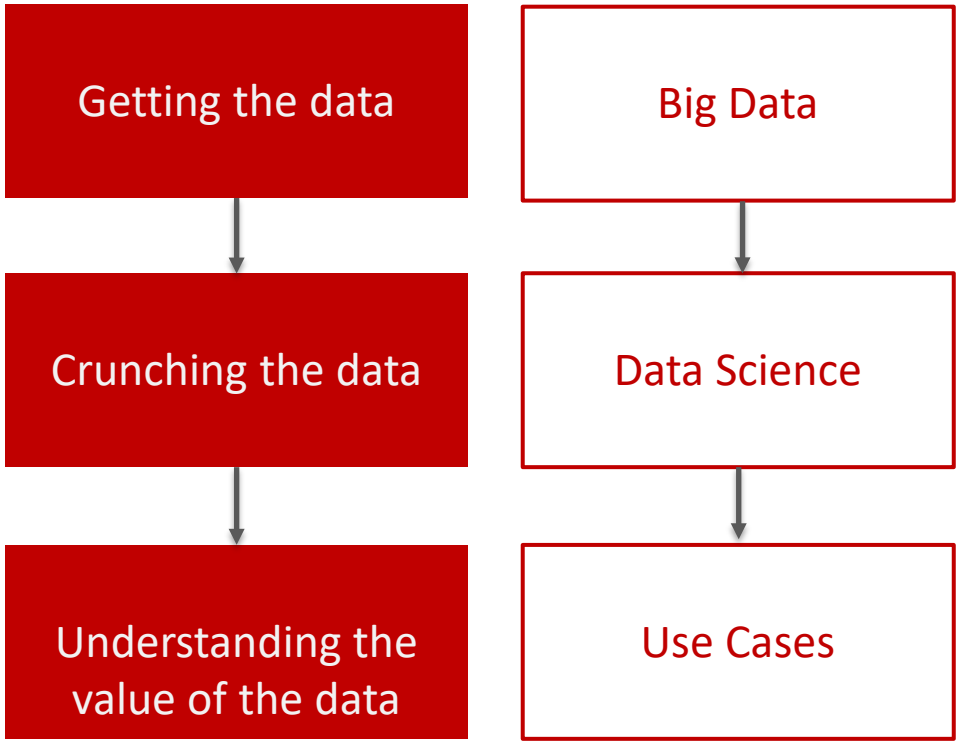
DEVELOPMENT OF A PROCUREMENT BIG DATA SOFTWARE AND METHOD

PURPOSE

To develop a PBD-method to view, analyse and compare procurement performance data in ground-breaking ways through innovative use cases.

PROBLEM

To develop formal big data use case scenarios and to exploit data science for procurement intelligence through practical R&D collaboration between a data science company Sievo and Chalmers University of Technology.



CONTACT

Patrik Jonsson, Riikka Kaipia
Patrik.jonsson@chalmers.se, riikka@chalmers.se
Chalmers University of Technology /
Department of Technology Management and Economics

eurostars™ Aim higher

VINNOVA

Sievo

CHALMERS

CHALMERS | GÖTEBORGS UNIVERSITET

NORTHERN LEAD

FUTURE OF SHARING SCHEDULE INFORMATION IN AUTO-MOTIVE SUPPLY CHAINS USING ADVANCED DATA ANALYTICS

PURPOSE

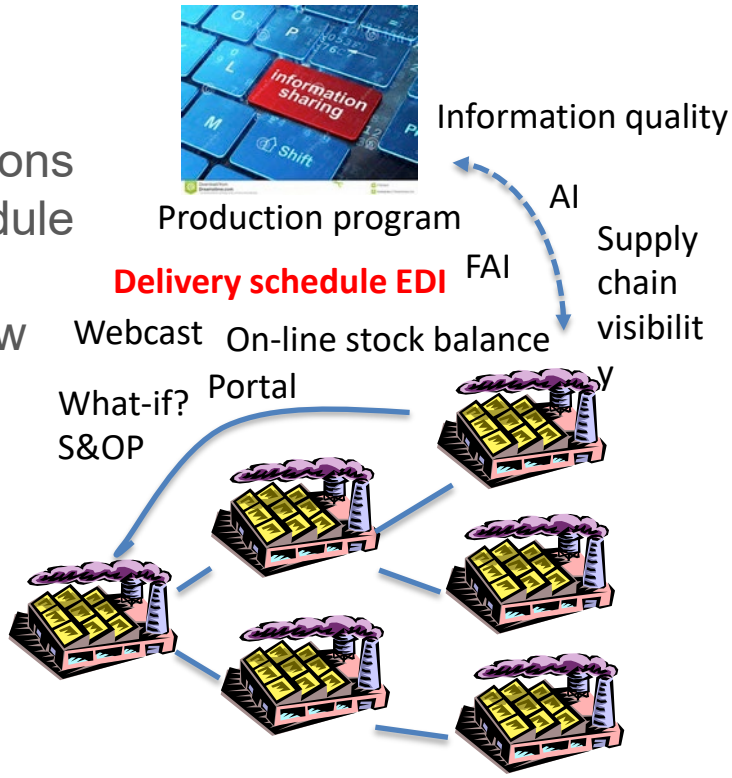
(1) describe delivery schedule usage, variability and accuracy in SC, (2) explain root causes and implications on planning practices and SC performances of schedule variations, (3) propose data-driven methods, and (4) test and generate implementation frameworks for new methods and models.

PROBLEM

Low schedule accuracy and unknown consequences in the SC of its variation, besides changes are note communicated effectively.

CONTACT

Patrik Jonsson, Patrik.jonsson@chalmers.se
Chalmers // Supply and Operations Management



FFI Strategic Vehicle Research and Innovation

SCANIA VOLVO BULTEN PLASTAL MERIDION Results by passion

VOLVO AUTOMOTIVE COMPONENTS FLOBY Heléns veoneer ODETTE SWEDEN CHALMERS

CHALMERS | GÖTEBORGS UNIVERSITET

NORTHERN LEAD

ASPIRE – Automation solutions for production deviation management

PURPOSE

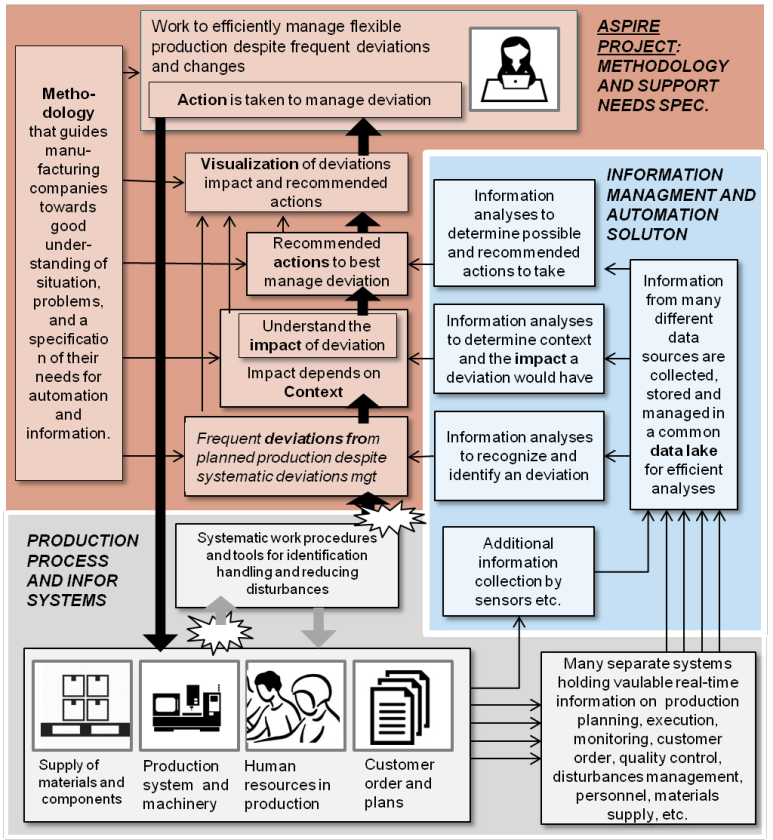
Increased ability to predict, detect, assess, and take actions to avoid deviations from planned states to propagate into production disturbances, and to increase the automation of the necessary methods and processes.

PROBLEM

Production and logistics are highly complex due to uncertainties, deviations and dependencies among many interacting parts of the systems, resulting in disturbances in production and effecting deliveries to customers.

CONTACT

Lars Medbo, Per Medbo, Mats Johansson
larmed@chalmers.se
Chalmers // Supply and Operations Management



PRODUKTION2030 swerea swedish research MARCUS KOMPONENTER AB VOLVO PENTA

VINNOVA CHALMERS KTH VETENSKAP OCH KONST FEDERAL MOGUL brogren industries TYRI

ENERGO: Energy efficient freight – methods, actions and evaluation tools in logistics

PURPOSE

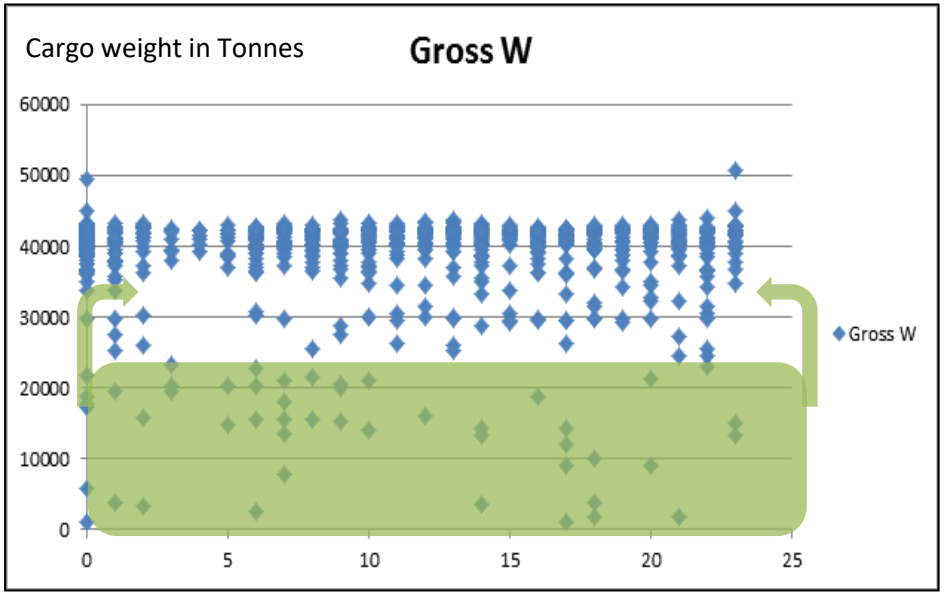
To identify and describe structures and organizational measures in planning that enable or prevent sustainable transport logistics.

PROBLEM

The freight transport systems need to be more energy efficient. The planning processes in production and logistics might contribute to this, but how to achieve this is unclear.

CONTACT

Kajsa Hulthén kajsa.hulthen@chalmers.se
Victor Eriksson victor.eriksson@chalmers.se
Chalmers, Supply and Operations Management



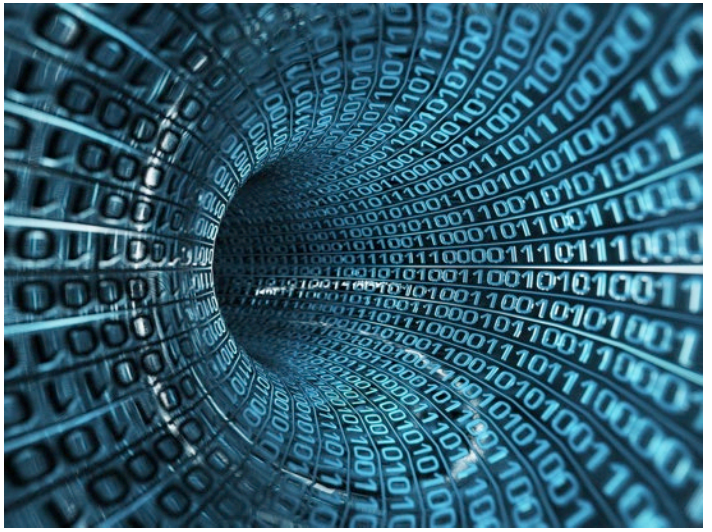
CHALMERS | GÖTEBORGS UNIVERSITET

NORTHERN LEAD

THE POTENTIAL OF BIG DATA IN MATERIAL SUPPLY AND INFORMATION SHARING IN SUPPLY CHAINS

PURPOSE

Define research directions for big data analysis related to demand management, material supply and information sharing processes in supply chains.



PROBLEM

Development is rapid in big data analysis and related technologies, but the proper use of it within SCM, to achieve value, is still unclear.

CONTACT

Patrik Jonsson
patrik.jonsson@chalmers.se
Chalmers // Supply and Operations Management

CHALMERS TRANSPORT
A CHALMERS AREA OF ADVANCE

CHALMERS | GÖTEBORGS UNIVERSITET

NORTHERN LEAD

THE ROLE OF INFLUENCING ORGANISATIONS IN URBAN SUPPLY CHAIN AND THEIR IMPACT ON SUSTAINABILITY IN URBAN AREAS

PURPOSE / SYFTE

To investigate the role and the impact on sustainability of influencing organisations

PROBLEM

Influencing organisations have significant influence on goods receivers, impacting their behaviour, purchasing practices and inventory policies. At the same time, influencing organisations haven't got much attention from the researchers in urban freight field.

CONTACT

Alena Brettmo/ Michael Browne
alena.brettmo@handels.gu.se
Michael.browne@handels.gu.se
University of Gothenburg

Göteborgs Stad | INNERSTADEN GÖTEBORG | COOR | VREF | URBAN FREIGHT PLATFORM

CIVIC -
Construction In Vicinities - Innovative Co-creation

GOAL

The goal of CIVIC is to facilitate and support efficient, sustainable and broadly endorsed transport to, from and around urban construction sites that minimises disruptions in the surrounding community, improves construction productivity and optimises energy efficiency.

CONTACT

Kajsa Hulthén
kajsa.hulthen@chalmers.se
Chalmers, Supply and Operations Management

11 Partners from Austria, Belgium, The Netherlands, and Sweden

CHALMERS | GÖTEBORGS UNIVERSITET

NORTHERN LEAD

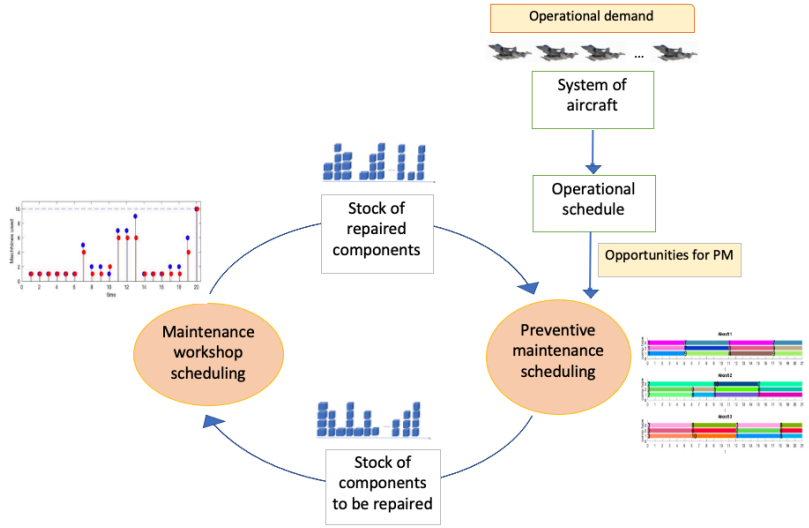
EFFECT BASED AIRCRAFT MAINTENANCE PLANNING AND OPERATIONS SUPPORT

PURPOSE

Develop efficient models and methods for management and control of maintenance and support of aircraft systems with respect to different contracting forms

PROBLEM

Reduce costs for aircraft maintenance via simultaneous scheduling of component replacements and of the maintenance workshop in a multi-objective setting



CONTACT

Ann-Brith Strömberg, Gabrijela Obradović
anstr@chalmers.se
Chalmers // Mathematical Sciences

VINNOVA CHALMERS SAAB

CHALMERS | GÖTEBORGS UNIVERSITET

NORTHERN LEAD

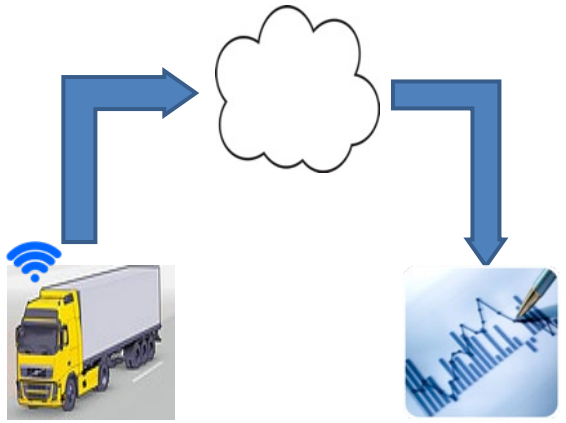
UTILIZING CONNECTED VEHICLE DATA IN FUTURE AFTERMARKET SUPPLY CHAIN PLANNING

PURPOSE

To explain how connected vehicle data can be used in, and improve the performance of, supply chain planning for automotive aftermarket services.

PROBLEM

Available connected vehicle data is not utilized in aftermarket supply chain planning. Established planning methods are not using product-in-use data.



CONTACT

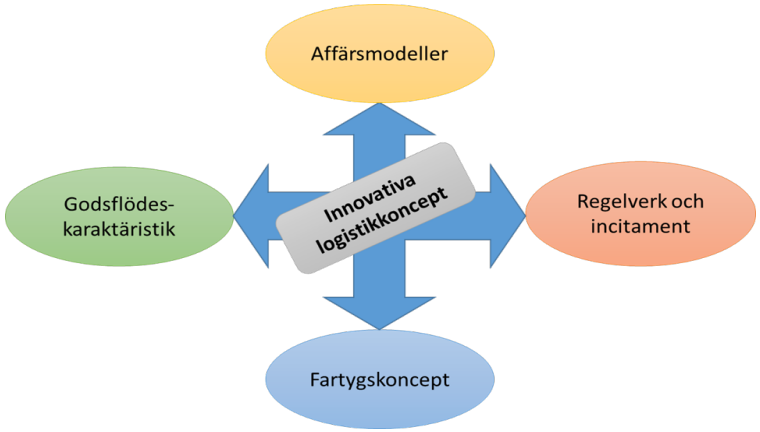
Patrik Jonsson, Joakim Andersson
Joakim.andersson@chalmers.se
Chalmers // Supply and Operations Management

VOLVO CHALMERS

InLog - INNOVATIVA LOGISTIKKONCEPT FÖR ÖKAD INLANDS- OCH KUSTSJÖFART

SYFTE

Projektets syfte är att utveckla innovativa logistikkoncept för ökad inlands- och kustsjöfart, som ser bortom dagens begränsningar med avseende på affärsmodeller, regelverk, godsflödeskaraktäristik samt fartygskoncept.



FÖRVÄNTADE RESULTAT

Projektets resultat förväntas bidra till att accelerera den från myndigheter och samhälle önskvärda överflytten av gods från land till sjö. Centralt för projektet är att involvera de kommersiella aktörerna för att förstå deras perspektiv och baserat på det utveckla lösningar som har hög praktisk relevans. Projektet kommer att utveckla förslag på innovativa logistikkoncept, vilket bl.a. inkluderar affärsmodeller och fartygskoncept för inlands- och kustsjöfart samt aktörs- och scenarioanalyser.

PARTNER I PROJEKTET

SSPA, Göteborgs universitet, Avatar Logistics, Seadvise

KONTAKT

Vendela Santén (projektledare)
vendela.santen@sspa.se
Jon Williamsson, University of Gothenburg
jon.williamsson@handels.gu.se

Med finansiering från:

CHALMERS | GÖTEBORGS UNIVERSITET

NORTHERN LEAD

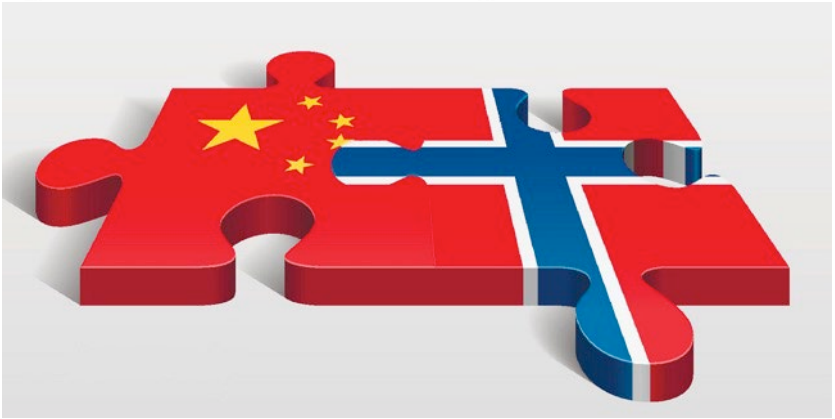
SEACONAZ - EXPLORING THE POTENTIAL FOR MAKING SEA CONTAINERS GO ALL THE WAY THROUGH THE SUPPLY CHAIN

PURPOSE

To explore the potential for moving the location of cross-docking and consolidation of LCLs into FCLs for a single, or cluster of, retailing points from Europe to China. This will reduce emissions from freight transport and reduce logistics costs for Norwegian retailers.

PROBLEM

The focus of the project is on how to make more containers go all the way from China to Norwegian retailers.



CONTACT

Kevin Cullinane
Kevin.Cullinane@gu.se
GU/Industrial and Financial Management & Logistics

The Research Council of Norway | GÖTEBORGS UNIVERSITET | Molde University College Specialized University in Logistics | LIVERPOOL JOHN MOORES UNIVERSITY | toi | TNO innovation for life | 武漢理工大學 | Edinburgh Napier UNIVERSITY

CHALMERS | GÖTEBORGS UNIVERSITET

NORTHERN LEAD

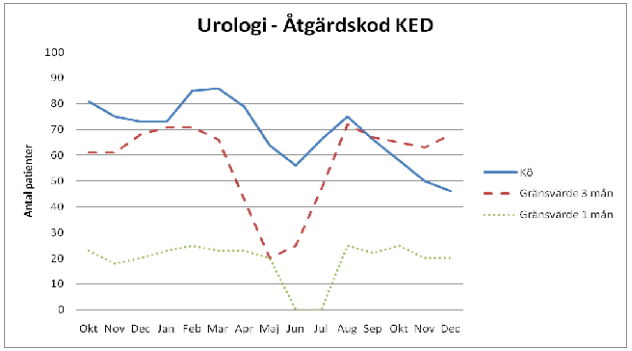
HEALTHCARE LOGISTICS

CHI CENTRE FOR HEALTHCARE IMPROVEMENT

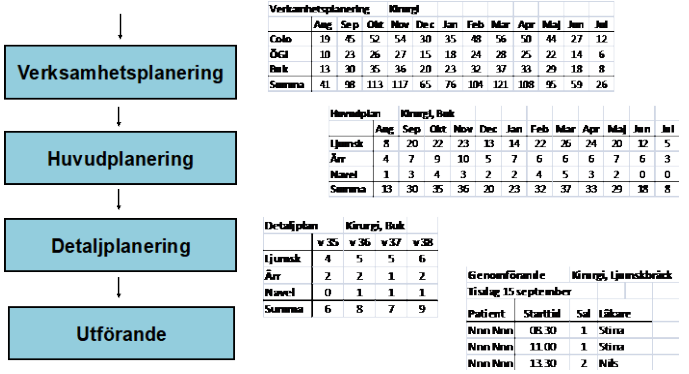
At Chalmers, logistics research specifically applied in the healthcare sector is performed within the Centre for Healthcare Improvement – CHI.

Activities are presently focusing:

- Forecasting the demand for healthcare services
- Capacity management in healthcare
- Capacity considerations when re-designing facilities and processes
- Efficient materials supply



Research is action-oriented, mainly co-created with the Region Västra Götaland.



CONTACT

Mats Johansson, Lars Medbo, Anders Plantin, Agneta Larsson
Chalmers University of Technology, Supply and Operations Mgmt

CHALMERS

REGION VÄSTRA GÖTALAND

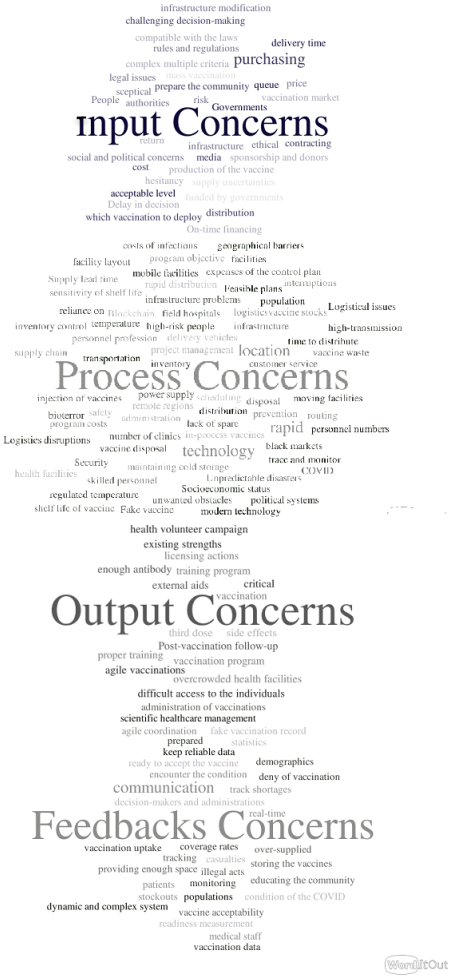
CHALMERS | GÖTEBORGS UNIVERSITET

NORTHERN LEAD

DEVELOPMENT OF A SUPPLY RISK MANAGEMENT FRAMEWORK BASED ON CASUAL RELATIONS OF RISK FACTORS

PROBLEM AND PURPOSE

Companies need to assess their risk exposure, and secure their supply and increase their supply chain visibility. This project connects three research areas of supply risk management, analytics capability, and operations research. It identifies the main sources of supply chain risk for an industry specific supply chain, and explains the relative importance of these risks and how they impact each other using the DEMATEL methodology.



CONTACT

Patrik Jonsson, Ala Arvidsson, Shahryar Sorooshian
shahryar.sorooshian@gu.se, ala.arvidsson@chalmers.se
Chalmers // Supply and Operations Management & HGU

TRANSPORT A CHALMERS AREA OF ADVANCE