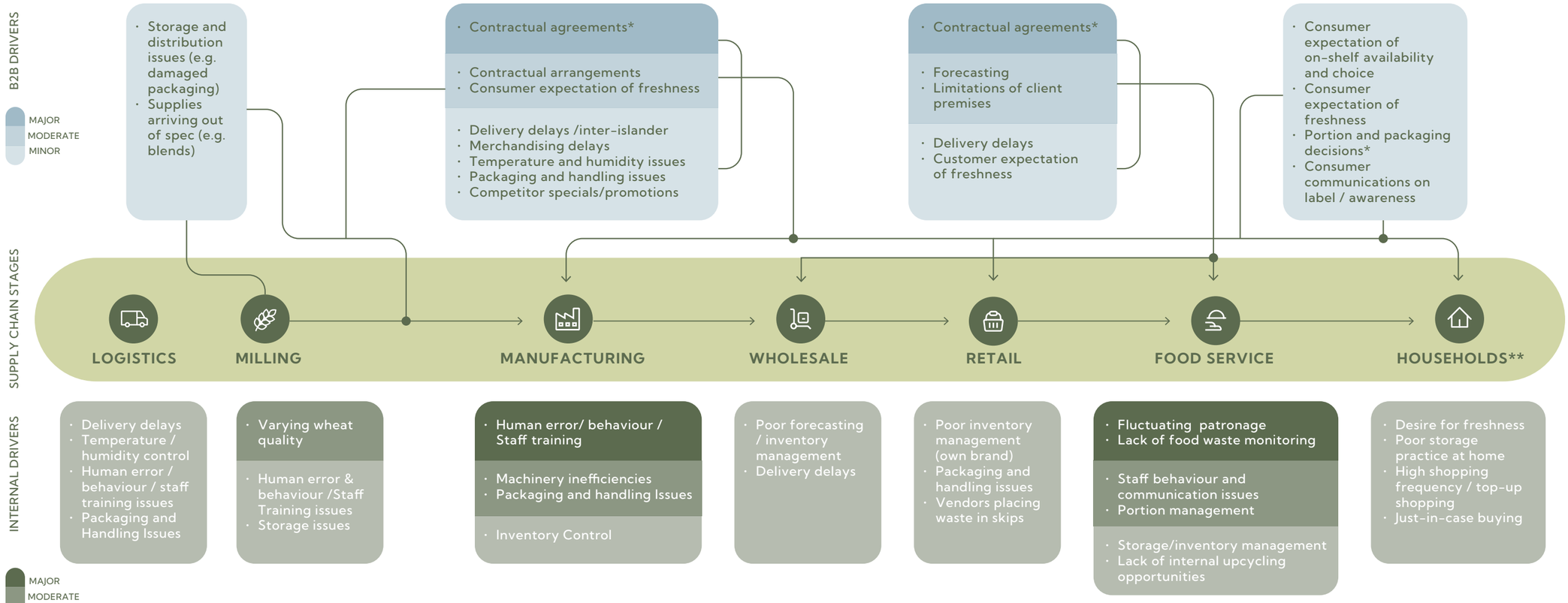
Food waste drivers & destinations across the bread supply chain



*Commercially sensitive information **Household food waste data gathered externally: https:https://endfoodwaste.com.au/wp-content/uploads/2023/11/Bread-and-Bakery-Sector-Action-Plan_Full-Report-1.pdf

Kai Commitment
BUSINESSES LEADING FOOD WASTE REDUCTION

About this map

This map shows the drivers of food waste across the bread supply chain in New Zealand.

It shows major, moderate, and minor drivers across the key stages, as well as food waste drivers between businesses. The map highlights the need for coordination and collaboration between supply chain stages to address food waste drivers.

Also captured are the end destinations for food waste and barriers and enablers to using each to waste destinations.

Detailed findings and analysis from this project can be found at

→ **kaicommitment.co.nz**

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Bread Supply Chain Map Explainer

This map is a resource created by Kai Commitment in conjunction with Eunomia to identify drivers of food waste within operations of the bakery sector and across its supply chain. First of its kind primary research was conducted to compile these findings for the New Zealand market.

Project Scope

The project focuses on bread and small baked goods (buns, rolls, wraps, bagels, crumpets). It examines six key stages of the bread supply chain: Milling, Manufacturing, Wholesale, Retail, institutions & Food Service, and Logistics. Due to a lack of local data, Consumer/households and quick service restaurant stages are not represented by primary data. Instead, household food waste drivers and destinations were inferred using End Food Waste Australia's Bread and Bakery Sector Action Plan data[1].

Data Collection and Participant Recruitment

Data was collected through digital questionnaires and in-person interviews with stakeholders from each supply chain stage. The questionnaires aimed to identify New Zealand supply chain bread waste drivers. Participants were invited to identify both pre-identified and additional drivers. A modest sample size of stakeholders was selected to represent the market across stages of the supply chain. They were selected based on the business size, influence, and capacity to participate, resulting in varying market representation across stages within the project's resources.

Questionnaire Responses by Sector

Logistics: 3
Milling: 1
Manufacturing: 7
Retail: 2
Food Service: 9
Wholesale: 0

In-Person Interviews by Sector

Logistics: 0
Milling: 1
Manufacturing: 2
Retail: 1
Food Service: 1
Wholesale: 0

Data Analysis

Eunomia analysed the collected data to identify key drivers of bread waste at each supply chain stage, current waste destinations, and potential barriers and enablers. Drivers were categorised as "Internal Drivers" (within organisational control – depicted below supply chain) and "B2B Drivers" (involving multiple stakeholders/stages – depicted above supply chain). Each Driver was assessed for its qualitative impact (Major, Moderate, or Minor)

[1] End Food Waste Australia's Bakery Section Action Plan https://endfoodwaste.com.au/wp-content/uploads/2023/11/Bread-and-Bakery-Sector-Action-Plan_Full-Report-1.pdf

Key Findings

Major Drivers of Food Waste:

- **Contractual Agreements**: Commercially sensitive information
- **Human Error/Behavior:** High staff turnover, reliance on temporary labour, and sub-optimal training and controls/procedures lead to errors. In food service, a lack of communication between customers/consumers and food provider staff (front of house and kitchen) often leads to overproduction.
- **Demand Fluctuations:** Forecasting of required quantities is difficult, influenced by factors like weather, holidays, and unpredictable consumer behaviour.

Moderate Drivers	**Minor Drivers**
Customer/consumer expectation of freshness	Delivery delays
Contractual agreements	Temperature and Humidity control
Human errors & behaviour	Storage & inventory management
Client site limitations	Staff Training issues
Varying wheat quality	Packaging & Handling issues
Machinery reliability/efficiency	

Waste Destinations

The map details waste destinations in use across each supply chain stage, highlighting barriers and enablers to divert food waste from landfills. The size of the circle depicts the volume % indicated in the qualitative questionnaire.

Purpose

The map aims to provide the bread and bakery industry with a tool to understand and collaborate on implementing sustainable practices to reduce waste. It emphasises the differentiation between food waste in a business's own control and that, which is driven by indirect business-to-business interactions which demand coordinated, whole-of-supply-chain approach to address food waste effectively. Both major and moderate drivers highlight the need for collaborative efforts to reduce waste across the supply chain.

The project produced a supply chain map detailing the drivers of food waste and current waste destinations for the bread sector with an explainer document (option to include definitions document). A generic map of drivers has also been created to assist other sectors wanting to understand systematic drivers. It was not intended to provide solutions or root cause analysis. A full research report is available for more detailed findings and analysis of the bread project.