Some background information

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  - Professor at Wismar University & TU Tallinn
  - Board Member of Institute of European Business Studies, Wismar
  - Board Member of Centre of Business Research and Development, Tallinn
  - Board Member of Institute for Cooperative Studies at Humboldt University Berlin

- **Anatoli Beifert**
  - PhD in Business
  - Head of EU Project Centre, Wismar

- **Laima Gerlitz**
  - MSc. & PhD student in Business
  - Project manager at EU Project Centre, Wismar
  - EU Project Centre active since 2000 in European Projects

**Main Topics:**
- SME – Management & Internationalisation of SME
- Regional Development & Innovation
- Logistics & Management in Shipbuilding
- Design Management
- Green Transport
- E-Government
Why we talk about Green?

- The Intergovernmental Panel on Climate Change (IPCC 2007) claimed global warming as the most important environmental problem of today’s society and industries.

![Global Land–Ocean Temperature Index](http://data.giss.nasa.gov/gistemp/graphs_v3/ (April 20, 2015))
Global CO2 Emissions

• Biggest problem of global warming is CO2

![Graph showing CO2 concentration over time](image)


• May 2016: 404 ppm*
  2015 measured in June

J. Kiehl, Science 331 (2011), 158

• “The atmospheric CO2 concentration currently is 390 parts per million by volume (ppmv), and continuing on a business-as-usual path of energy use based on fossil fuels will raise it to ~900 to 1100 ppmv by the end of this century. ... warmed the tropics by 5° to 10°C and the polar regions by even more (i.e., 15° to 20°C).

• Consequence
  • 2015 United Nations Climate Change Conference, COP 21
    • agreement to set a goal of limiting global warming to less than 2 degrees Celsius (°C) compared to pre-industrial levels.
    • Until now from middle of 19th century: 0.85 – 1.0 °C
top 40 CO2 emitting countries

EU Edgar database

EU2020 Strategy on smart, green and inclusive growth

- 20-20-20 targets (2007) – „Climate and energy package“:
  20% less greenhouse gas emissions 2020 compared to 1990,
  20% of energy consumption from renewable sources,
  20% increase in energy efficiency
  Internalisation of external costs, proposal of road tolls for lorries etc.
- „Europe 2020“ (2010): To recover from economic crisis, the strategy
  puts forward three mutually reinforcing priorities:
  * Smart growth: developing an economy based on knowledge and innovation.
  * Sustainable growth: promoting a more resource efficient, greener and more
    competitive economy.
  * Inclusive growth: fostering a high-employment economy delivering social and
    territorial cohesion.

**Transportation & GHG**

- **F-gases**: 2%
- **Nitrous Oxide**: 6%
- **Methane**: 16%
- **Carbon Dioxide (combustion and industrial processes)**: 63%
- **Carbon Dioxide (industry and other use)**: 11%

**Source:** [IPCC (2014)]

**Generally:** Energy consumption for transportation depends on transport mode
- transport produces about 20% CO2 and uses about 70% of petrol

**Mean terrestrial geothermal flux at earth’s surface:** 0.057 W/m²

**Transport & GHG**

- **Electricity and Heat Production**: 23%
- **Agriculture, Forestry, and Other Land Use**: 24%
- **Buildings**: 6%
- **Transportation**: 16%
- **Industry**: 21%
- **Other Energy**: 10%
- **Energy consumption for transportation depends on transport mode**
- transport produces about 20% CO2 and uses about 70% of petrol
Definition of GrSCM

GrSCM is the concept of SCM extended by adding sustainability, i.e. integrating environment thinking, including:
- Product design,
- Material sourcing and selection,
- Manufacturing processes,
- Delivery of the final product to the consumers, and
- End-of-life management of the product after its useful life


Content of our presentation

- Cross-border projects of our team in Blue & Green Growth
  - Green Economy and its role logistics & transportation
  - Green Transport Corridors
    - Multimodality, short sea shipping, cargo bundling
    - LNG as new business opportunity in transport & energy sector
    - Smart Supply Chain Management in the Air Cargo Sector – Road Feeder
      Services in air cargo business and integration of SMEs in logistics networks
  - Strengthening Green Energy through cooperation with countries from Eastern Europe and Central Asia
    - Wind & solar energy integration in KZ and RU
    - Transfer of best practices from the European partners (e.g. waste management)
- Growing interest for cooperation with Latin America
  - EU projects & research
  - Transfer of best practices and knowledge for sharing values of sustainable future
List of EU Projects

LEONARDO-Project: "InterSME"
LEONARDO-Project: "EU-diploma in SME-Management"
LEONARDO Project: "International comparative studies on SMEs"
BSR INTERREG III B-Project: "BBDN - Baltic Business Development Network"
BSR INTERREG III B-Project: "LogOn Baltic"
BSR INTERREG III B-Project: "InterBaltic"
BSR INTERREG III B-Project: "A.S.A.P. - Efficient administrative Structures"
Management Training Programme for Shipbuilding Industry
National Project: "Innovation Network Logistics Region Wismar"
ERASMUS-Project: "Virtual Campus for SME"
TEMPUS-Project: "SII-M - Strategic International Management for SME"
South Baltic INTERREG IV A-Project: "Oversize Baltic"
BSR INTERREG IV B-Project: "East-West-Transport-Corridor II"
BSR INTERREG IV B-Project: "EGOPRISE"
BSR INTERREG IV B-Project: "Baltic AirCargo.Net" Central Baltic INTERREG IV A-Project "BASIS"
South Baltic INTERREG IV A-Project: "DesignSHIP"
BSR INTERREG IV B-Project: "Baltic Bird"
TEMPUS-Project: "Green Engine - Eco-Engineering"
South Baltic INTERREG IV A-Project: "MarTech_LNG"
BSR Cluster Project "Baltic Transport cluster"
FP7-IRSES Project "Crossing Boundaries"
ERASMUS+ Project "Green Logistics Management"
Central Baltic Project "Startup Springboard"
BSR INTERREG V B-Project "EnviSum"
BSR INTERREG V B-Project "Go LNG"

Selected related research papers I


Selected related research papers II


Selected related research papers III

EUROPE – ECONOMIC BACKGROUND, COOPERATION PATTERNS AND BLUE & GREEN GROWTH

European Economy

Germany: 2,903,790
UK: 65,000
France: 60 Mio. Inhabitants

Benelux, DE, FR, UK: EU Economic Core
Enlarged „Blue Banana“ after 2004

- EU is highly centralised in terms of economic activity.
  - Western Germany, Benelux, N.E. France and S. England: 1/7 land, 1/3 of population and ½ GDP.
- Periphery has lower standard of living.
  - More unemployment.
  - More youth unemployment.
  - More poverty.
- Despite high centralisation, there are also economic differences

Wismar & Tallinn

**EU Strategy for the Baltic Sea Region**

- An integrated approach to identify needs, solutions and match them to available resources
- Three objectives
  1. Save the Sea
  2. Connect the Region
  3. Increase Prosperity
- 4 Cornerstones to make BSR more:
  - Environmentally sustainable (e.g. reducing pollution in the sea);
  - Prosperous (e.g. promoting innovation in small and medium enterprises);
  - Accessible and attractive (e.g. better transport links);
  - Focus: Motorways of the Sea, Smart & Green Logistics
  - Safe and secure (e.g. improving accident response).
- Implementation system
  - making better use of existing institutions, funding and legislation – no new EU structures, EU laws, or EU money
  - TEN-T incl. Motorways-of-the-Sea; BSR Interreg Programme: Marco Polo

**EU – Projects in Logistics in the BSR**

- LogOn Baltic
  INTERREG III B
  Logistics Competence and Regional Development
- OVERSIZED
  INTERREG IV A „South Baltic“
  Oversize and heavy transport in South Baltic Sea
- East-West-Transport-Corridor II
  INTERREG IV B
  Linking South Baltic and Black Sea Logistics
- Baltic AirCargo.Net
  INTERREG IV B
  Improving Air Cargo Logistics in Baltic Sea Region
- Baltic Bird
  INTERREG IV B
  Improving Air Passenger Logistics in Baltic Sea Region
- MarTech LNG
  South Baltic Interreg IV A
  Establishing LNG in South Baltic Region
- BSR Logistics Cluster Project
  INTERREG IV B Umbrella Project
- Go LNG
  BSR Interreg V B
  Establishing LNG in Baltic Sea Region
- EnviSum
  BSR INTERREG V B
  Evaluation of SECA regulation impact in BSR
Green Economy and Its Growing Role in the EU

1. Green Transport Corridors

- 50% increase in passenger and freight transport within the next 20 years (Tetraplan, 2009)
- Green transport corridors were introduced in Freight Transport Logistics Action Plan (FTLAP) from 2007
  - The concept of transport corridors is marked by a concentration of freight traffic between major hubs and by relatively long distances of transport.
  - Along these corridors industry will be encouraged to rely on co-modality and on advanced technology in order to accommodate rising traffic volumes while promoting environmental sustainability and energy efficiency.
  - Green transport corridors will reflect an integrated transport concept where short sea shipping, rail, inland waterways and road complement each other to enable the choice of environmentally friendly transport.
  - Powerful corridor governance and management concepts which are still under construction
Green Corridors in Baltic Sea Region

• Accessibility is one cornerstone in BSR Strategy:
  ▪ To make BSR more accessible and attractive (e.g. better transport links);
  ▪ Priority area 11: Transport
  ▪ Focus: Motorways of the Sea, Smart & Green Logistics
• Implementation approach: making better use of existing institutions, funding and legislation – no new EU structures, EU laws, or EU money
  ▪ Policy development: European Council and high-level group
  ▪ Special initiatives
    ▪ TEN-T incl. Motorways-of-the-Sea
    ▪ White Paper 2011
    ▪ Baltic Transport Outlook 2030
    ▪ BSR Interreg Programme

BSR Green Corridor Initiatives

• Between 2008 and 2013 in a large number of national and international projects about intermodal and green transport concepts were realised

• FP7 project: SuperGreen
  ▪ Evaluation & benchmarking of green transport

• Implementation projects for developing and testing green corridor concepts in BSR
  ▪ **Green Corridor** Swedish Logistics Forum
  ▪ **East-West Transport Corridor** BSR Interreg IVB
  ▪ **Scandria** BSR Interreg IVB
  ▪ **North-East Cargo Link** BSR Interreg IVB
  ▪ **Transbaltic** BSR Interreg IVB
  ▪ **BSR Transport Cluster** BSR Interreg IVB
East – West Transport Corridor

Scandria

North – East Cargo Link

Scandria

Modern Intermodal Infrastructure and Innovative Logistics

The Scandinavian-Adriatic Corridor provides the shortest link between Northern Europe and the Mediterranean Sea, connecting Scandinavian, Central and Southern European metropolises in the most efficient and ecological way.

Offering first class transport infrastructure, the Corridor is challenging natural barriers such as the Baltic Sea and the Alps.

The Scandria Corridor is also home to leading logistic services. Many of Europe’s top 50 freight villages, e.g. near Berlin, Leipzig, Nuremberg and Verona, are located here.

The Scandria Corridor is an important part of the Trans-European Transport Network, connecting a dozen metropolitan regions with about 100 million inhabitants in the heart of Europe that stick out by their innovative power.

The Scandria Corridor provides developed infrastructure at the latest standards, sufficient capacities and the best technologies available to handle cargo and passengers smoothly.

The Scandria project is focusing on the northern part of the Scandria Corridor and involves 19 project- and 30 associated partners from the Baltic Sea Region that strive for greener transport and a better link from Scandinavia to Central Europe via North-East Germany.

With a focus on the northern part of the Scandria Corridor, this brochure gives an idea of this fascinating, powerful and innovative region at the cohesion interface of an enlarged Europe.
2. Integration of new maritime technologies

LNG as new business opportunity in transport & energy sector

- LNG as a business opportunity for the South Baltic Sea Region (SBSR): SMEs and other businesses, knowledge developers
- Mapping of regional LNG related interests, potential & demand
- Promoting LNG technologies in the region
- Ensuring the durability of LNG content in the region
- Networking platform for future cooperation proposals and industry related tenders
- LNG Institutional Knowledge Pool in the SBSR
- Analysis of the LNG Supply Chain for LNG infrastructural demand
- LNG promotion as a business opportunity sessions and technological trainings (competence building)
- Simulation of LNG-related entrepreneurial activities (LNG tenders)
Global maritime transport routes and transport density as a result of major trading economies


SECAs in Europe according to the MARPOL Annex VI

Source: adopted from DHL Freight
World primary energy demand by fuel 1980 to 2035

Source: International Energy Agency’s core scenario
Adopted from http://www.minerals.org.au/resources/coal/coalbringing_power_to_the_people

Container shipping in the Baltic Sea

Source: Baltic Transport Maps Adopted from Baltic Transport Maps,
http://www.baltictransportmaps.com/contmap.html#?z=2.2&x=-52.83&y=315.65
# EU measures to be implemented for clean power for transport

<table>
<thead>
<tr>
<th>Measure</th>
<th>Coverage</th>
<th>Timing</th>
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<tbody>
<tr>
<td>Electricity in urban/suburban and other densely populated areas</td>
<td>Appropriate number of publicly accessible points</td>
<td>by end 2030</td>
</tr>
<tr>
<td>CNG in urban/suburban and other densely populated areas</td>
<td>Appropriate number of points</td>
<td>by end 2020</td>
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<tr>
<td>CNG along the TEN-T core network</td>
<td>Appropriate number of points</td>
<td>by end 2025</td>
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<tr>
<td>Electricity at shore-side</td>
<td>Ports of the TEN-T core network and other ports</td>
<td>by end 2025</td>
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<tr>
<td>Hydrogen in the Member States who choose to develop it</td>
<td>Appropriate number of points</td>
<td>by end 2025</td>
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<tr>
<td>LNG at maritime ports</td>
<td>Ports of the TEN-T core network</td>
<td>by end 2025</td>
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<tr>
<td>LNG at inland ports</td>
<td>Ports of the TEN-T core network</td>
<td>by end 2030</td>
</tr>
<tr>
<td>LNG for heavy-duty vehicles</td>
<td>Appropriate number of points along the TEN-T core network</td>
<td>by end 2025</td>
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# LNG Supply & Value Chain

![LNG Supply & Value Chain](image_url)

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MarTech LNG & new business spin-offs

- LNG for Samsoe ferry operation – 5 ml. EUR
- LNG bunker barge for Klaipedos Nafta – 4 ml. EUR
- LNG use for ammonium trans-shipment terminal in Ventspils port – 10 ml. EUR
- LNG powered dredger for Klaipeda Port – 30 ml. EUR
- Total: 49 ml. EUR

- LNG dredger for the Klaipeda port – 250 jobs to be created in Lithuania
- More than 100 new jobs in the South Baltic Sea Region
- Business partnership network www.golng.eu with access to more than 100 technology proposals and the network of 200 business companies

3. Smart SCM in the Air Cargo Sector

- Air cargo role in global transportation
  - Ca. 1% from globally transported goods in terms of volume & weight
  - Ca. 40% from globally transported goods in terms of value

- Air cargo basic characteristics
  - Just-in-time delivery – reduce levels of inventory required.
  - Secure and faster delivery – increases customer willingness to pay.
  - Economies of network size – more potential markets for retailers.
  - Efficiency – Links suppliers, manufacturers, retailers, end consumers.
3. Concept of “Flying Trucks” or Air Trucking Services

- Air trucking - connection between 2 or more airports
- Fixed departure / arriving schedule
- Truck operating on Air Waybill (AWB), i.e. a real flight number and it might have several route / flight numbers
- Transported cargo → 100% declared Air Cargo
- Flying trucks **can not** carry normal cargo, it is **not** possible to combine the load with normal transport cargo

Air cargo shares in CPH 2014

- Flying Trucks
- Cargo A/C
- Belly Cargo
- Mail

Air Trucking development in Europe

European Air trucking routes in 2007

European Air trucking routes in 2015
Strengthening Green Logistics and Green Energy through cooperation with countries from Eastern Europe and Central Asia

Green Energy - Motivation

World energy production vs. world energy consumption

EU-28 Energy Mix - Gross Inland Consumption


EU-28 Renewables share

Source: Eurostat, April 2015
EU-28 Wind & Solar Capacity

Example projects 1 – alpha ventus
Pioneer project – alpha ventus

• First OWF in Germany
• 1999 – planning start
• 2009 – first turbine installed
• 12 Months construction delay!
• Capacity: 4100 Euro/kW
• Planned costs: €190 million
• Real costs: €250 million
• Installation of 12 turbines took 7 months

Today’s average installation times:
• 2 days for foundation
• 1.5 days for turbine installation
→12 turbines in 42 days

Offshore Wind Parks
Green Energy – Challenges in Partner Countries

1. Green Energy processing belongs to prior political and social policies (e.g. Russia, Central Asia)

2. Current economic realities and relevant educational infrastructure do not allow effective realization of these policies

3. Deficit in KNOW-HOW and/or soft factors:
   • Gap in relevant specialists;
   • Lack of educational background,
   • Gap in practical experience

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