Production Footprint Data Collection Guide

For the Replit Development Agent

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1. Objective

This document provides a detailed technical guide for the Replit Agent to build the **Production Footprint Data Collection** flow. This is a new, dynamic feature that guides the user through providing the correct data for their production footprint based on their specific manufacturing model: **In-House, Outsourced, or Hybrid**.

2. Part 1: Backend & Database Enhancements

2.1. Database Schema Modifications

- companies Table: Add a new column to store the default production model for the company.
Column Name	Data Type	Constraints	Description
... (existing columns)			
default_production_model	VARCHAR(50)	NULLABLE	'in_house', 'outsourced', or 'hybrid'.
- **lca_questionnaires Table (lca_data JSONB field):** The structure must be updated to store the production model choice and any hybrid data.

Updated lca_data JSONB Structure (showing only the new production key):

```json
{
  "production": {
    "model": "hybrid", // 'in_house', 'outsourced', or 'hybrid'
    "in_house_data_complete": true, // Flag from the data check
    "outsourced_template_id": "uuid-for-grain-distillation", // If model is 'outsourced'
    "hybrid_stages": [ // If model is 'hybrid'
      {
        "stage_name": "Fermentation & Distillation",
        "model": "outsourced",
        "outsourced_template_id": "uuid-for-grain-distillation"
      },
```

```
  {
    "stage_name": "Maturation & Bottling",
    "model": "in_house"
  }
  ]
},
... // other lca_data keys like agriculture, packaging, etc.
}
```

2.2. New API Endpoints

- PUT /api/company/production-model: An endpoint to save the default production model for the company.
- GET /api/company/data-completeness: An endpoint that checks if the user has filled in their annual company data and returns a status.

3. Part 2: Frontend Implementation

This new flow will be implemented on the "Production Process" page/tab within the product LCA questionnaire.

3.1. Company Default Setting

- **Location:** In the main "Company Data" section of the application (/app/company).
- **UI:** A new section titled "Primary Production Model" with three radio buttons: "In-House," "Outsourced," and "Hybrid."
- **Logic:** The user's selection is saved via the PUT /api/company/production-model endpoint.

3.2. Step 1: The Primary Branching Question (Product Level)

- **Location:** The "Production Process" page of the LCA questionnaire.
- **UI:** A clear, full-page question: **"How is this product manufactured?"** with three large, clickable buttons: "In-House," "Outsourced," and "Hybrid."
- **Logic:** The company's default_production_model will be pre-selected, but the user can override it. The user's final choice for this specific product determines which of the following steps is shown.

3.3. Step 2: The 'In-House' Path

- **UI:** A page that first displays the message: "Great. To calculate the footprint... the tool will use the annual consumption and production data you've already provided..."
- **Logic:**
    1. The component immediately calls the GET /api/company/data-completeness endpoint.
    2. **If the data is complete:** A "Continue" button appears.

3. **If the data is incomplete:** A message appears: "Some of your annual company data is missing. Please complete it to continue," with a direct link to the "Company Data" page. The "Continue" button is disabled.

3.4. Step 3: The 'Outsourced' Path

- **UI:** A page that first displays the message: "No problem. When using a contract manufacturer, we use industry-average data..."
- **Form:** A single dropdown menu labeled: **"Which of the following best describes the production process?"**
- **Logic:** This dropdown will be populated with a list of pre-configured Ecoinvent process templates stored in the backend (e.g., in the lca_process_mapping table). The user's selection is saved.

3.5. Step 4: The 'Hybrid' Path

- **UI:** A page that first displays the message: "Perfect. Let's break down your production into stages..."
- **Interface:** A repeatable form component that allows the user to build a list of production stages.
  - The user clicks an "Add Stage" button.
  - For each stage, there is a text input for the Stage Name (e.g., "Fermentation & Distillation").
  - Next to the name, there are two radio buttons: **"In-House"** and **"Outsourced"**.
  - **Conditional Logic:** If the user selects "Outsourced" for a stage, the dropdown menu of Ecoinvent templates appears for that specific stage.