NGIL
Next Generation Innovative Logistics
VINNO Excellence Center
At Lund University

Mats Johnsson
Managing Director
NGIL - Next Generation Innovative Logistics

- Swedish VINNEX center
- 18 industry partners
  (SAAB AB, Sony Ericsson, Trelleborg Port, UBQ Logistics AB)
- 3 academic partners
- Focus on
  - Industry driven research
  - Networking activities
  - Seminars and information activities
  - Starting up pilot projects
  - Building knowledge and a strong research platform in logistics
The long term goal

- To be the best research platform in Europe focusing on innovative logistics
- Examine PhD and Lic students
- To be known as the knowledge centre for logistic activities to companies
- To attract financing from EU and new partner organisations
- To create a number patented products that will be the base for new start up companies
- .................
Resources

- 210 millions over 10 years
  - 1/3 from Partner organisations
  - 1/3 from Lunds University
  - 1/3 from VINNOVA

- Research is initiated by the industry
Focus areas

- Secure Logistics
- Risk sharing
- Visibility
- Flexible logistics
- Traceability
- Expedition logistics

NGIL, Next Generation Innovative Logistics
Board of Directors

- SCA Packaging, Per Arfvidsson*
- ICA, Anders Lundmark*
- Bioett, Bengt Sahlberg
- Frigoscandia Distribution, Tommy Paulsson
- CeLIT/Helsingborg, Sten Åke Tjärnlund, chairman
- Volvo Car Cooperation, Urban Bjöörn
- MA-System, Håkan Jöne
- Production Management, Johan Marklund
- Engineering Logistics, Andreas Norrman
NGIL, Next Generation Innovative Logistics

Barriers and driving forces for increasing Supply Chain Visibility

Simulation models for increasing Demand Chain Visibility

Alignment and development of inventory management methods

Evaluation and use of extended information in integrated supply chains

Real Time Visibility Techniques - VISITECH

Risk sharing through supply chain traceability

Alignment of Supply Chain profit & risk sharing mechanisms

100% Connectivity - potential impact of online solutions

Service-level differentiation

Inventory Control for Perishable Products

Analysis of food quality with gas spectroscopy analysis

Using the Process concept, methods and tools to improve adaptability

Intermodal transportation

100% Connectivity

Real Time Visibility

Flexible Logistics

Risk

Visibility

Ongoing project

Finished project

Marco Polo project

Scandinavian Shuttle

Marco Polo Project

SC 2025

NGIL, Next Generation Innovative Logistics

NGiL

LUND UNIVERSITY

Vinnova

Next Generation Innovative Logistics
Partners

- Bioett
- CeLIT
- DFDS Transport
- Frigoscandia Distribution
- Port of Helsingborg
- ICA AB
- Lindab
- MA-system in cooperation with Pipe Chain
- Region Skåne
- REXAM
- SCA Packaging
- Svenska Tullverket
- Volvo Car in cooperation with Volvo Logistics
- UBQ Logistics
- Sony Ericsson
- SAAB
- RFID Constructors
- Port of Trelleborg

Ongoing discussion with:

- Billerud
- IKEA
- Alfa Laval
- Tetra Pak
- DHL Rail
- Stora Enso
- Arla
- SKF
- CYPACK
- Smurfit Kappa
- Cardo Door
- GM
Potential NGIL activities

- Newsletters *
- Study visits *
- Broad seminars *
- Focused workshops/round tables *
- Academic conferences open for industry *
- Explorative Master thesis *
- Company driven project (*)
- Cross-company project

- Academy driven studies *
- Visiting Industry Research Associate
- Industry PhD-student
- Company financed PhD or faculty project
- Vinnova/NGIL financed PhD or faculty project *
Welcome to NGIL Workshop on Flexible Logistics
- making logistics operations more flexible and adaptive through simulations

With increasing complexity in supply networks, managing logistics operations will place new demands on supply chain management. This means that 1) new approaches are needed for managing logistics processes and 2) methods and models to deal with logistics need to be developed. This raises important questions, including:

What type of approaches can logistics decision-makers use to address increased complexity and adaptability?

In addition, what type of methods and tools can be used to deal with unanticipated changes?

The purpose of this workshop is to address these issues with the concept of adaptive logistics and with the use of simulation as a method and tool to deal with tomorrow’s logistics issues and problems.

The day will be devoted to presentations from companies and researchers involved in previous projects, sharing their conclusions and what they perceive to be the future challenges. After lunch there will be group discussions on how these questions can be approached in future research projects. The morning session of the workshop is open for all who are interested, while the afternoon session is for NGIL partners only.

When: 16 October 2017
Where: Örebro, outside Lund (Attached is a “How to get there”).

Programme:
09.00 – 09.30 Coffee and Registration
09.30 – 09.50 Introduction Mats Johnson and Fredrik Nilsson
09.50 – 10.15 Adaptive logistics – a new business logic for logistics
10.15 – 10.30 Break and refreshments
10.30 – 11.15 Complexity approaches on operations and logistics problems
Vince Darley, Eurobox, London
11.15 – 12.00 Demand Capacity Planning
Hakan Jone
12.00 – 12.30 Modeling and simulation of supply chain inventories – experiences and results from ongoing NGIL project with Volvo Parts, Johan Marklund,
12.30 – 13.15 Lunch
13.15 – 13.30 Status of NGIL and what is a NGIL project like? How does the application process work? Mats Johnson, Management Director NGIL
13.30 – 13.40 Workshop start up, Jonas Karlsson (Örebro castle, workshop rooms)
13.40 – 14.40 Group discussions to identify issues for different kind of projects.
15.00 – 15.15 Coffee
15.15 – 16.00 Presentation and discussion of potential research projects
Registration: send an e-mail to Jonas Karlsson, jonas.karlsson@plog.lth.se before October 5.

Welcome!
Fredrik Nilsson and
the NGIL Management Group
**Welcome to NGIL’s seminar**

**Innovative Technologies for Innovative Logistics**

The purpose of the seminar is for the companies to come together and learn about some current and emerging technologies that may enable logistics and get inspiration from some companies that have interesting new technologies.

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>09.00 - 09.30</td>
<td>Coffee and Registration</td>
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<tr>
<td>09.30 - 09.45</td>
<td>Welcome: The purpose of the day and an introduction to Next Generation</td>
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<td>of Innovative Logistics, Managing Director Mats Skönsås, NGIL</td>
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<tr>
<td>09.45 - 10.45</td>
<td>White paper - Technologies for capturing identity, status and location</td>
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<td>for real-time visibility. A report that presents relevant technologies</td>
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<td>from a logistic perspective. Technical Director Olof Frodigh, Binom</td>
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<td>10.45 - 11.15</td>
<td>What is the status regarding RFID and its applications from a research</td>
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<td>perspective. Some insights from the research front. PhD-student Henrik</td>
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<td>Feldt, Packaging Logistics</td>
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<td>11.15 - 12.00</td>
<td>CYPACK presents innovations that enable intelligent RFID technology</td>
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<td>designed for secure and time-stamped data capturing. Their products</td>
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<td>increase data quality and support the overall IT-automation efforts in</td>
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<td>the development of new pharmaceuticals, enabling secure data flow from</td>
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<td>individual dosage to patient databases. Co-founder and VP Marketing</td>
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<td>Stina Ehrland, CYPACK</td>
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<td>12.00 - 13.00</td>
<td>Lunch</td>
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<td>13.00 - 13.30</td>
<td>Aneta shows how their pan can be used in applications to secure the</td>
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<td>flow of information and to eliminate the backlog of paper reports in</td>
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<td>logistic systems. Developer Peter Diizion, Aneta Group</td>
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<td>13.30 - 14.00</td>
<td>Acreo presents how their printed electronic paper can be used to create</td>
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<td>smart paper- and plastic packaging systems to secure handling of food,</td>
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<td>pharmaceutical products and value documents, e.g. passports. Manager</td>
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<td>Olina Chatsky; Acreo</td>
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<td>14.00 - 14.15</td>
<td>Coffee and Lunch</td>
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<td>14.15 - 14.45</td>
<td>Bitz presents how its sensor can be used to analyse the supply chain,</td>
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<td>monitor the heat exposure to create transparency in the whole value chain.</td>
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<td>R&amp;D Director Per Lund, Bitz</td>
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<td>14.45 - 15.15</td>
<td>RFID Constructors, live demonstration of the new information corridor,</td>
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<td>the RFID-tag, for visibility in complex supply chains and for life cycle</td>
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<td>item identification. Managing Director Niklas Nils, RFID Constructors</td>
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<td>15.15 - 15.45</td>
<td>Secure Logistics, live demonstration of its two technologies:</td>
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<td>TamperSeal™, a wireless immersion alarm for all types of transport</td>
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<td>packages for detecting thieves and smugglers, and Luminous Nano</td>
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<td>Pigments™, invisible ID marks, which are hard to counterfeit and can be</td>
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<td>read through packages, for unique item identification or authentication</td>
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<td>of pharmaceutical and food products, animals, timber, steel parts, and</td>
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<td></td>
<td>packages. Founder Stefan Wendel, Secure Logistics</td>
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<tr>
<td>15.45 - 16.15</td>
<td>Discussion and final remarks</td>
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**NGIL, Next Generation Innovative Logistics**
Ongoing research activities

After the Innovative Technologies for Innovative Logistics Workshop on April 24, the projects presented below were selected for funding by the NGIL Board. Research is now in progress in these areas and you are welcome to contact the person responsible if you are interested in participating or if you would like to follow the progress of the projects. The project "Using the Passive Channel, Mobiles and Tablets to Ensure Adaptability in Supply Chains" has been approved but not yet started. You can read more about the projects on the NGIL website: www.NGIL.se

Real Time Visibility Techniques Study (VISITEC)

To know where, when, and what is in a supply chain is extremely important in modern logistics in order to optimize supply chain management. Different techniques and infrastructures that support the type of information flow exist. New and innovative technologies for automatically registering ID, position and status of an object are a prerequisite for innovative logistics. This includes both global targeting such as tracking containers on a ship or truck, or local solutions such as floating sensors on a warehouse or in a retail store. Today these are a variety of systems developed to solve such problems using different techniques for different problems. In the next generation of logistics there could be more generic solutions or better integrated and improved versions of current ones to obtain real-time visibility on both global and local scale of all material, products, purchases, goods, vehicles, equipment, and in some cases, even people and animals.

The purpose of the project is to conduct a comprehensive survey of technologies for managing identification, localization, and data reporting of goods, packaging, load units and other assets in a logistics chain, in real time. The project will use these new technologies and apply it to the product or package, verified, rest, and how the information is transmitted to the control center.

Project leader: Anna Wundel

100% Connectivity: Potential Impact of Online Solutions on Next Generation Supply/Demand Chain

In the world today the ability to communicate, access data and services, and share ideas is a necessity. Mobile phones, laptops, and PDAs are all examples of devices that people are always on line. But what if we had solutions transferable to business solutions in general and supply-demand solutions in particular?

One general hypothesis is that having 100% connectivity would result in the establishment of a global platform for electronic collaboration. Once a pipeline is created for the basic transactions, it could be expanded to become a supply chain visibility by sharing critical planning and supply information. This information could include sales activity, forecasts, inventory positions, week in progress and the status of shipments. However, to reap the potential benefits of innovative technology and applications, companies must figure out how to make their technology and processes work together to create a coherent portfolio strategy of how to use connectivity to increase the effectiveness of their supply/demand chains. Companies most likely will have to take a portfolio view in connectivity strategy.

Examples of project aims are to conceptualize the range of supply chain programmes and information connectivity as two important aspects of logistics, and the role of information connectivity in making logistics programmes successful.

Project leader: David Hellbusch

Reflections from the Workshop on Innovative Technologies for Innovative Logistics

More than 10 people attended the Innovative Technologies for Innovative Logistics Workshop held on April 24. The anticipated high attendance led the workshop organizers to extend the workshop\’s presentations in company at the NGIL conference in Malmo on November 19th. The presentations covered topics such as design and implementation of new systems, and the new technologies that have been developed in the field of logistics.

One of the highlights of the conference was the presentation by Jonathan Sjödal from the University of Lund who described the new logistics system that has been developed in collaboration with NGIL. The system is designed to improve the efficiency of the supply chain and reduce costs. The system uses a combination of sensors and software to track the location of goods at all stages of the supply chain.

Ogilvy Media, VINTAGE & Wiis Residence, CIEM

www.NGIL.se

Portal for innovative logistics research

Conferences, projects, books, journals, etc.
Food and distribution for old people logistics, production and distribution

Inbound logistics, automatic order picking and palletizing

Master Thesis Visibility

Secure Logistics
Membership levels

A-level
*minimum of 1,000’ SEK/year*
Be part of the Board of Directors. Can specify a research project that also involves other partners. Can have a PhD student working with only this project. Can be the “owner” of a research project. Can start up new research areas. All workshops and seminars are free, no participant limit.

B-level
*minimum of 500’ SEK/year*
Will form a reference group with other gold companies around a specified research project. Can take part in reference groups. Can open new research areas. All workshops and seminars are free for up to 5 partner participants.

C-level
*In kind contribution minimum 100 hours/year + a minimum of 20’ SEK/year*
Will take part in research by providing case studies at companies. Can take part in reference groups. Can submit proposal for the research agenda. All workshops and seminars are free for up to 2 partner participants.

D-level
*Minimum 20’ SEK/year*
Receive newsletter and have access to the open part of www.NGIL.se. Can attend open workshops and seminars for half the cost.
Examples of research projects

- Supply Chain Risks and Risk Sharing Instruments
- RFID for visibility in the supply chain
- Supply chain collaboration/VMI: How and when?
- Software Supply Chain Management
- Purchasing Practices of Environmentally Preferable Transport Services
- Improving Procurement Performance with E-business Mechanisms
- Supply Chain Integration through Performance Measurement
- Logistical Principles in Construction Supply Chains
- How can increased information about where items are in a supply chain improve its inventory control? Where should we keep inventory and how much?
- How can advance information of future demand be used to substitute inventory in distribution systems?
- How to manage inventories of perishable items?
- Technology and methods needed for efficient traceability
- Transparency in the food supply chain
- Smart packaging in the logistics chain
- Adaptive logistics – using complexity theory to facilitate increased effectiveness in logistics
- Integrated packaging, logistics and product development
- Exploring the Potential of Using Radio Frequency Identification Technology in Retail Supply Chains
- Horizontal environmental assessment for supply chain and logistics management
Information and newsletter

www.NGIL.se