

Mode choice in Freight Transport in New Zealand

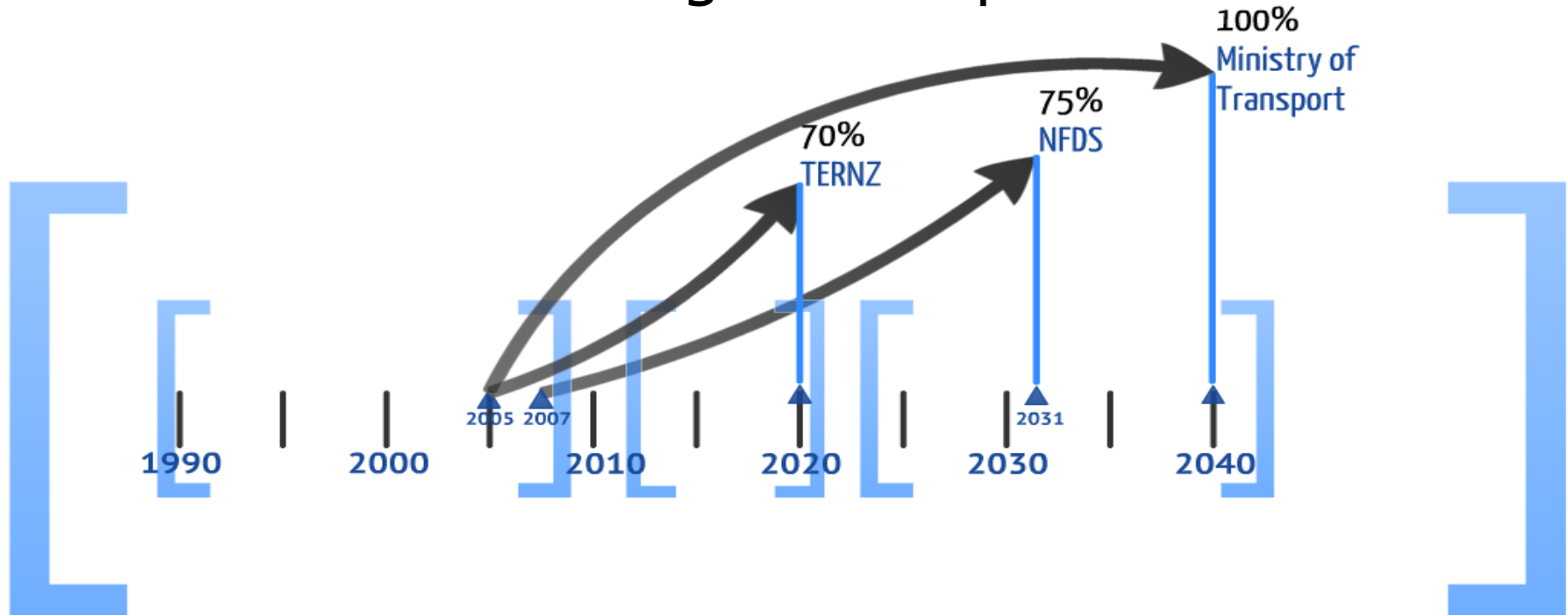
Findings of a Revealed Preference (RP)
Survey of Shippers

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Introduction

- Demand for Freight transport in NZ (tonne-kilometres)



- **92% of total volume** of freight movements are made by **road**

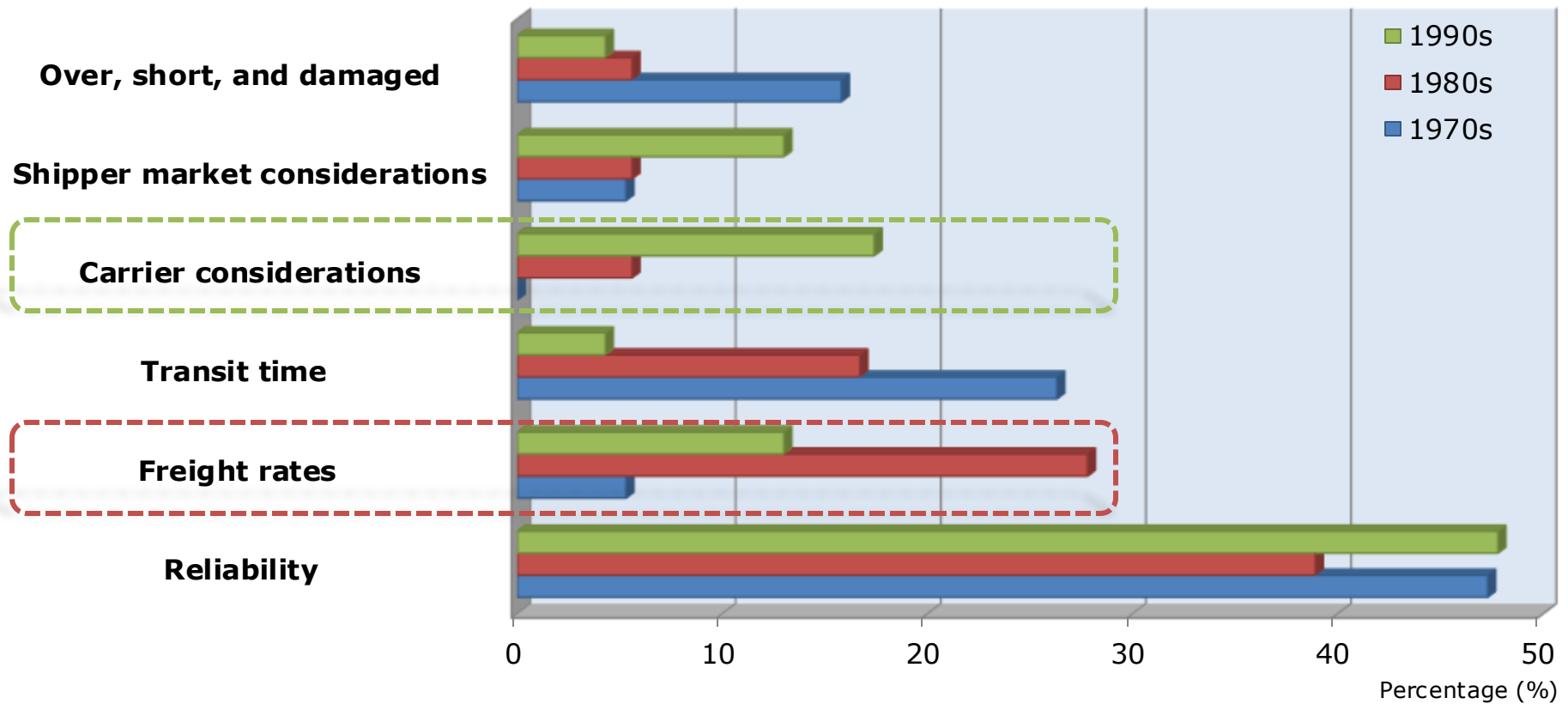
Sources: TERNZ, NFDS and Ministry of Transport

NZ Freight patterns

- Changes in the shape of products being transported and logistics patterns of firm
- **67%** of NZ manufactures outsourced logistics services*
 - The common outsourced services: Outbound transportation(79%), Warehousing(53%), and Shipment consolidation(48%)

Sources: *Zhang (2009)

Background: Mode Choice literatures



- Mode Choice Perceptions 1970s~ 1990s (Murphy et al. 1995)

Background: NZ Studies

- Freight Mode Choice Studies in NZ
 - the National Freight Demand Study
(NFDS : Richard Paling Consulting, 2008)
 - Coastal Shipping and Modal Freight Choice (Rockpoint, 2009)
 - the Gisborne to Napier Coastal Shipping Study (Warwick Walbran Consulting, 2010)

Study Questions

- What is the use of **road transport fleet** and the nature of the **relationships with carriers**?
- What **service attributes** do shippers use to select transport mode(s) and which attributes are most and least important?
- What are the shipper's **perceptions of rail and sea** shipping?
- What are the differences in the **total logistics cost** between business types?

Research Method

- RP(Revealed Preference) Survey
- Web-based questionnaires
- Survey sample sources: New Zealand Stock Exchange (NZX), Industry association/groups, and councils
- Invitation sent to 1900 NZ based companies from June ~ September 2011

Questionnaires

PART 2

PART 1



Physical factors

- **Company Information**
- **Product Information**
- **Inbound & Outbound O/D**
- **Supply Chain & Logistics facilities**

Behavior factors

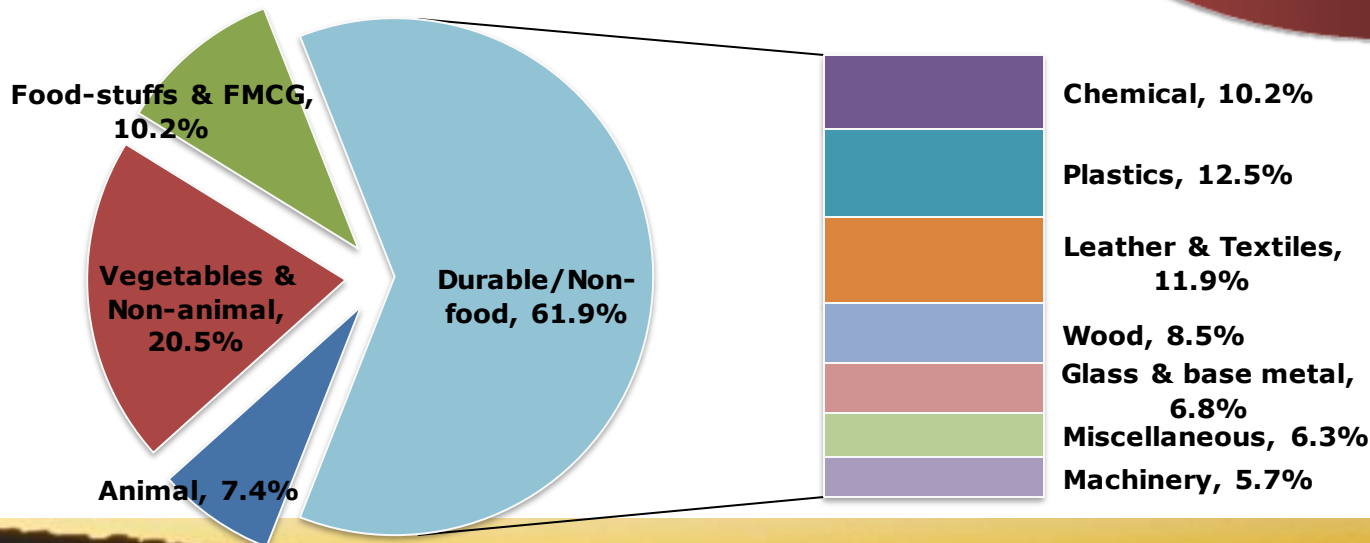
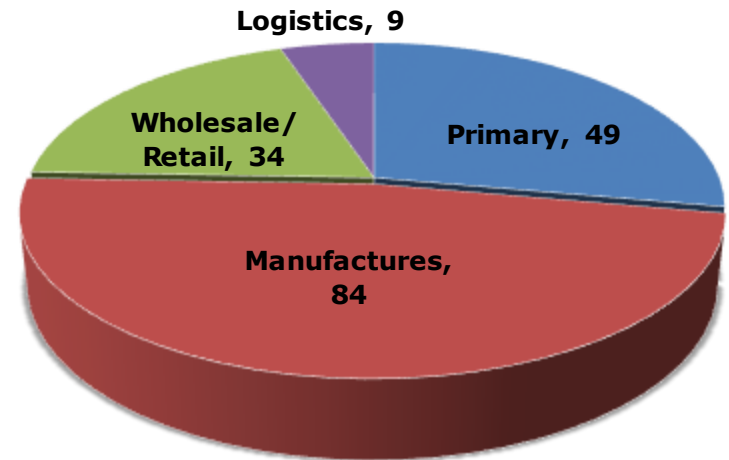
- **Transport mode use**
- **Mode choice service factors**
- **Mode preference**
- **Intermodal preference**

PART 3

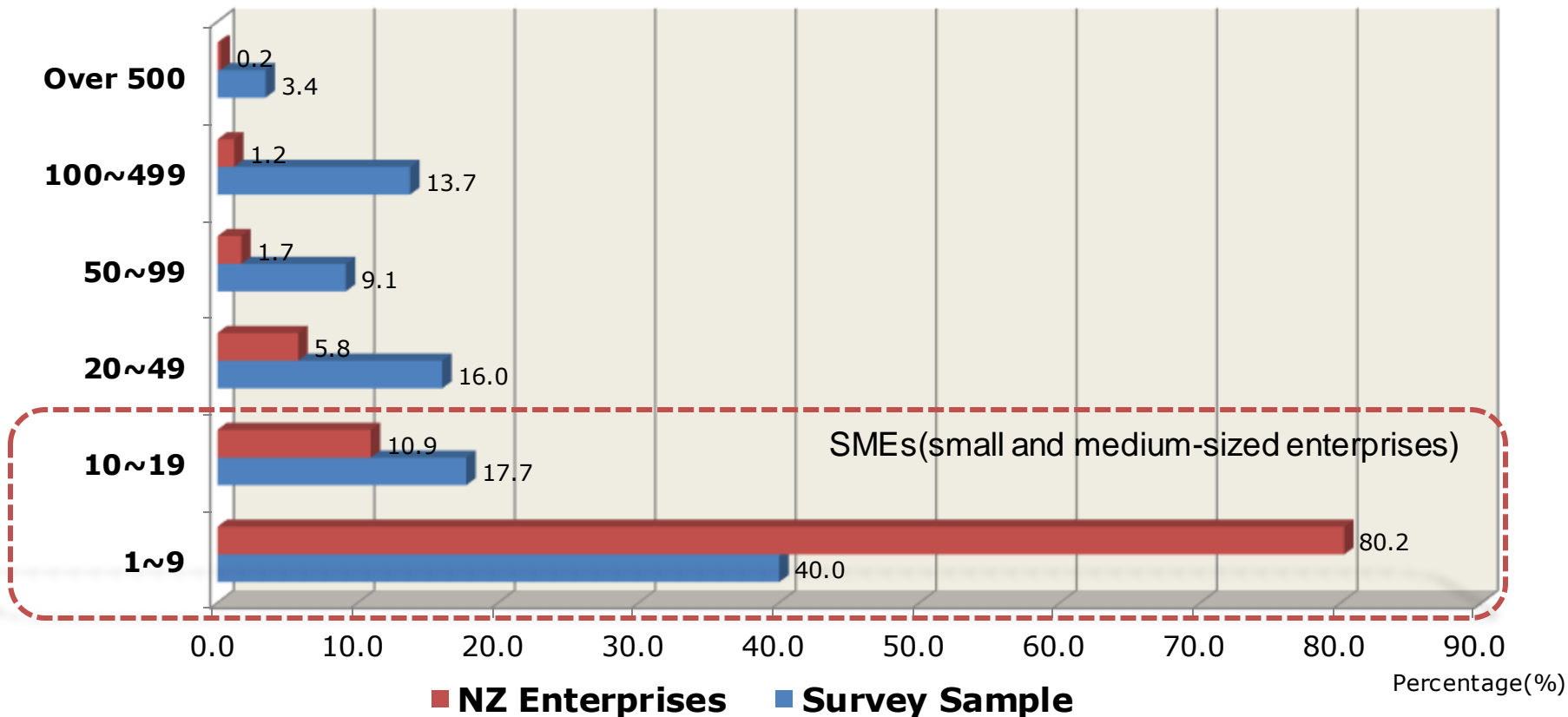
Sampling & Data Collection

- Total 176 firms completed
 - 4 business types

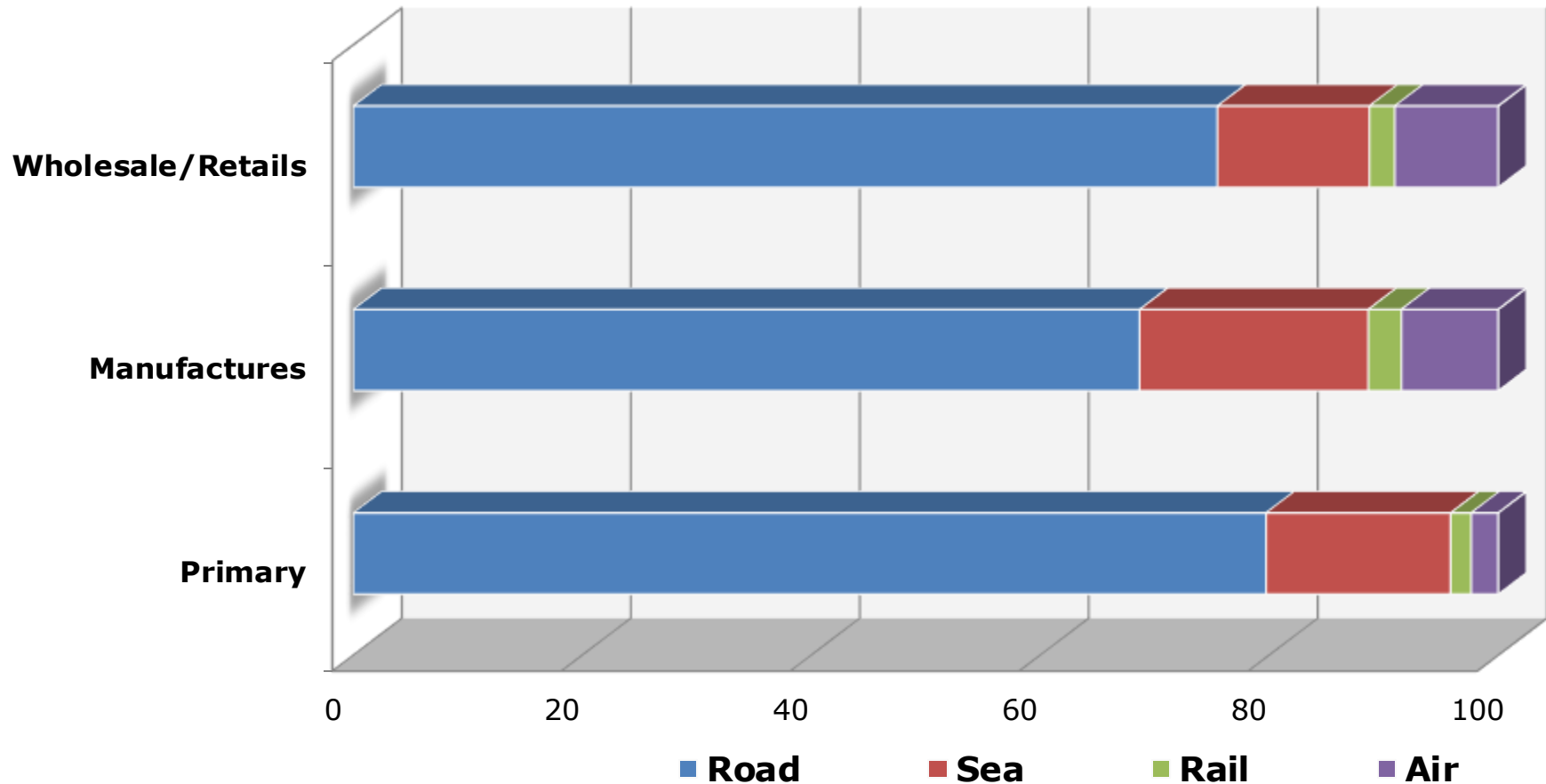
- 9 Industry(product) groups



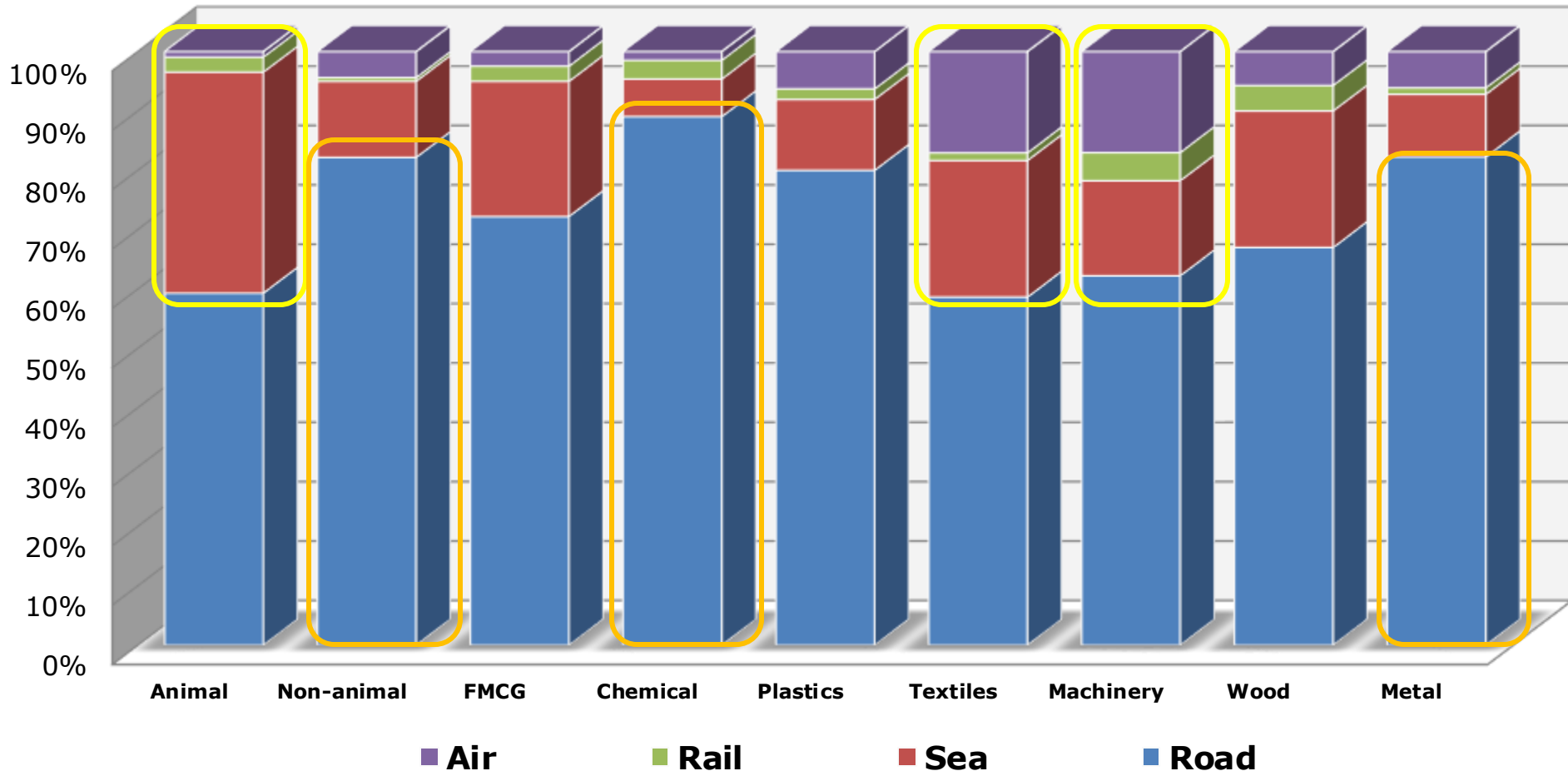
Survey Sample: Number of employees



Mode Share: by Business Types



Mode Share: by Product Groups

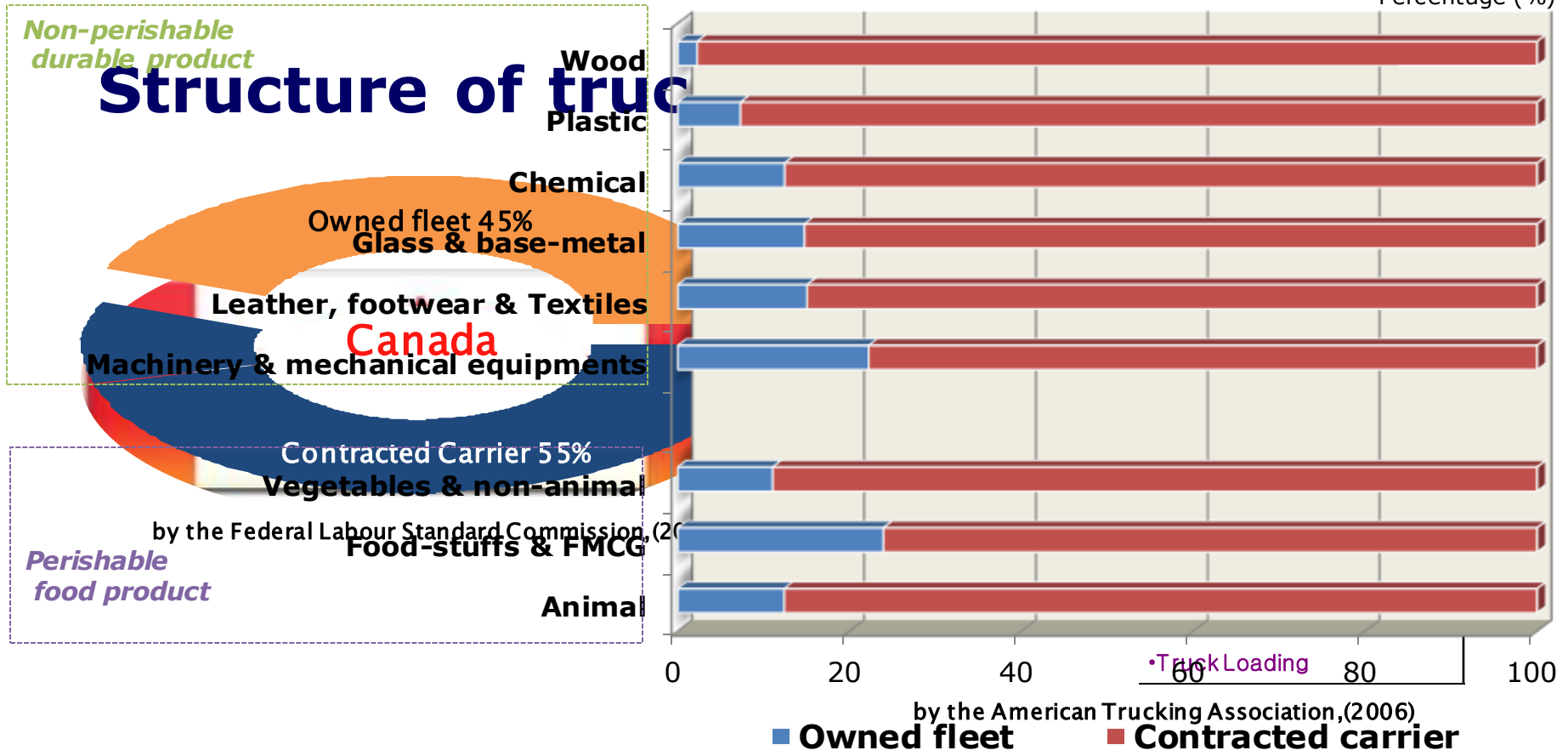




What is the use of *road transportation fleet*?

What is the nature of the *relationships with carriers*?

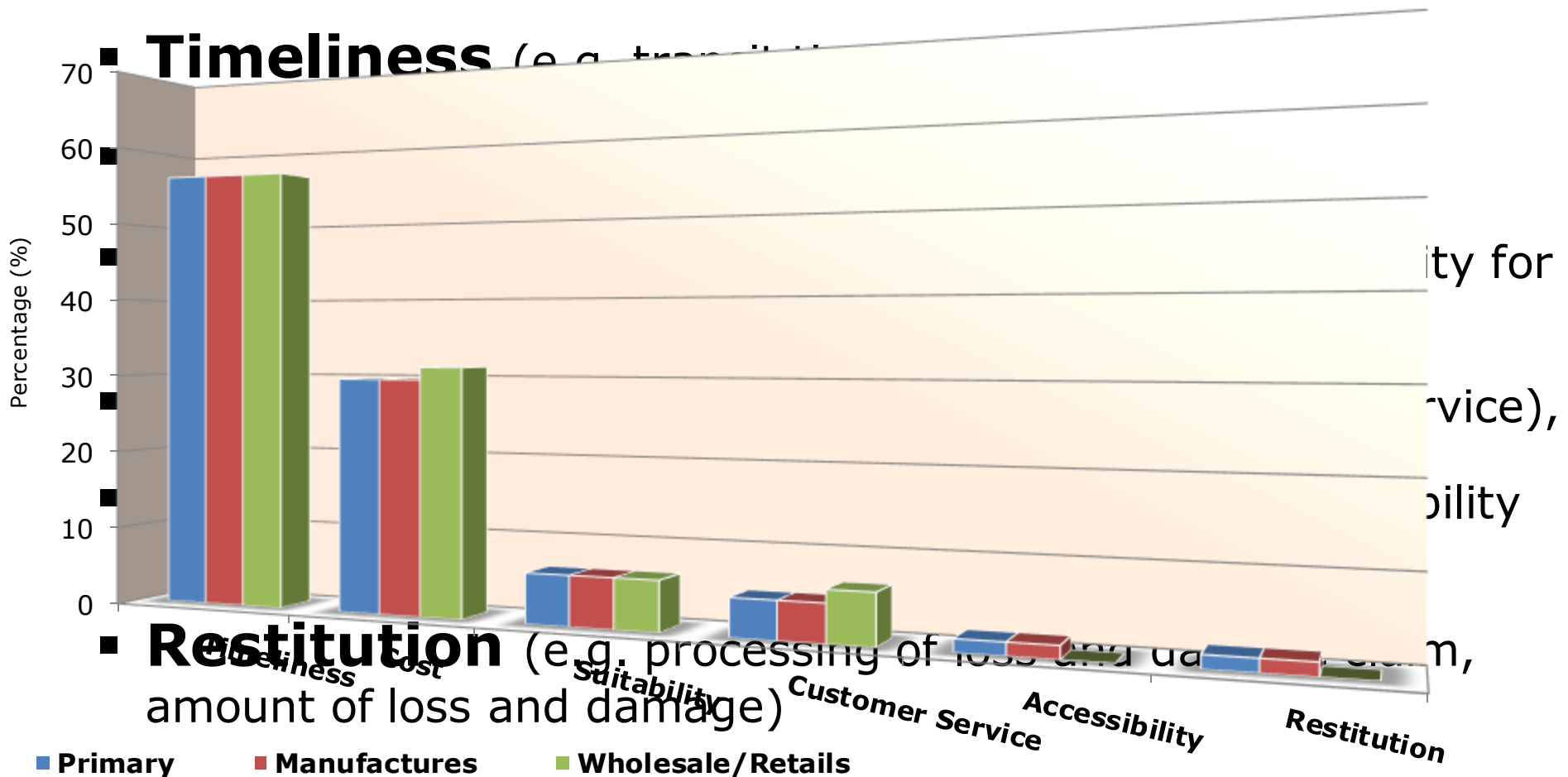
Road Transport

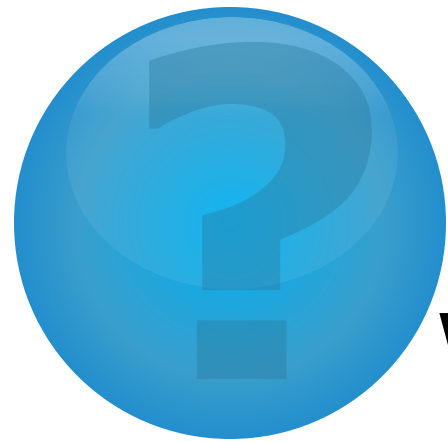




**What *transport mode(s)*
characteristics do you
consider most important?**

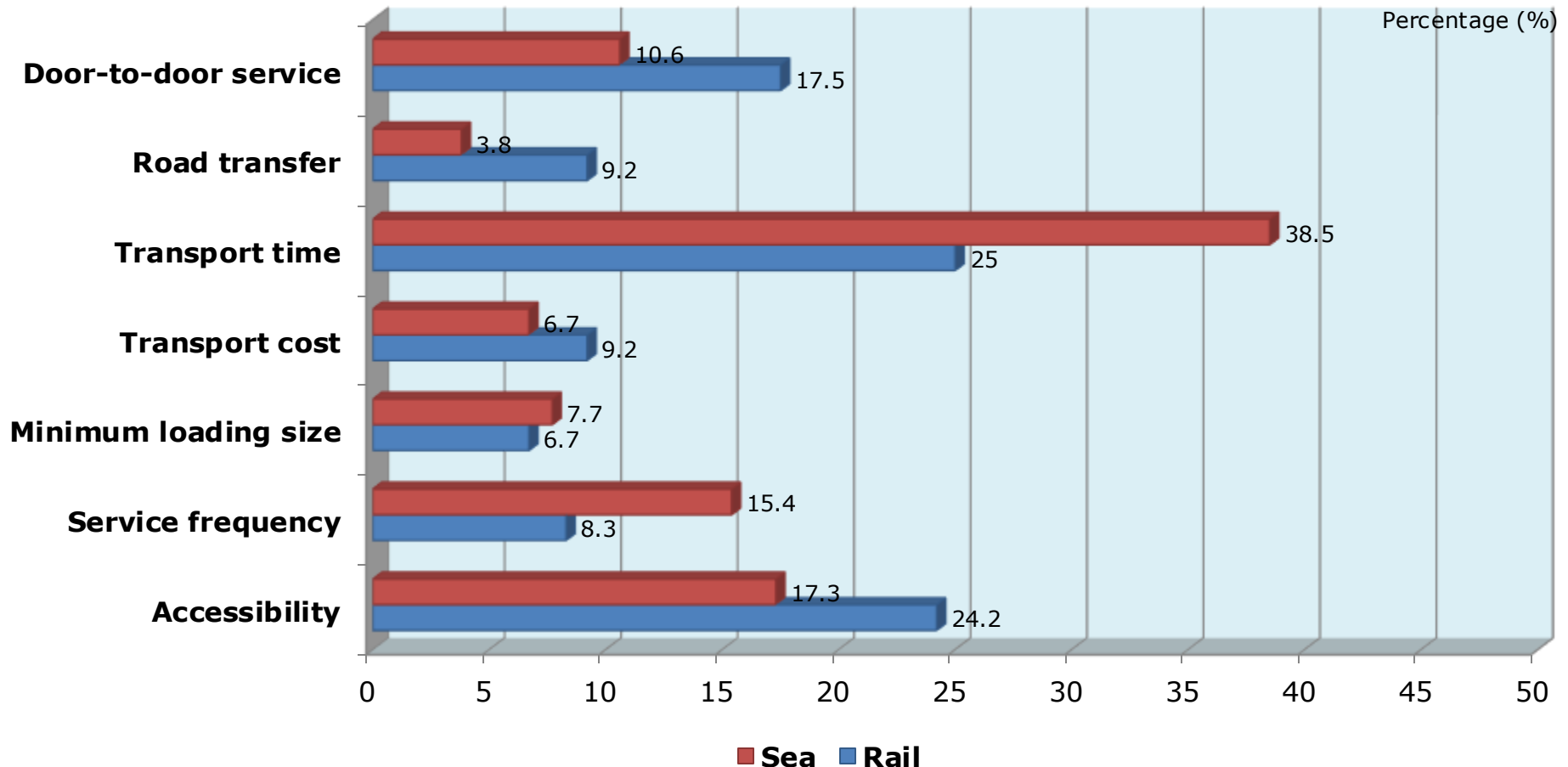
Mode Choice: Service Factors & Preference





What are *the most important constraints* that discourage you from using RAIL/SEA to carry your products?

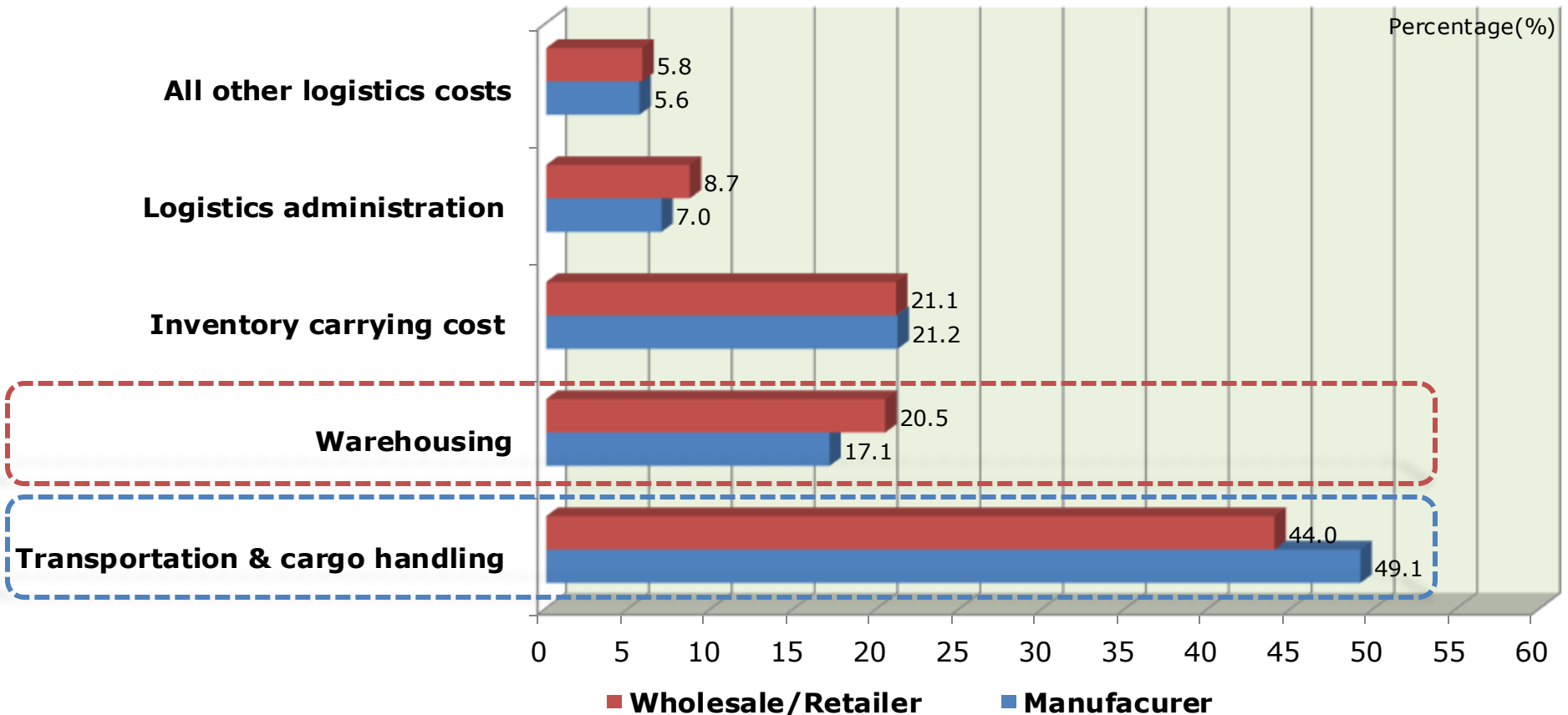
Mode shift: Constraints to Rail & Sea





**What are the differences in
the *logistics costs* between
business types?**

Logistics Cost



Conclusions

- NZ shippers strongly prefer **road transport**
- NZ shippers rely heavily on **contracted carriers**
- There is increased emphasis on **timeliness** and **cost** as mode choice factors
- NZ shippers have negative perceptions about transporting goods by both rail and sea in terms of **poor accessibility** and **transport time**.
- Wholesalers/retailers spent more on **warehousing costs**, while manufacturers spent more on **transportation costs**.

Q & A

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