

**FAST MOVING
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Greening transportation in the supply chain – Insights into practical steps taken by a leading LSP.

Agenda

- The World of an LSP in the World of the Big **R**
- The Total Cost of Logistics in South Africa
- Greening your supply chain
 - General Thoughts
 - Case Study 1: Value of Industry Collaboration
 - Case Study 2: Extra Distance
- Final Thoughts

The World of an LSP in the World of the Big R

- The economic downturn has challenged LSPs to contend with factors such as unpredictable demand, volatility in fuel costs and currency valuation, and excess inventory
- Overcoming these obstacles in the near-term, shippers are employing two key tactics:
 - Cutting operating costs
 - Improving forecasting and inventory management
- But they're also using the downturn as an opportunity to assess their supply chains' strengths and weaknesses and make changes designed to increase agility, be more responsive and reduce costs
 - Strategies here include network redesign and creative collaboration with LSPs and even competitors
 - LSPs weather the storm using steps such as sharing assets across multiple customers to reduce risk

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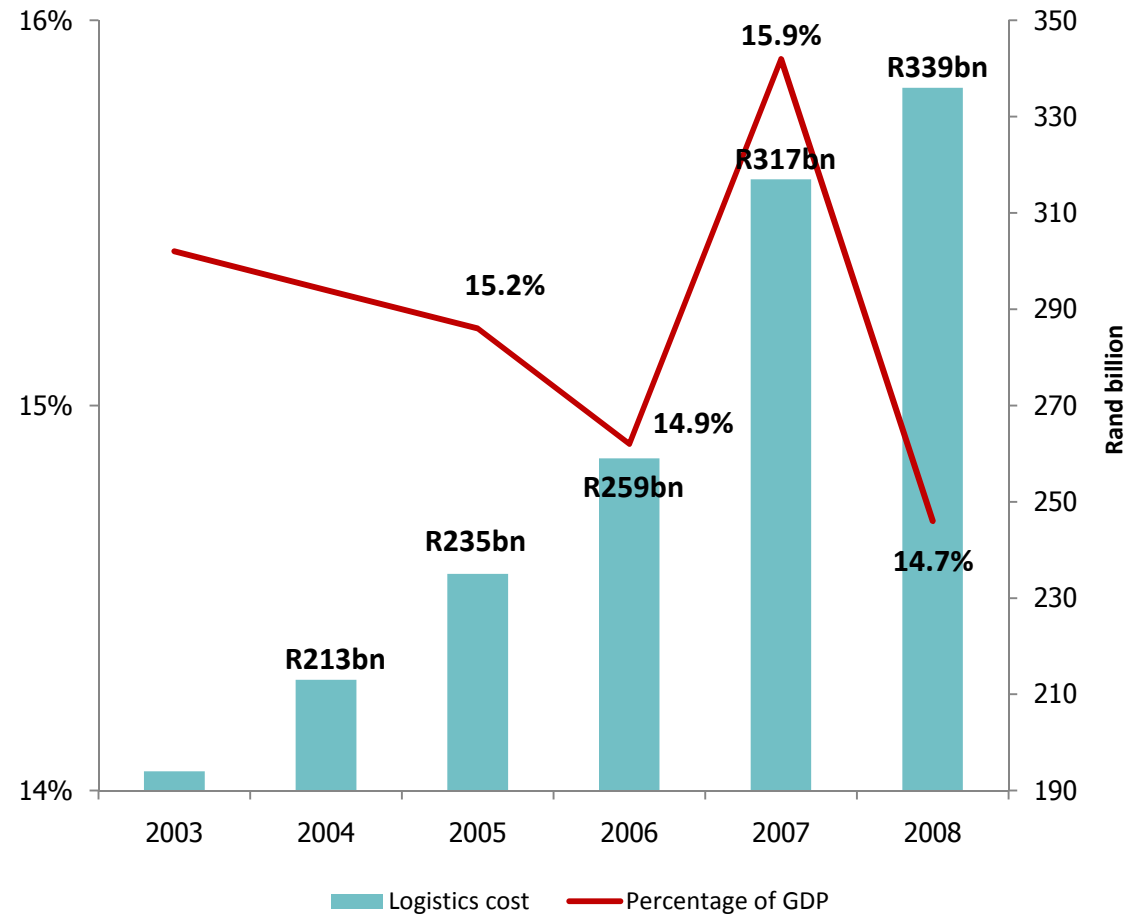
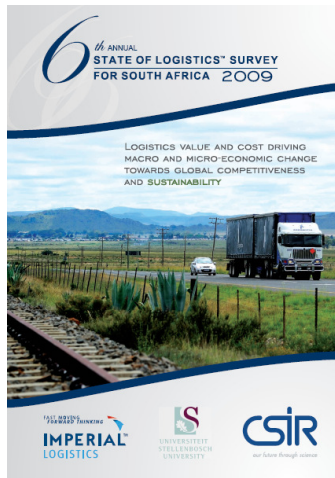
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Logistics costs as a percentage of GDP declined to its lowest level since measurement

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- Total Logistics Costs amounted to R339bn in 2008; 14,7% of GDP
- Further refinement of comprehensive model
- Understanding the “Value of Logistics”
- Understanding green logistics opportunities



Logistics Costs for South Africa

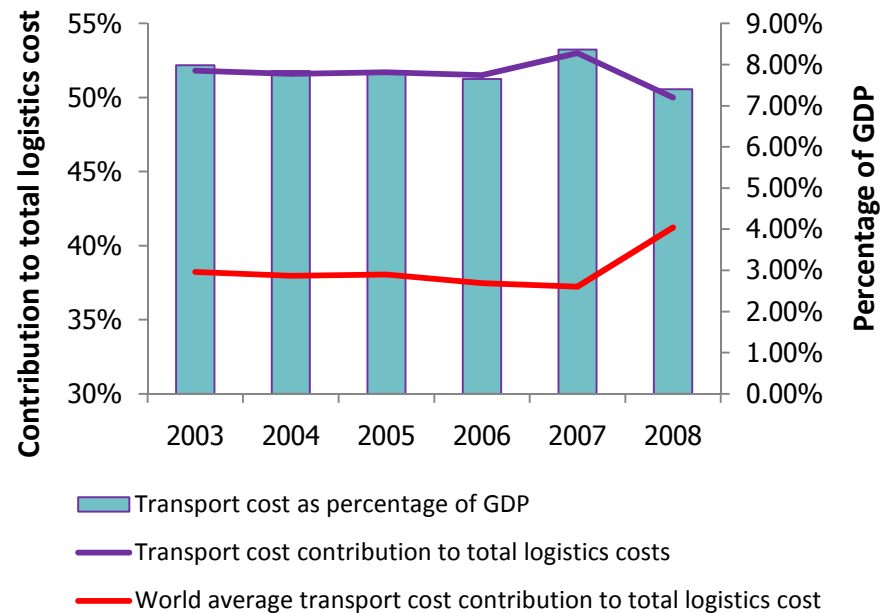
The Total Cost of Logistics in South Africa

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- In addition, South Africa's freight transport as a percentage of logistics costs is the highest known (measured) figure in the world and is rising

Transport as a % of GDP and Logistics Cost



This negatively affects South Africa's competitiveness
– which will continue to worsen if no action is taken

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Greening your supply chain – Improve your transport!

- The US Department of Energy's Annual Energy Review reports that industrial and transportation sectors — those that coincide with supply chain activities — account for 61% of US carbon emissions
 - Up to 75% of most local companies' carbon footprint come from transportation and logistics networks (5th State of Logistics[™] survey)
- Careful examination of energy use throughout the supply chain provides major opportunities for improvement
- The authors (*Environmental Leader (11/30/08) Brody, Paul; Ben-Hamida, Mondher*) offer 12 suggestions for how companies can make their supply chains greener **and** more cost effective
 - These apply to virtually any industry – electronics, food and beverage, retail, industrial, consumer packaged goods, etc.

Greening your supply chain – Improve your transport!

- The suggestions include ...
 - Redesign the product to reduce energy consumption and waste throughout the product life cycle
 - Shift to green suppliers
 - Short distances
 - Alter SLAs by adding carbon to the traditional measurements of cost, quality, and service
 - Consolidate shipments
 - Leverage partnerships
- Admitting you have a problem is the first step toward recovery
- Volatile energy costs substantially drain company resources
- New government regulations will require companies to cut energy use or pay penalties
- And pressure from customers, shareholders and advocacy groups continues to mount for companies to cut energy usage and reduce their carbon emissions

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Greening your supply chain – Improve your transport!

- Significant saving on fuel miles – Pilot in 2008 saved 16m miles (Nestlé and United Biscuits)
- IGD > 800 vehicles off the road and achieve a 1.3% reduction in miles travelled by food industry
- Keys to success:



Uncovering transport-sharing opportunities
Sufficient time to implement and get rival companies to work together
Choosing the right things to collaborate on

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Greening your supply chain – IMPERIAL Logistics' Perspective



- There is still widespread uncertainty about how to move forward with green supply chain initiatives
- IMPERIAL Logistics feels strongly that doing nothing is not an option and see transforming to a green supply chain as requiring three steps:
 - Become educated
 - Measure the company's carbon footprint and identifying change levers
 - Then embark on business case-supported initiatives
- Green initiatives should clear three hurdles:
 - They must be acceptable financially, environmentally and socially

Greening your supply chain – IMPERIAL Logistics' Perspective



- As green becomes a factor in operating a supply chain, those companies that outsourcing these functions will inevitably rely on LSPs to help satisfy green goals
 - The options for greening of supply chain operations range from small process changes, such as retraining drivers, to substantial capital investments including setting up green DCs
- A number of changes can be made with the assistance of LSPs, particularly those that involve improved use of transportation services
 - Generally, LSP users would prefer that green supply chain initiatives not incur extra costs, but feel when costs do occur, they should be shared equitably between the LSP and the customer
 - Early adopters are finding that green projects can generate savings
 - **The ultimate challenge is to find ways that green can simultaneously reduce costs, increase revenues, and improve the environment**

Greening your supply chain – IMPERIAL Logistics' Perspective



- IMPERIAL Logistics leverages the following types of green initiatives ...
 - “SA Inc.” initiatives, e.g. “annual State of Logistics™ survey”
 - Leverage technology, e.g. i2 SCS, OPSI, etc.
 - Our Technical Department proactively drives various initiatives to reduce the amount of diesel consumed by the Group ...
 - Procuring state of the art engines for its trucks, whereby the OEMs produce these in accordance with the latest “Green” technologies
 - Testing the impact of adding certain additives to the diesel to (a) reduce the consumption of diesel per kilometre and (b) reduce the carbon emission of the fuel being consumed
 - o Diesel emits 2,514 grams of carbon for every litre of diesel consumed
 - o IMPERIAL Logistics consumes 229 million litres of diesel per annum, hence the slightest reduction in emission will have a profound effect on carbon emission
 - Due to the high proportion of cost relating to fuel (ranging from 35 – 40% of total cost), advanced fuel management systems are deployed in the various operations
 - HR involvement, e.g. driver training, etc.
 - Partnerships with experts and like-minded organisations

Greening your supply chain – IMPERIAL Logistics' Perspective



- Fast 'n Fresh is like any other transport company
 - Trucks ... diesel ... tyres ... workshops ... wash-bays ... people ... etc.
 - F2009 ... on any day ...
 - 230 trucks on road
 - Up to 28,000 kms per truck per month
 - 300+ destinations
 - 81% perishables
 - Requiring strict temperature control
 - 365 days a year ... 24 hours a day
- Clear that every truck on the road / every trip has a direct impact on fuel consumption and therefore carbon emission (and costs)

Greening your supply chain – IMPERIAL Logistics' Perspective

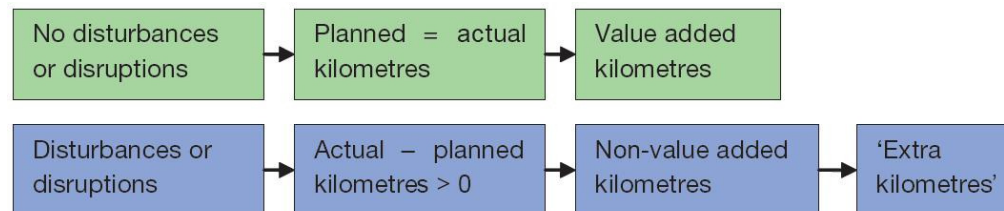


- Fast 'n Fresh's green initiatives in conjunction with Woolworths include ...
 - All home base fuel contains 5% "biodiesel"
 - Borehole water is used to wash the vehicles, and all wash water is recycled
 - In addition, bio-degradable detergents are used in this process
 - Storm water is separated to ensure solid waste is removed before entering the water reticulation system
 - Used tyres and oils are disposed of in a responsible manner, using reputable agencies like "Oilkol"
 - All trailer fridges use "Green" rated refrigerant gas
 - A large % of the distribution fleet has technically advanced Euro 3 (and a few Euro 5) engines to ensure that minimum emission standards are achieved
 - The use of Liquid Nitrogen refrigerated boxes, which will drastically reduce the amount of emission currently being experienced using conventional refrigerated boxes
 - In addition, this technology is virtually silent hence the amount of "noise" emissions for residential deliveries will drastically reduce
 - Realising substantial costs savings through Nitrogen tyre inflation. Nitrogen causes the tyres to run far cooler, thus extending the useful life of the tyres substantially

Greening your supply chain – IMPERIAL Logistics' Perspective

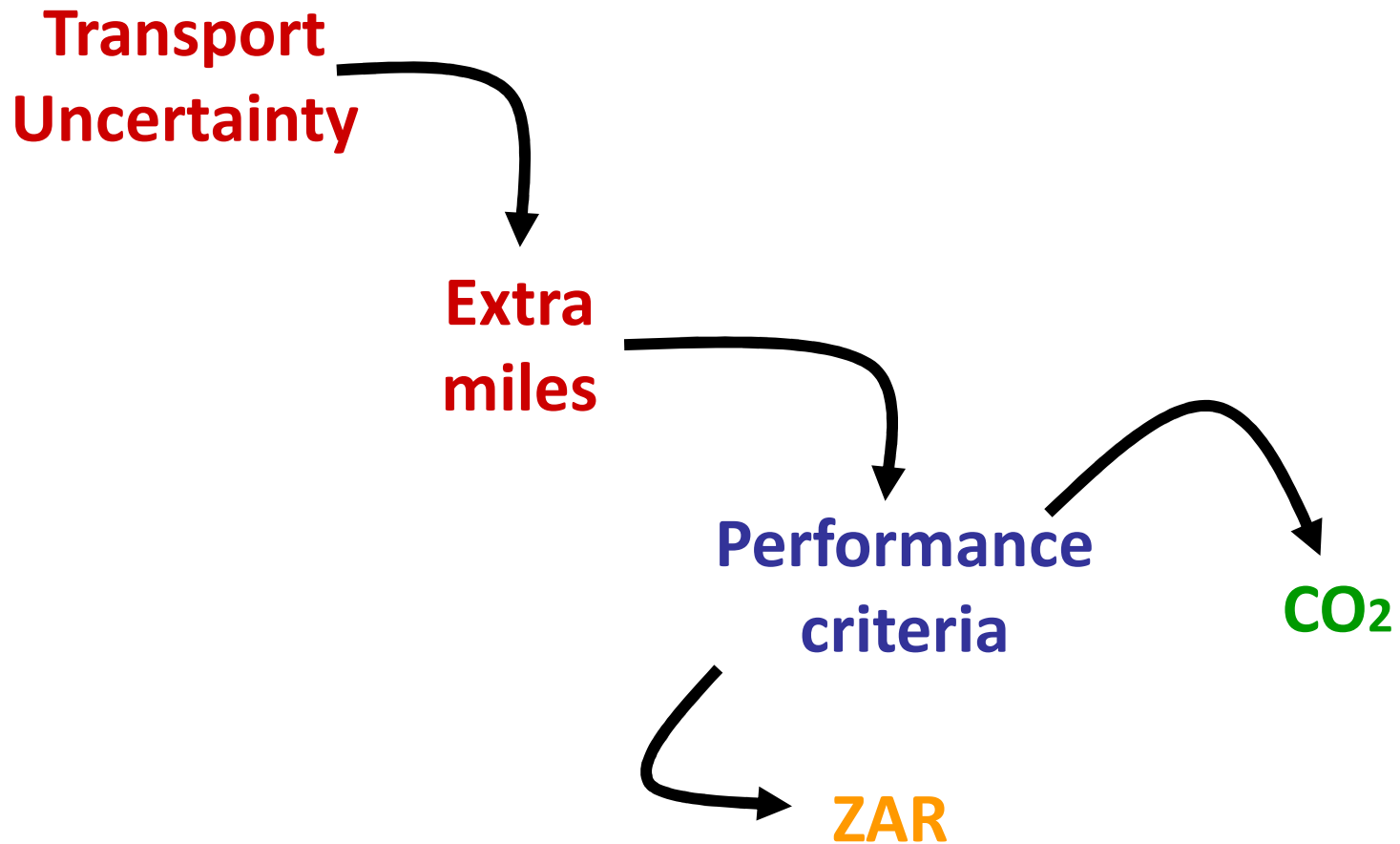
- The concept of 'Extra Distance' as a measure for assessing the efficiency of transport operations within supply chain has been developed. According to Sanchez-Rodrigues et al (2009), 'Extra Distance' is:

- Any **non value-added** or **unnecessary distance** run within a distribution network due to **supply chain uncertainty**, and defined as the **difference** between the distance vehicles actually ran, and the distance they would have needed to have run if:



- The transport operation had received accurate and timely information on the volumes to be moved
- There had been no unexpected delays at loading or unloading points
- There had been no operational failures within the distribution network
- There had been no congestion on the journey that could not have been foreseen

Greening your supply chain – IMPERIAL Logistics' Perspective



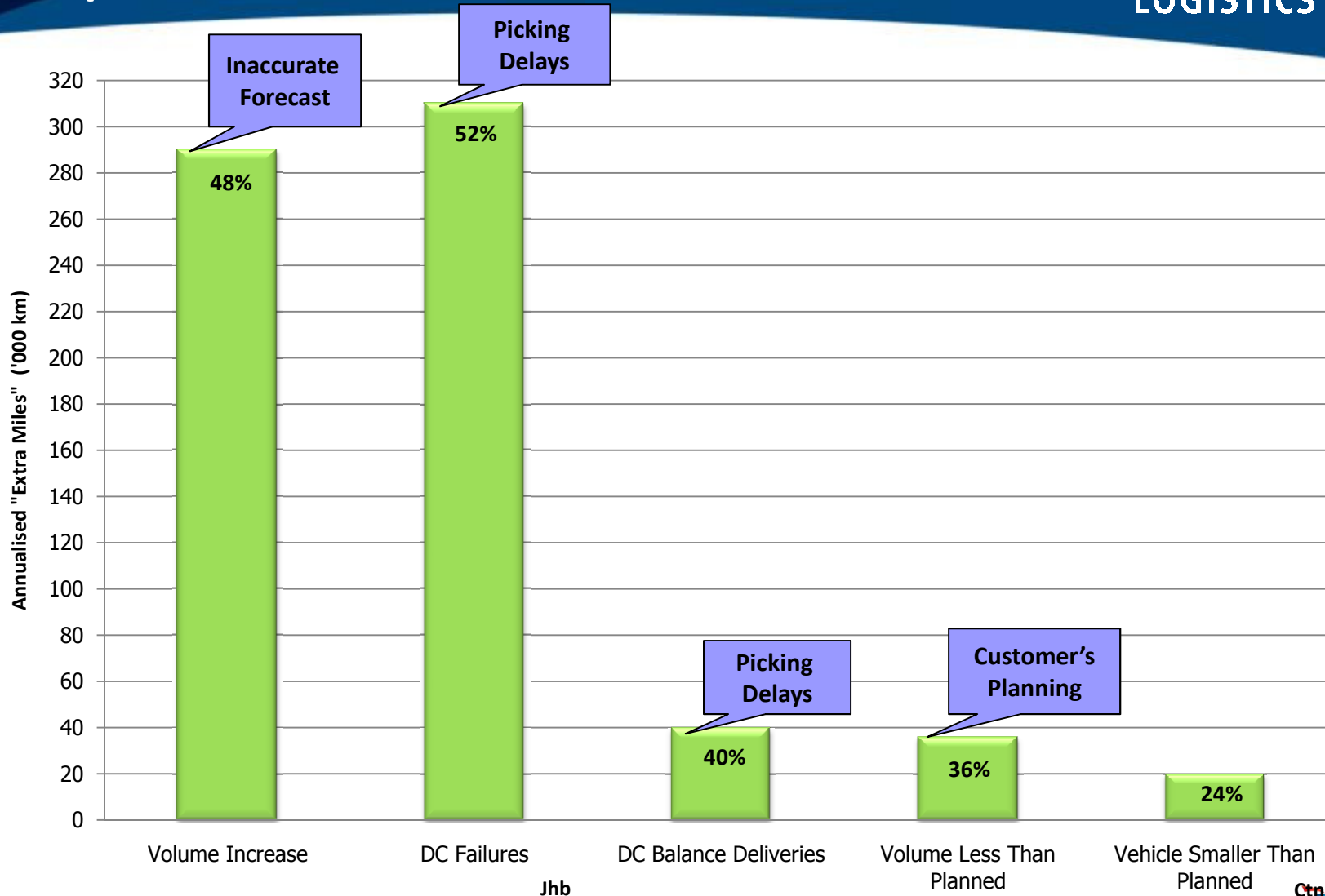
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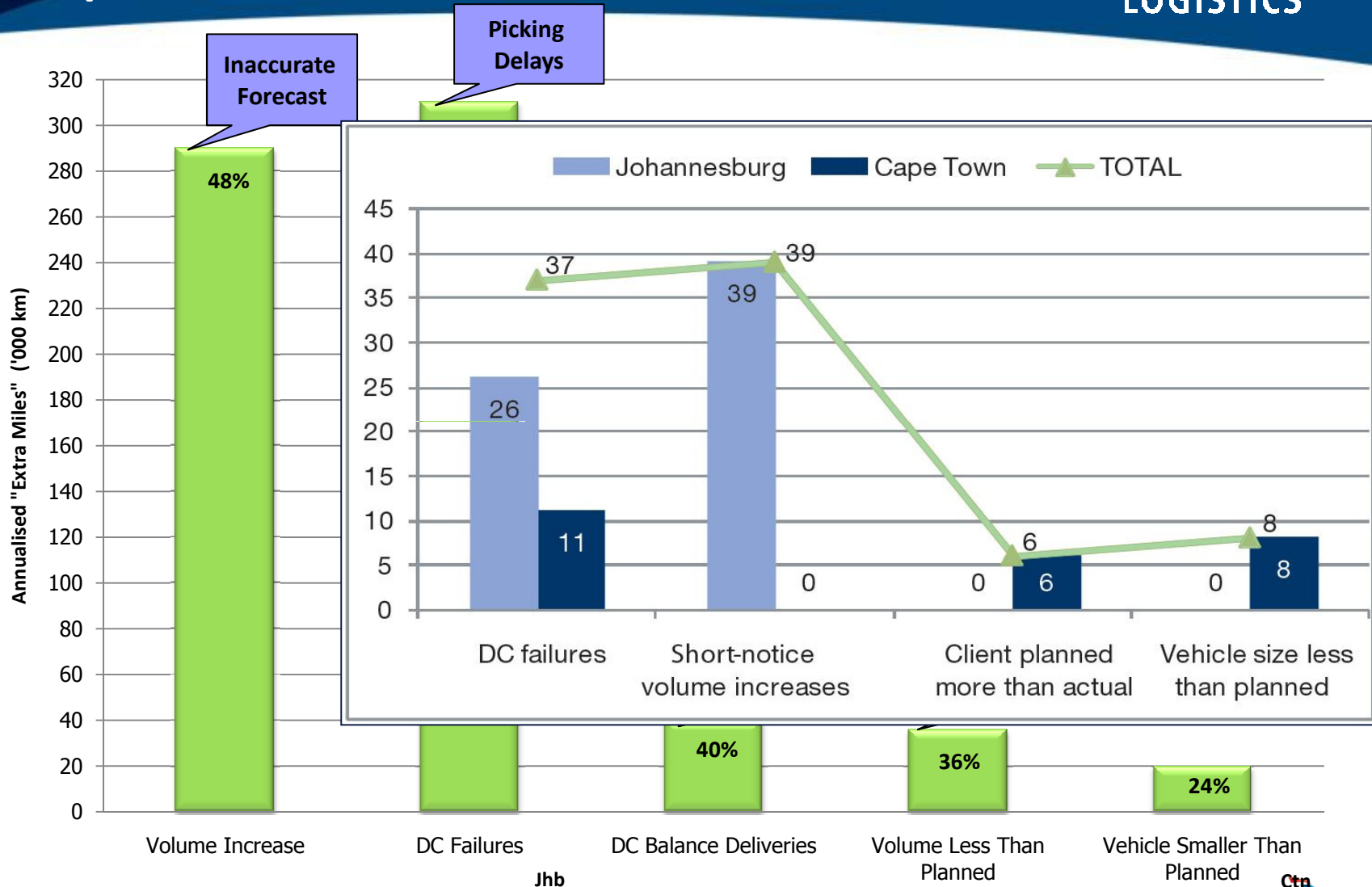
- Calculated the number of extra kms originated by each supply chain uncertainty source
- Determined frequency and impact for each source of extra kms
- Estimated the cost and carbon emissions of extra kms originated by all the uncertainty sources using the average running cost per km and the average fuel consumption

	Johannesburg	Cape Town	Overall
Total kilometres run	172 000 km	35 000 km	207 000 km
Extra kilometres	11 538 km	1 605 km	13 143 km
% Extra kilometres	6,71%	4,59%	6,35%
Costs of extra kilometres	R149 994	R20 865	R170 859
Kg of CO₂ due to extra kilometres*	18 100 kg	2 500 kg	20 600 kg

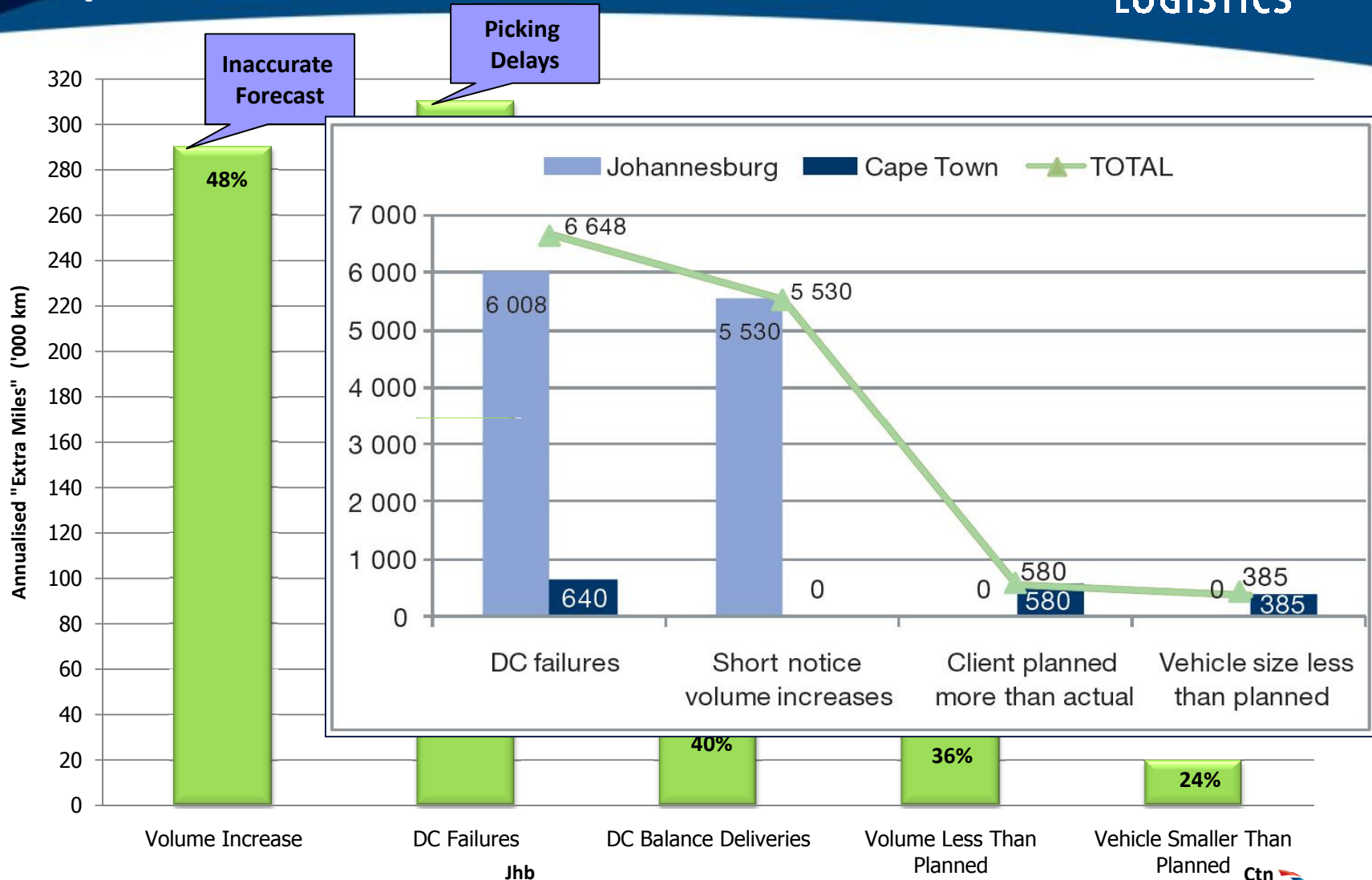
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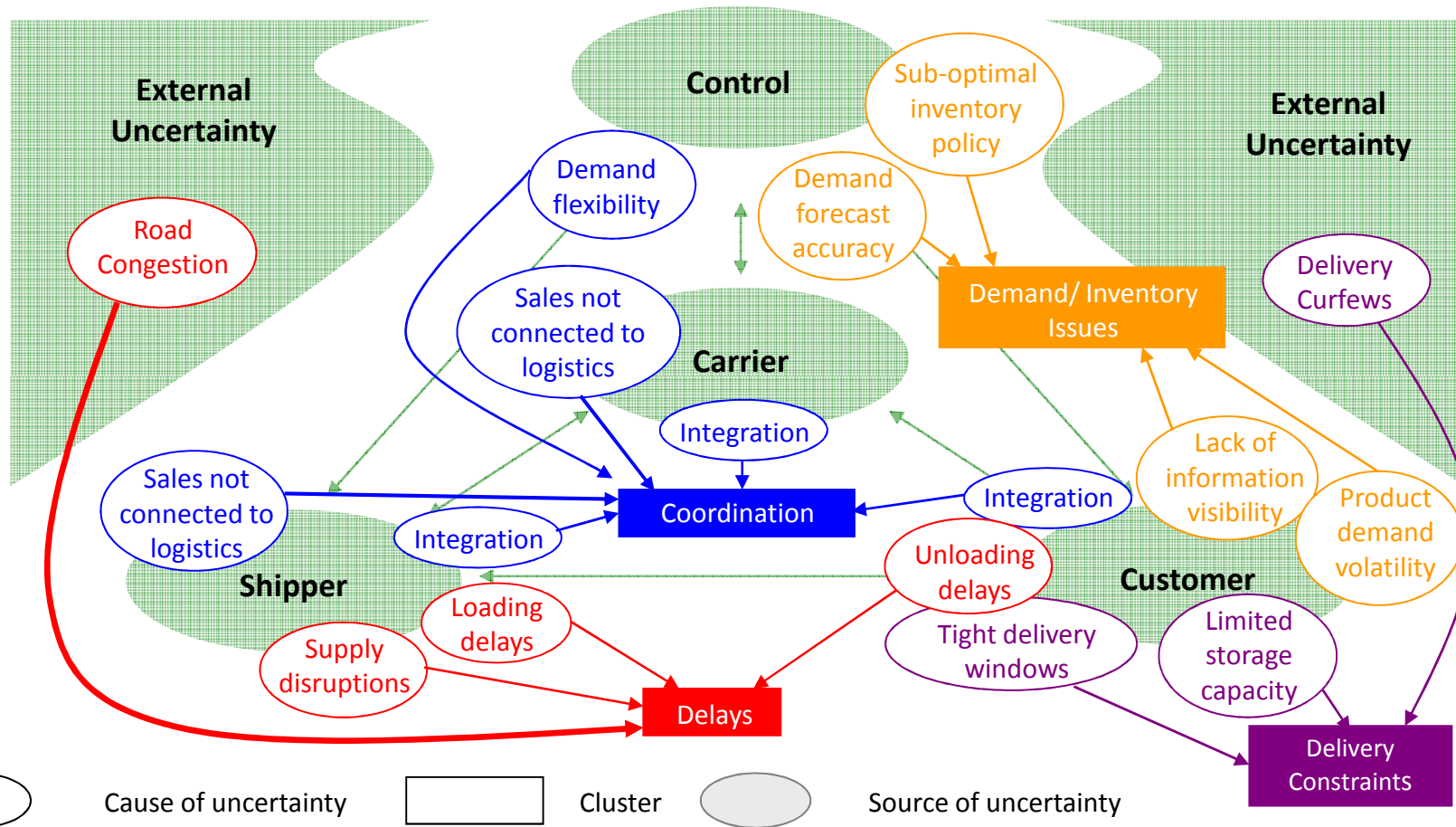
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Transport-focused Uncertainty Model

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Number of incidents collected during the focus groups

→ Under 5 → 5 to 10 → 10 to 15 → 15 to 20 → 20 to 25

Greening your supply chain – Benchmarking ... Comparison with UK

	UK	South Africa
Distribution	Primary	Secondary
Annualised km	39,000,000	10,900,000
"Extra Distance"	2.4%	6.2%
Main Causes	<ul style="list-style-type: none"> • Volume Changes (57%) • Loading Issues (18%) • DC Errors (16%) 	<ul style="list-style-type: none"> • Volume Changes (46%) • DC Balances (51%) • Wrong Vehicle Size (3%)

- The comparison is only against how well the operation kept to the plan and not a comparison on the different operational footprints (Plan Adherence = key measure)

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Greening your supply chain – A few final thoughts

- Clear benefits from integrating sustainability practices throughout the supply chain
- Transportation is one of the most difficult areas to make environmentally friendly
- Until recently, freight transportation was a negligible consideration in company strategy
- Executives can consider several actions to green their supply chains **whilst reducing costs**:
 - Structure the supply chain with suppliers and customers who share similar views
 - Utilise transportation technology that reduces fuel and emissions
 - Optimise the supply chain's logistical network to minimize transportation distances
 - Use experts to develop and implement supply chain transportation strategies

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THANK YOU