ER Diagram Summary – GSynergy Challenge

The **ER Diagram** for the **GSynergy Challenge** represents a **data warehouse schema** that integrates **fact tables** and **hierarchy (dimension) tables** to support retail sales analytics.

◆ Key Components

1 Fact Tables (Transactional Data)

- **fact.transactions.dlm** (Main Fact Table)

    - Stores **sales transaction details** at the **order line level**.
    - Includes **sales amounts, discounts, POS site, SKU, fiscal date, and price substate**.
    - Supports **order tracking** with `original_order_id` and `original_line_id`.
- **fact.averagecosts.dlm** (Product Cost Table)

    - Captures **SKU-level cost details**, including **standard cost** and **landed cost**.
    - Linked by `sku_id` and `fscldt_id` (fiscal date).

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2 Hierarchy (Dimension) Tables

These provide **context and attributes** for analytics.

- **hier.clnd.dlm (Calendar Table)**

    - Defines **fiscal calendar attributes** (`fsclwk_id`, `fsclmth_id`, `fsclyr_id`).
    - Tracks **seasonality** (`ssn_id`) and **historical fiscal dates**.
- **hier.prod.dlm (Product Table)**

    - Defines **product hierarchy** (SKU → Style → Subcategory → Category → Department).
    - Flags products (`issvc`, `isasmbly`, `isnfs`).
- **hier.invloc.dlm (Inventory Location Table)**

    - Stores inventory location details (`loc`, `loctype`).
- **hier.rtlloc.dlm (Retail Location Table)**

- ○ Represents store locations (`str`, `dstr`, `rgn`).
- **`hier.pricestate.dlm` (Price State Table)**

  - ○ Defines price zones (`substate_id`, `state_id`).
- **`hier.possite.dlm` (Point of Sale Site Table)**

  - ○ Represents **sales channels** (`chnl_id`, `subchnl_id`).
- **`hier.invstatus.dlm` (Inventory Status Table)**

  - ○ Tracks inventory ownership and status (`code_id`, `bckt_id`, `ownrshp_id`).
- **`hier.hldy.dlm` (Holiday Table)**

  - ○ Stores holidays (`hldy_id`, `hldy_label`).

◆ Relationships & Key Insights

- **Fact tables (`fact.transactions.dlm`, `fact.averagecosts.dlm`) are linked** to hierarchy tables via **foreign keys** (e.g., `sku_id`, `pos_site_id`, `fscldt_id`).
- **The Calendar Table (`hier.clnd.dlm`) is crucial** for time-based aggregations (weekly, monthly, yearly trends).
- **Product hierarchy (SKU → Category → Department) enables roll-up reporting** on sales and inventory.
- **Retail, POS, and price state tables help segment sales performance** across stores, channels, and price zones.