

State of transport research in South Africa

FREIGHT LOGISTICS

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CSIR Built Environment

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OVERVIEW

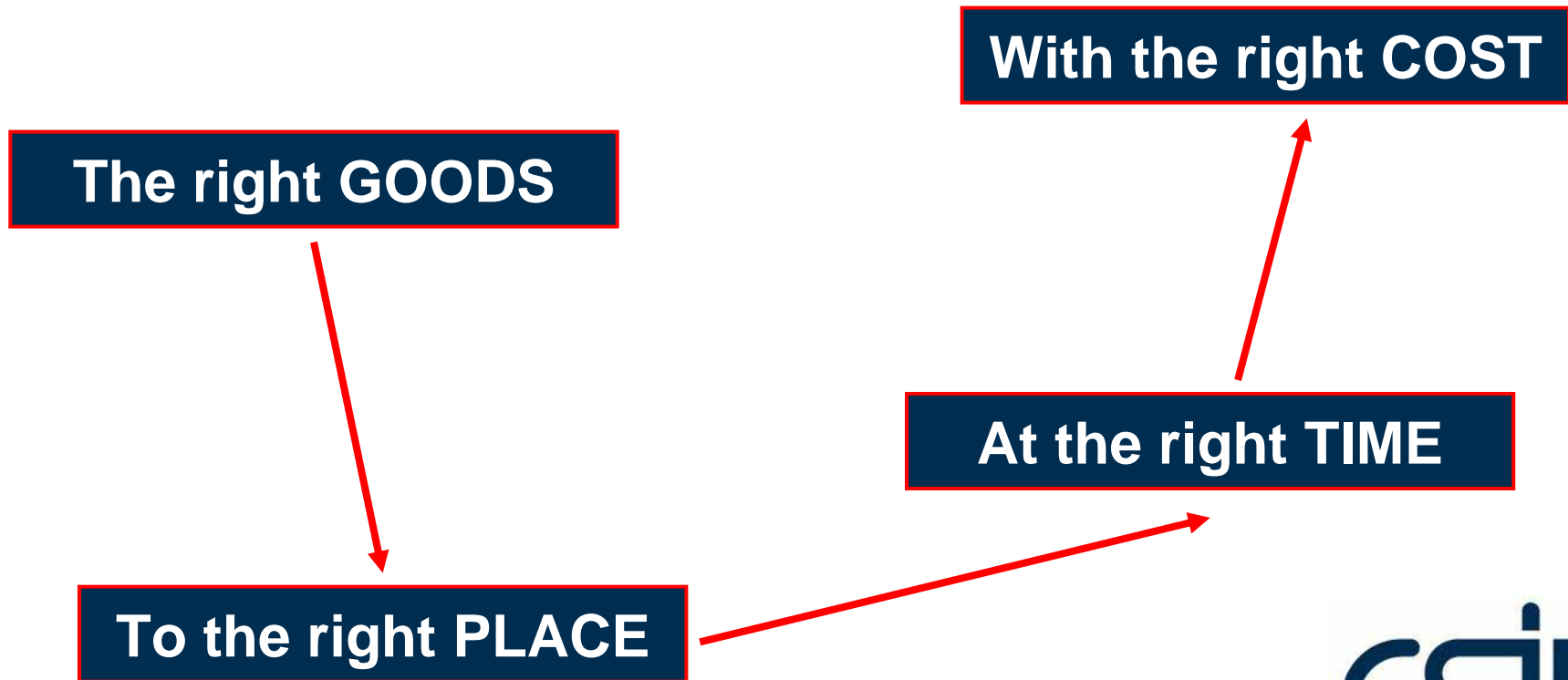
- The nature of freight logistics
- Status of research in logistics and supply chain management
- Concluding remarks



THE NATURE OF FREIGHT LOGISTICS

Introduction

- Freight logistics determines how well freight is transported



THE NATURE OF FREIGHT LOGISTICS

Definitions

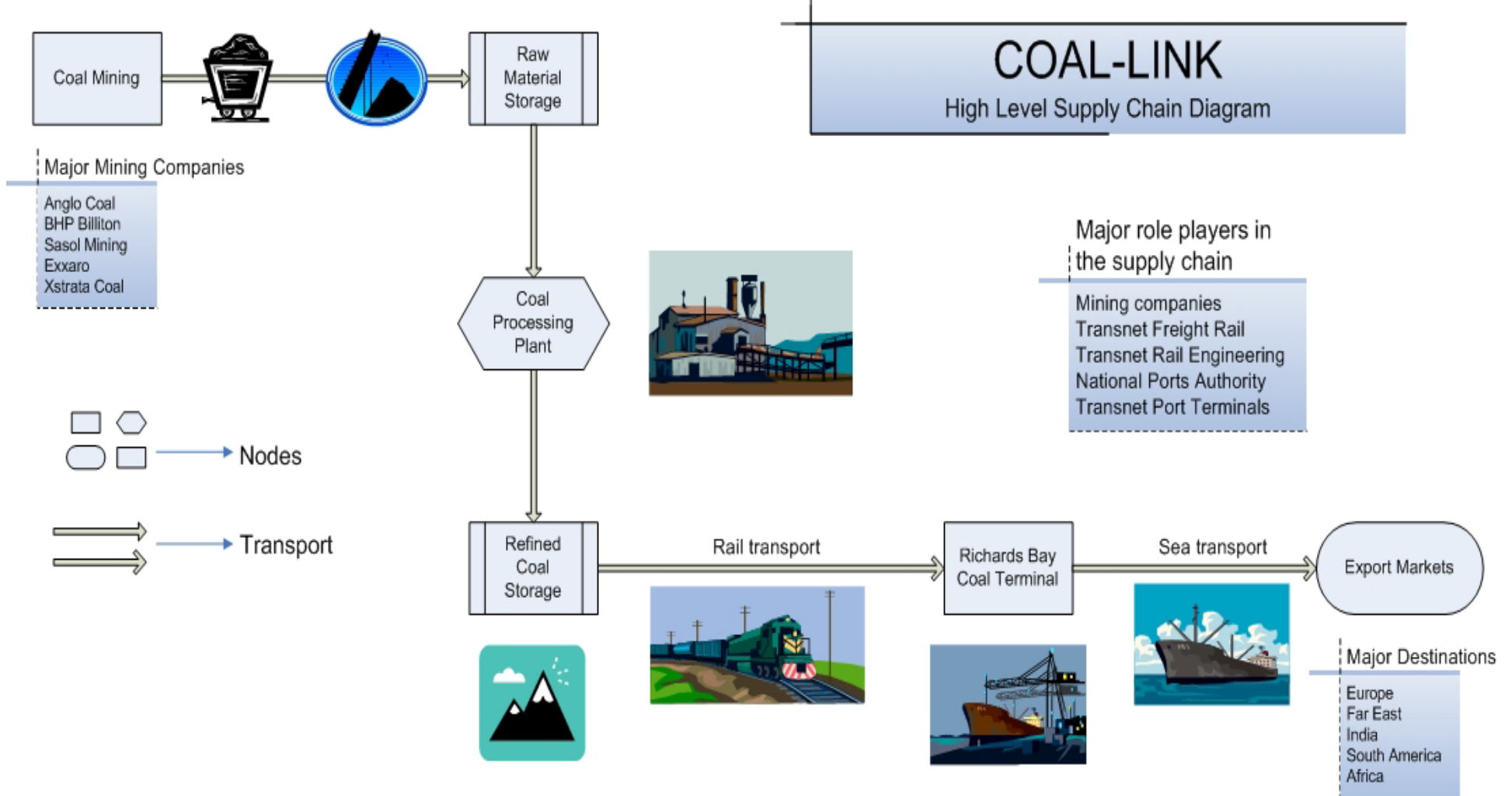
- **Logistics management***
 - *is that part of supply chain management that plans, implements, and controls the efficient, effective forward and reverse flow and storage of goods, services, and related information between the point of origin and the point of consumption in order to meet customers' requirements.*
 - *activities typically include **inbound and outbound transportation management**, fleet management, warehousing, materials handling, order fulfilment, logistics network design, inventory management, supply/demand planning, and management of third party logistics services providers.*
 - *to varying degrees, the logistics function also includes sourcing and procurement, production planning and scheduling, packaging and assembly, and customer service. It is involved in all levels of planning and execution - strategic, operational, and tactical.*
 - *is an **integrating function** which coordinates and optimises all logistics activities, as well as integrates logistics activities with other functions, including marketing, sales, manufacturing, finance, and information technology.*

* Council of Supply Chain Management Professionals (CSCMP), 2009

THE NATURE OF FREIGHT LOGISTICS

Definitions (cont.)

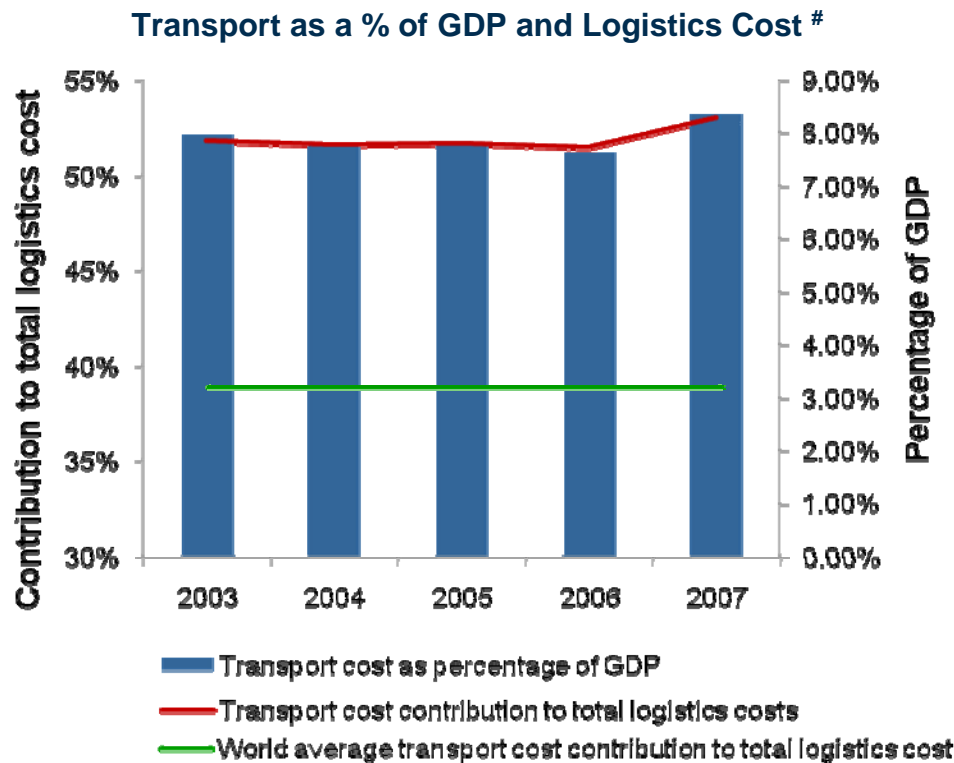
- Supply chain management (SCM)



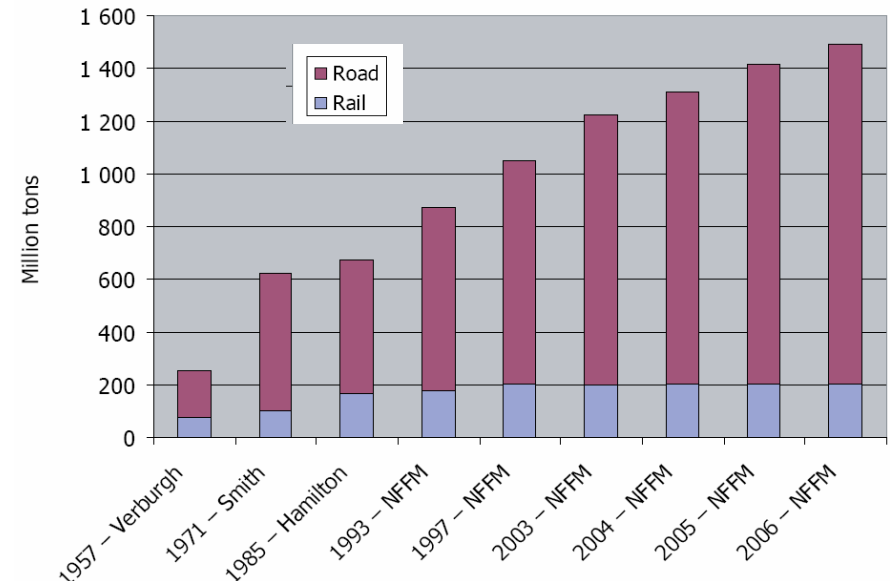
THE NATURE OF FREIGHT LOGISTICS

The major problem

- Too much freight is transported by road



Growth in land freight transport in South Africa *



- In South Africa the above is true and worse... the wrong freight is transported by road

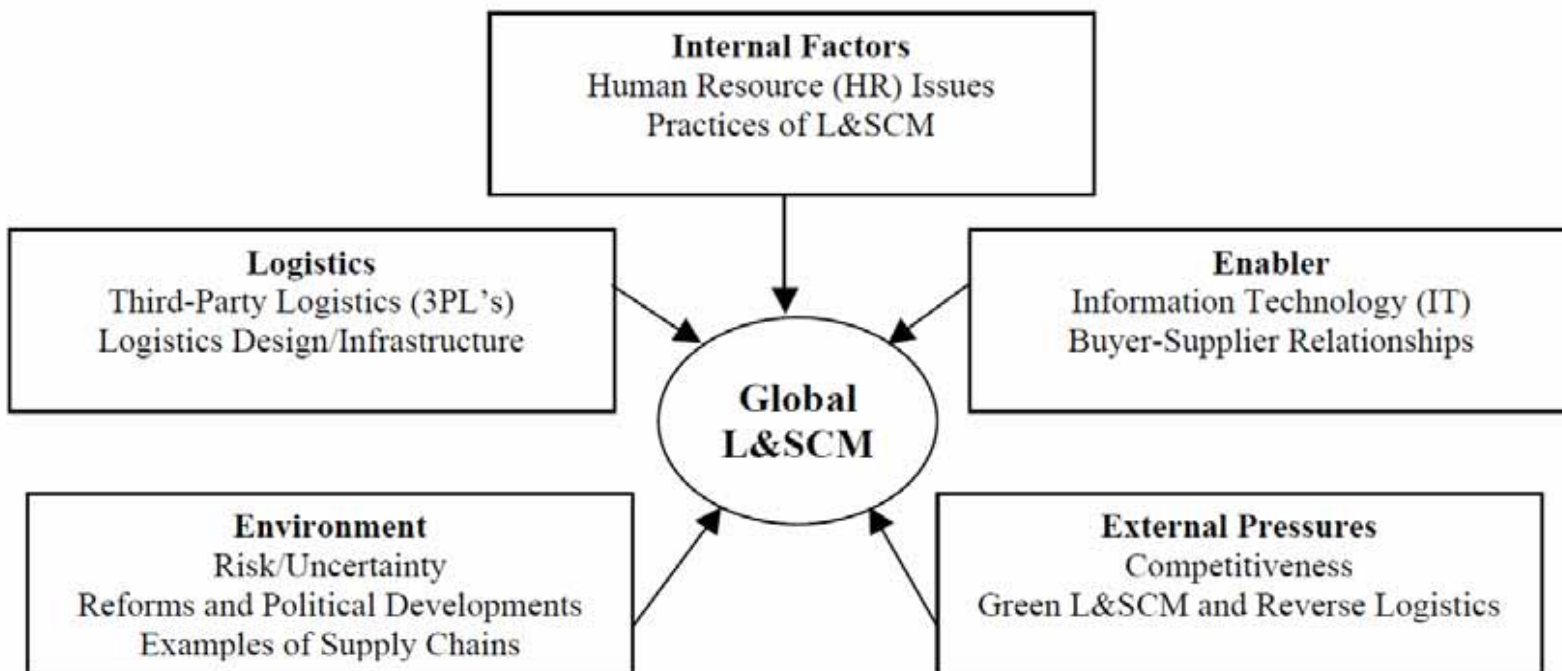


* Stellenbosch University National Freight Flow Model and # Logistics Cost Model, J Havenga *et al.*

STATUS OF RESEARCH IN LOGISTICS AND SCM

Research themes – International perspective

- Framework for the analysis of global logistics and SCM literature *



* Schoenherr, 2009

STATUS OF RESEARCH IN LOGISTICS AND SCM

Research themes – International perspective

- **Collaboration** and relationships between logistics partners – this remains a very important research area;
- **Global competitiveness** – this has become a critical issue with the rise of China, India and Brazil;
- **Global infrastructure investment**;
- **Green and reverse logistics** – with global climate change the “greening” agenda has impacted logistics and SCM more and more and will possibly become even more important in future;
- **Humanitarian logistics** – a totally new area which has come too the forefront over the last number of years;
- **Intermodal logistics solutions** – will remain important as SCM activities need to be streamlined further;

STATUS OF RESEARCH IN LOGISTICS AND SCM

Research themes – International perspective

- **Logistics and information technologies** – improving the integration role;
- **Logistics best-practices and the Supply Chain Operations Reference (SCOR) model** – measurement and metrics are critical in performance measurement and improving the supply chain;
- **Outsourcing and Logistics Service Providers (LSPs)**;
- **Risk management and security in the supply chain** – this became a big issue after 9/11. There has been a huge focus on security in port especially from the USA authorities. Currently MIT is doing a world wide study on risk to understand if regional and cultural differences affect how people think about and manage supply chain risks; and
- **Resilience in the supply chain** – this is linked to risk management and security but focuses specifically on how to overcome vulnerability in the supply chain.

STATUS OF RESEARCH IN LOGISTICS AND SCM

Research themes – International perspective

- The RAND Supply Chain Policy Centre identifies four overarching issues to improve and modernise the freight transport system in the United States
 - Increasing the capacity of the U.S. national and international freight systems through operational improvements and selective infrastructure enhancement;
 - Creating an adaptable, less vulnerable, and more resilient freight-transportation system;
 - Addressing the energy and environmental issues associated with freight transportation; and
 - Making the case for public and private investment in freight-transportation infrastructure and establishing sustainable priorities for funding.

STATUS OF RESEARCH IN LOGISTICS AND SCM

Research themes – South African perspective

- **SCOR model** – using it but also adopting it for South African circumstances;
- **Green logistics and the environment** – South Africa is lagging the rest of the world on this;
- **Collaboration** – where the automotive industry is leading the way in South Africa;
- **Skills, education and training** – a critical aspect and a possible “time bomb” (**supplychainforesight**, 2006);
- **Intermodal solutions** – these have been identified as one of the weak points in the supply chain in the country;

STATUS OF RESEARCH IN LOGISTICS AND SCM

Research themes – South African perspective

- **Infrastructure investment** – much is being done but more is possibly needed;
- **Managing congestion** especially on the main highways around the major metros;
- **Global competitiveness and the economic crisis**;
- **SMME development and rural or small business logistics** – this is required to include the products developed by small entrepreneurs into the national supply chains; and
- **Corridor development.**

STATUS OF RESEARCH IN LOGISTICS AND SCM

Research themes – South African perspective

- The 5th Annual **State of Logistics (SOL) Survey** for South Africa has as its theme “*Logistics value and cost drivers from a macro- and micro-economic perspective*” indicating the importance of addressing the high internal logistics costs.
 - The value of logistics;
 - Logistics (and supply chain management) cost drivers;
 - Skills in logistics – An uncertain future;
 - The potential cost of bad roads in South Africa;
 - The green supply chain – cost burden or value creator; and
 - AISI – Adding value to the South African aerospace industry.

STATUS OF RESEARCH IN LOGISTICS AND SCM

Research themes – South African perspective

- The 2009 **supplychainforesight** report, has as its theme “*Global Supply Chain Dynamics – Measuring the Butterfly Effect for South Africa*”
- The first **Supply Chain Intelligence Report** (SCIR) report was published in early 2009 with the theme “*Effectively Addressing the Planning and Forecasting Challenge*”
- Key aspects:
 - Globalisation and the economic crisis;
 - Outsourcing;
 - Green SCM and sustainability; and
 - Private and public sector co-operation.
- Topics
 - Supply chain visibility;
 - Supply chain collaboration;
 - Technology;
 - Supply chain reactivity;
 - Global competitiveness and the economic crisis;
 - A lack of concern for the environment; and
 - The importance of planning.

CONCLUDING REMARKS

- Research in the freight logistics area is closely linked to research in supply chain management.
- Internationally, SCM is getting a lot of attention and a number of critical areas are being addressed:
 - **Global logistics,**
 - **Greening of the supply chain,**
 - **Collaboration, and**
 - **Humanitarian logistics.**
- In South Africa very little research is conducted in comparison and there is a much broader range of topics that are being addressed.
- All the research is however focussed on improving or “optimising” the supply chain in one way or another and the overall objective is improved competitiveness.

THANK YOU

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