



What is a supply chain?

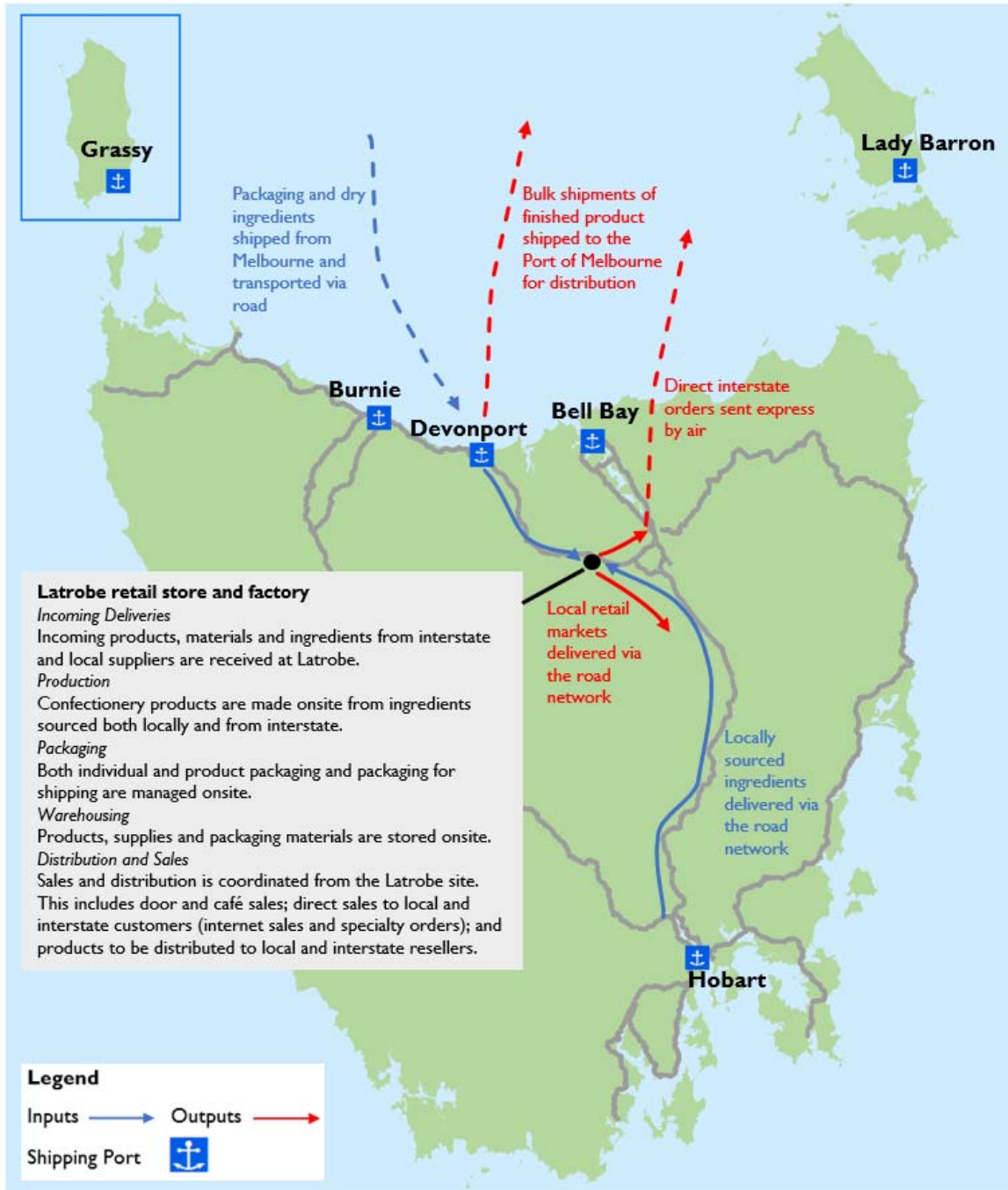
- A supply chain is a system that moves freight between its point of origin and its end destination. There are two main types – container (or intermodal) and bulk.
- Supply chains vary in complexity. Freight users make transport and logistics decisions based on their own business needs, including:
 - transport costs and available transport modes;
 - product type (time sensitive, high volume or high tonnage);
 - service reliability/quality;
 - packaging and warehousing needs and options; and
 - the decisions of freight forwarders to use a particular mode or service.
- In 2013, consultants Aurecon reviewed individual supply chains in Tasmania, finding most operated efficiently. Aurecon also found Tasmania's land freight system is efficient, and that transport costs are comparable to those in other states.

Containerised supply chains

- Around one third of Tasmania's freight is containerised.
- Container types vary – e.g. general purpose 20' and 40', refrigerated, fantainer – and are largely selected based on product type.
- The majority of Tasmania's *inbound* container freight is made up of retail and empty containers.
 - Retail goods are consumed by Tasmanians, while empty containers are brought in to be filled with goods and produce destined for export markets.
 - Retail supply chains follow population centres, with goods shipped to distribution centres in Hobart, Launceston, Devonport and Burnie, before being delivered to end markets.
- *Outbound* container freight follows a different model.
 - Generally, Tasmania's export freight mix is more diverse, including high-value seafood and berries, packaged and processed food, beer, processed minerals and paper.
 - Outbound supply chains are characterised by a 'make and ship' model. This model sees minimal product warehoused within Tasmania and instead delivered direct to market (fresh produce) or stored interstate (manufactured products) closer to major markets.

- Tasmania's high frequency and high quality shipping services support a make and ship model, allowing goods to move through the system quickly and reliably.
- An example containerised freight supply chain is shown below (Figure 1).

Figure 1. Example containerised supply chain, Tasmania



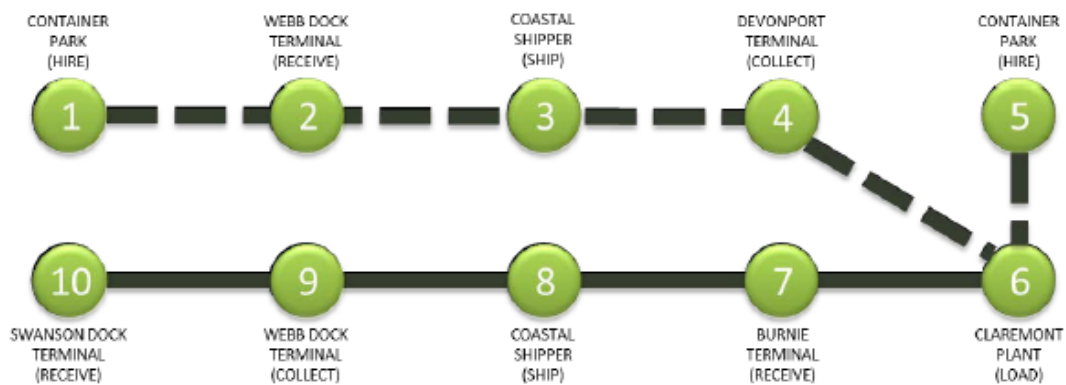
Empty containers

- Accessing and/or transporting empty containers is a key part of a containerised supply chain, and is a significant part of Tasmania's freight system. The high volume of empty containers moving through Tasmania's supply chains reflects both system characteristics and business needs, for example:
 - A seasonal mismatch in inbound and outbound freight flows.
 - Demand for particular types of containers, e.g. general purpose vs refrigerated.
 - Difficulties and cost of sourcing/moving international containers to/from Tasmania.
- Figures 2 and 3 show empty container movements as part of two key supply chains for Cadbury's Tasmanian operations (Aurecon, 2013).

Figure 2. Raw material international import supply chain, Cadbury's



Figure 3. Finished product export supply chain (20" international refrigerated container), Cadbury's



Source: Aurecon 2013

Bulk freight supply chains

- Bulk cargo tends to be high tonnage, unpackaged and moved point-to-point, often directly from the processing point to internal point of use (e.g. building site for construction materials) or to ship for export (for commodities such as iron ore and cement).
- Tasmania's key bulk freight exports include mining and mineral ores, and forestry. Key imports include mineral concentrates and fuel.
- Storage needs are often longer-term and specific to the product (e.g. need to avoid cross-contamination).
- Dedicated bulk shipping services are often chartered directly by the producer. Industries using bulk shipping services include:
 - mining, with minerals exported via Burnie, and iron ore exported via Port Latta;
 - cement exports via Devonport;
 - timber veneer exports from Burnie and Hobart;
 - mineral concentrates through Bell Bay and zinc ore for Nyrstar (Hobart);
 - petroleum imports to Self's Point (Hobart), Bell Bay and Devonport.

Figure 4. Example bulk supply chain, Nyrstar, Tasmania

