

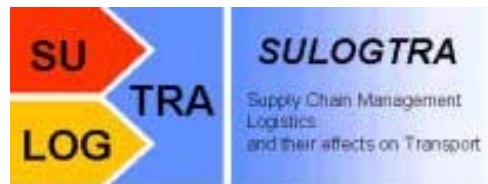


Technische Universität Berlin

Prof. Dr.-Ing. Helmut Baumgarten

Managing Director of the Institute of Technology and Management

Head of the Logistics Department



***SULOGTRA - Effects on Transport
of Trends in Logistics and
Supply Chain Management***

May 10th 2001

4th BESTUFS Workshop

The Hague

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Content

▶ Introduction to SULOLOGTRA

▶ Methodological Framework of WP 3

▶ SCM Trends and FTS Indicators

▶ Results within the Industrial Sectors

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SULOGTRA in context



Competitive and Sustainable Growth Programme



5th FWP - Research Project

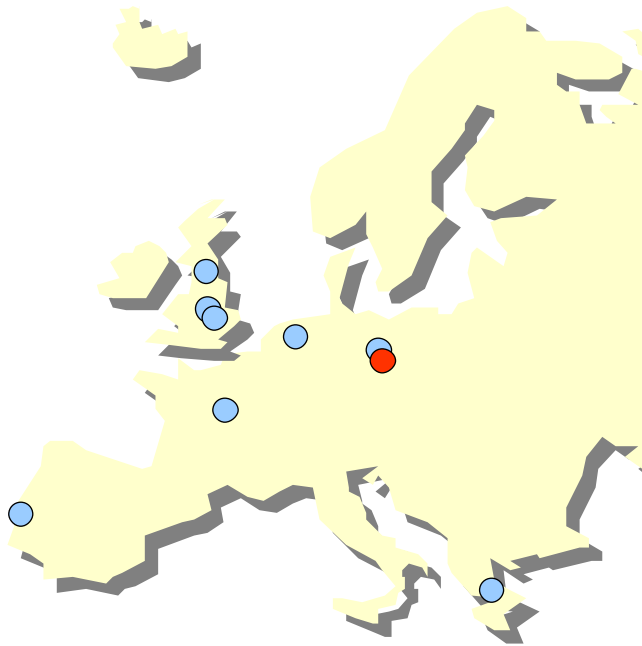
- ▶ Produce, disseminate and use enabling knowledge and technologies
- ▶ Increase economic growth and/or create new jobs
- ▶ Sustain continuing innovation and modernisation for EU-enterprises
- ▶ Implications for enabling policies

- ▶ Key Action 2: Sustainable Mobility and Intermodality
- ▶ Title: Effects on Transport of Trends in Logistics and Supply Chain Management
- ▶ 1st call, proposal number 10591
- ▶ Principal: DG TREN
- ▶ Duration: 24 month (1/00 - 12/01)

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Project Participants



▶ Co-ordinator: Technical University of Berlin, D

- ▶ Heriot-Watt University, UK
- ▶ Cranfield University, UK
- ▶ Zentrum fuer Logistik und Unternehmensplanung GmbH, D
- ▶ Research Centre of the Athens University of Economics and Business, GR
- ▶ TIS.PT - consultores em Transportes, Inovação e Sistemas, P
- ▶ Netherlands Economic Institute B.V., NL
- ▶ Louis Berger S.A., F
- ▶ Templeton College, UK

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Project Objectives

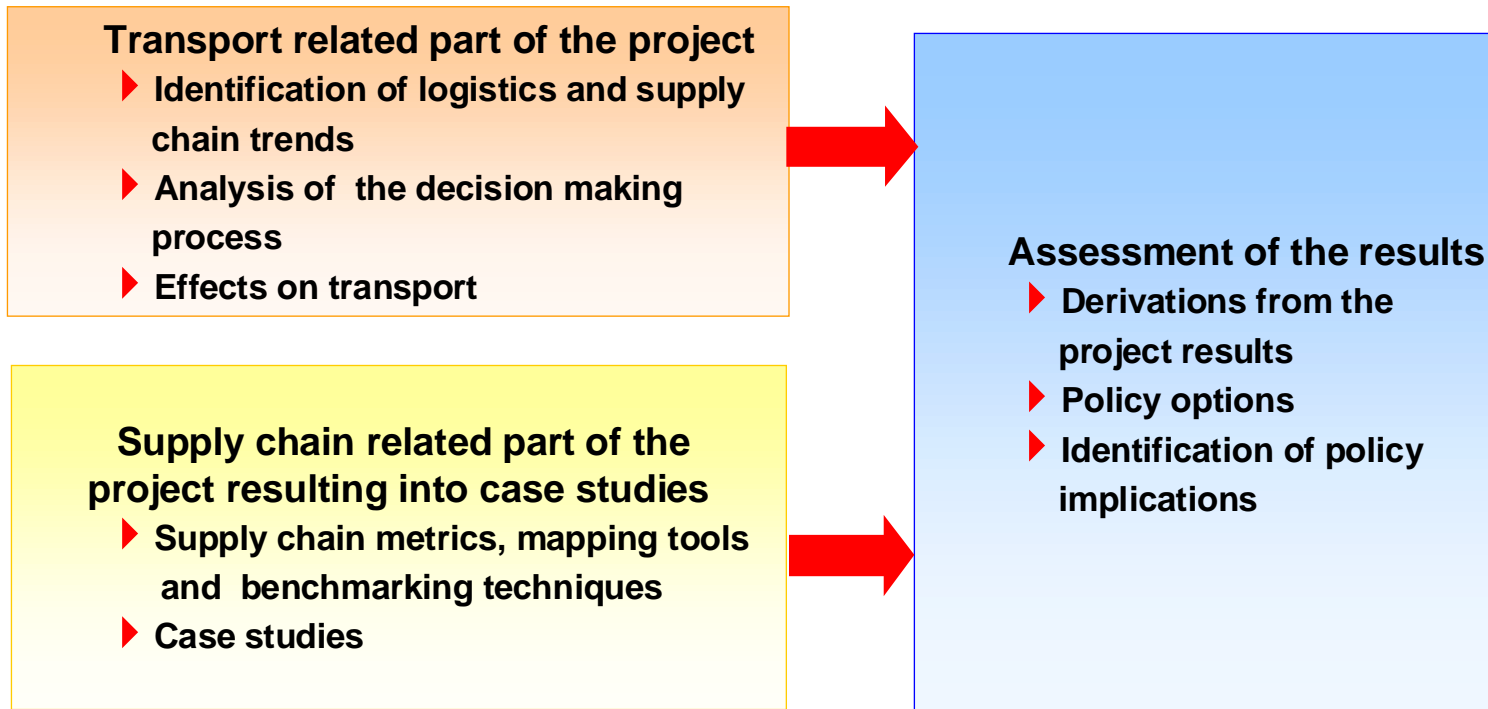
▶ Overall objectives

- ▶ Promoting supply chain integration at EU level
- ▶ Provide industry on supply chain trends, performance measurement (such as benchmarking tools) and supply chain optimisation/ improvement.
- ▶ Identify policy implications

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SULOGTRA – General Framework



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Project Objectives - Work Packages

To meet the objectives the project is divided into Work Packages:

- ▶ WP 1: Analysis of trends in logistics and SCM
- ▶ WP 2: Analysis of decision-making processes
- ▶ WP 3: Analysis of impacts on freight transport

- ▶ WP 4: SC metrics, mapping tools and benchmarking
- ▶ WP 5: SC optimisation and best-practice
- ▶ WP 6: Analysis of value creation in SC
- ▶ WP 7: Supply chain case studies

- ▶ WP 8: Policy implications and advice
- ▶ WP 9: Exploitation and dissemination

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Traffic relevant Segments in E-Business

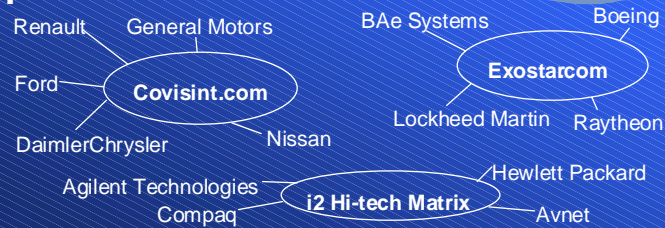
Vertical B2B Marketplaces - Supply Chain Portals



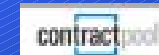
B2C - Home Delivery



Horizontal B2B Marketplaces



B2B - Platforms for Logistics



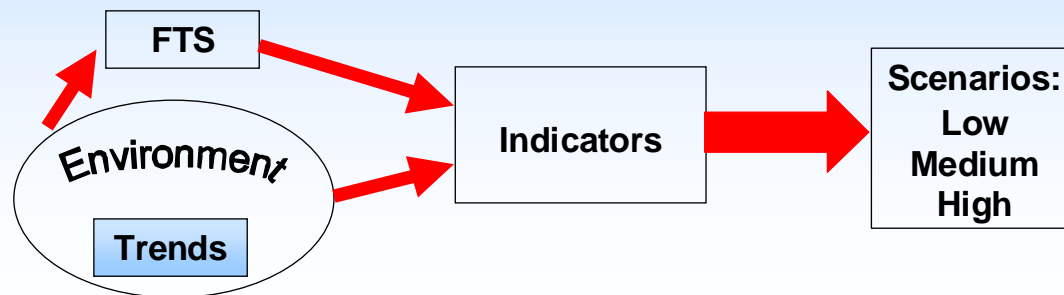
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Methodological Framework of WP 3

The assessment of the relationship between the SCM trends and the freight transport system utilisation consists of five steps:

- ▶ Analysis of SC and freight transport system and their environment
- ▶ Qualitative estimation of the future development of the FTS
- ▶ Analysis of the legal and institutional environment of the FTS
- ▶ Quantitative estimation of the current status of the FTS
- ▶ Consolidation of the results and conclusion



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▶ Methodological Framework of WP 3

▶ **SCM Trends and FTS Indicators**

▶ Results within the Industrial Sectors

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Supply Chain Management Trends I

- ▶ **RESTRUCTURING OF LOGISTICS SYSTEMS**
 - ▶ Spatial Concentration of Production
 - ▶ Spatial Concentration of Inventory
 - ▶ Development of Break-Bulk / Transshipment Systems
 - ▶ Creation of Hub - Satellite Systems

- ▶ **REALIGNMENT OF SUPPLY CHAINS**
 - ▶ Vertical Disintegration of Production
 - ▶ Rationalisation of the Supply Base
 - ▶ Postponement / Deferred Customisation
 - ▶ Increase in Direct Delivery
 - ▶ Wider Geogr. Sourcing of Supplies and Distribution of Finished Products
 - ▶ Concentration of International Trade on Hub Ports and Airports

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Supply Chain Management Trends II

- ▶ **RESCHEDULING OF PRODUCT FLOWS**
 - ▶ Application of Time Compression Principles in Retailing and Manufacturing
 - ▶ Growth of Nominated Day Deliveries and Timed Deliveries
 - ▶ Reverse Logistics

- ▶ **CHANGES IN THE MANAGEMENT OF TRANSPORT RESOURCES**
 - ▶ Changes in Freight Modal Split
 - ▶ Reduction in International Transport Cost

- ▶ **CHANGES IN PRODUCT DESIGN**
 - ▶ Modularity

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FTS Indicators

The mapping of the SCM trends and the impacted FTS identified six indicators:

- ▶ Average length of haul
- ▶ Handling factor
- ▶ Lead time
- ▶ Load factor
- ▶ Percentage of kms driven empty
- ▶ Mode share

The relationship between SCM trends and FTS indicators is depending on:

- ▶ Industrial sector
- ▶ Kind of movement (national or international)
- ▶ Transport mode

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Waste

- ▶ Road transport is the dominant transport mode
- ▶ Expectations for the year 2010:
 - ▶ Increase of the utilisation of vehicles
 - ▶ High increase of the average length of haul for all transport modes
 - ▶ Increase of the length of links between adjacent network nodes
 - ▶ Increase of the size of nodes
 - ▶ Increase of the transport performance
 - ▶ waste disposal process (long haul):
 - ▶ Increase of the rail and water transport share

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Building Materials

- ▶ Road transport is the dominant transport mode
- ▶ Expectations for the year 2010:
 - ▶ Change of the distribution network: fewer nodes or less workload at nodes and longer links
 - ▶ Decrease of the utilisation of consolidation facilities
 - ▶ Decrease of the utilisation of vehicles
 - ▶ Increase of the customised services to customers
 - ▶ Decrease of the freight system productivity

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Petrol and Petrol Products

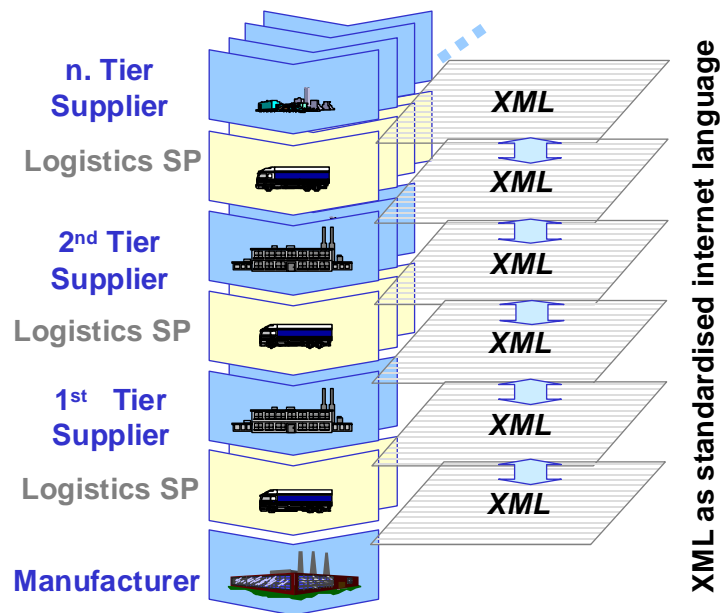
- ▶ **Expectations for the year 2010:**
 - ▶ **Increase of the utilisation of vehicles involved in road and rail transport**
 - ▶ **Low decrease of the lead time**
 - ▶ **Reorganisation of the freight transport system of petrol distribution**
 - ▶ **In international transport:**
 - ▶ **Medium decrease of the road share**
 - ▶ **Low increase of rail, water and pipeline share**
 - ▶ **In national transport:**
 - ▶ **High increase of the road share due to increase of direct deliveries**
 - ▶ **Low increase of pipeline share**
 - ▶ **Decrease of use of transshipment systems in national movements**

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Vertical Electronic Linkage within Supply Chains

- ▶ Internet based data exchange is opening new dimensions of supply chain integration, especially of KMU
- ▶ Intensification of the vertical integration process within supply chains



Traffic relevant Outcomes:

- ▶ Synchronisation of production procedures including the complete supply chain results in critical delivery processes (JIT/JIS)
- ▶ Co-ordinated, higher frequented order rhythms for A-unit-delivery processes
- ▶ Decreasing consignment sizes
- ▶ smaller time slots
- ▶ Make-to-order functionalities

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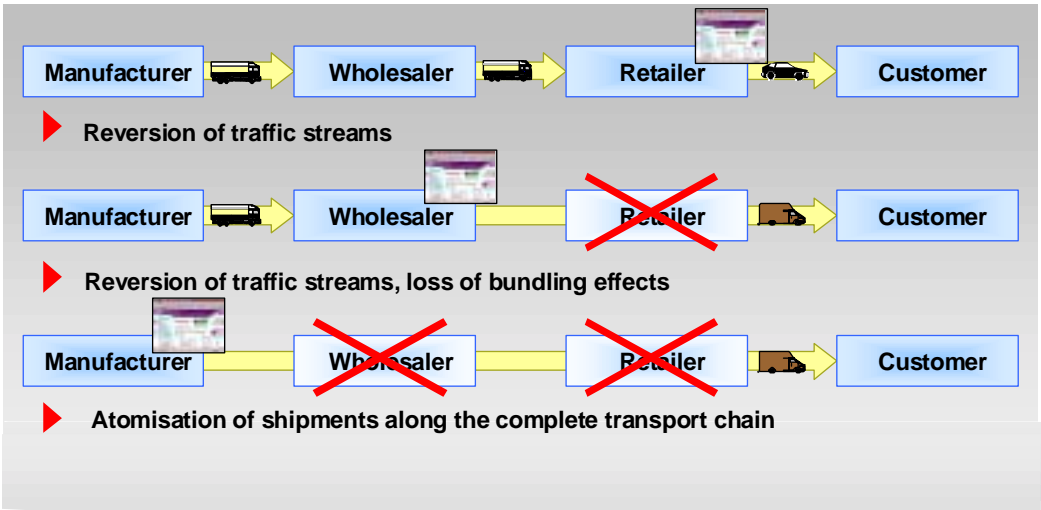
Food and Beverages

- ▶ Road transport is the dominant transport mode
- ▶ Expectations for the year 2010:
 - ▶ Increase of the utilisation of break-bulk systems
 - ▶ Increase of the utilisation of vehicles used for primary and secondary distribution
 - ▶ Decrease of the transfer time of goods
 - ▶ Reorganisation of the food and beverage distribution network due to the spatial concentration of production and the development of reverse logistics

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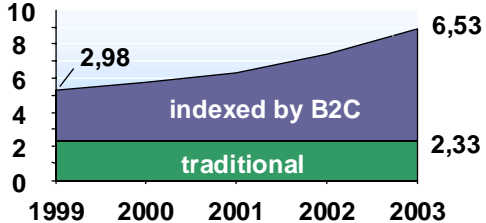


B2C – Home Delivery

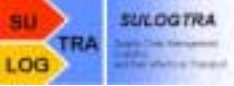


▶ Increase is mainly related to air and road as modes of transport

Development of the daily volume of parcels worldwide in mio units
 Quelle: Forrester 1999



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Parcel

- ▶ **Expectations for the year 2010:**
 - ▶ **Modal split: decrease of the road share and increase of the air share**
 - ▶ **Increase of the utilisation of consolidation facilities and hub terminals**
 - ▶ **Increase of the utilisation of vehicles due to an increase of the market size, economies of scale in consolidation facilities and improvements of the distribution process**
 - ▶ **Increase of the average length of haul**