

tugger 

**Power BI:**

**The Tugger Toolkit**

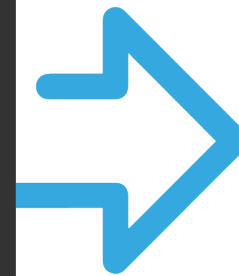
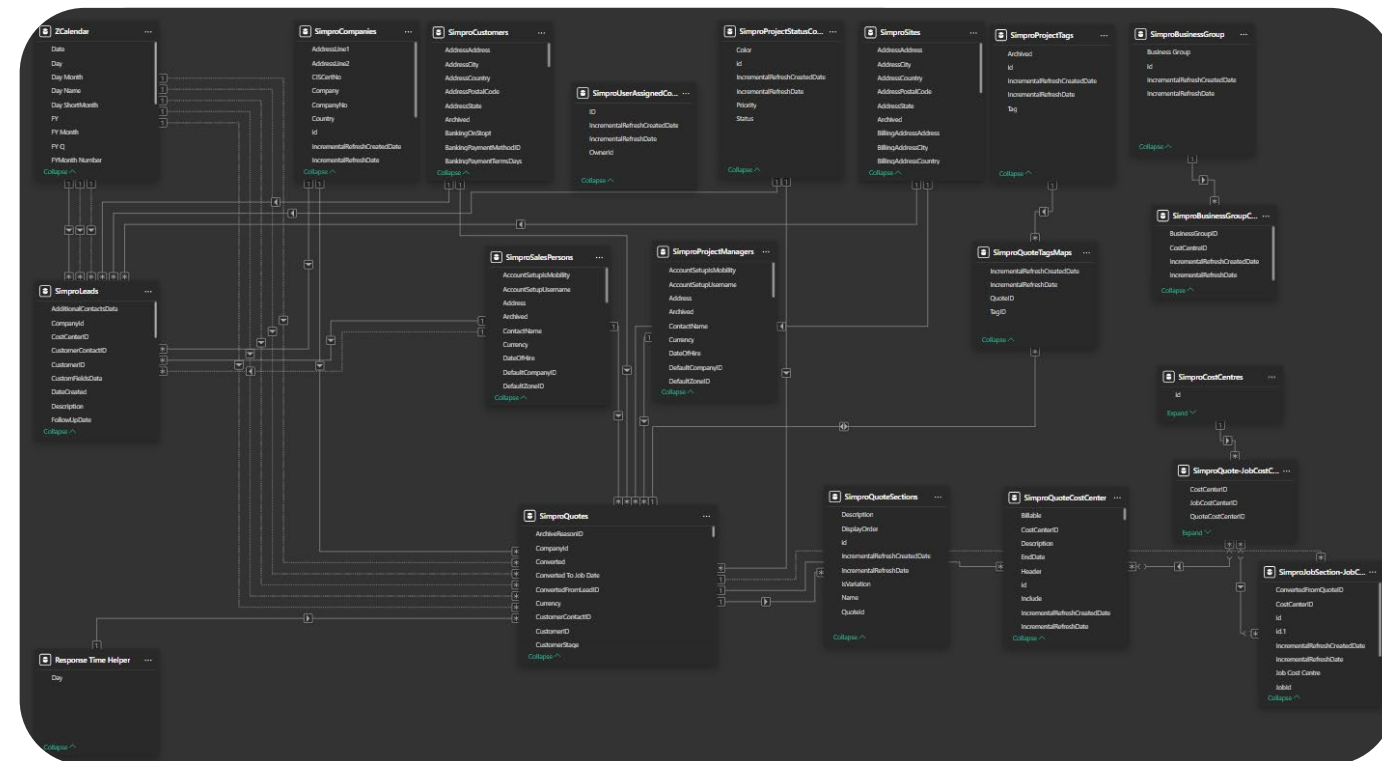
## I. The Data Model

# 1.1 Star Schema Architecture & Integrity

**Timothy Amison**  
Power BI Developer

# The Cost of Chaos

1. Slow Power BI interactions
2. Expensive Hosting
3. Confusing Models
4. Difficult to Maintain

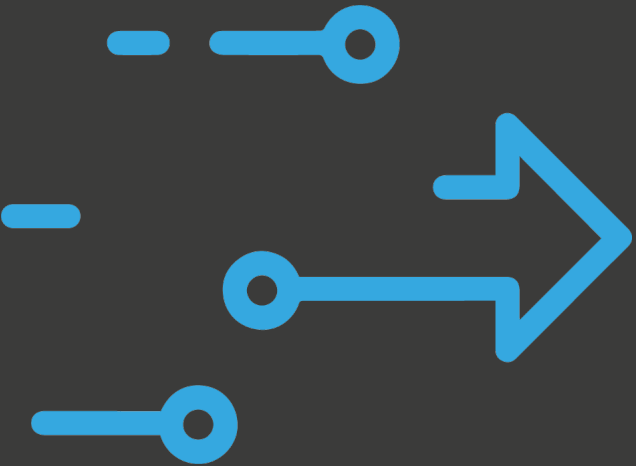


“

Build for Power BI, not the source  
database

”

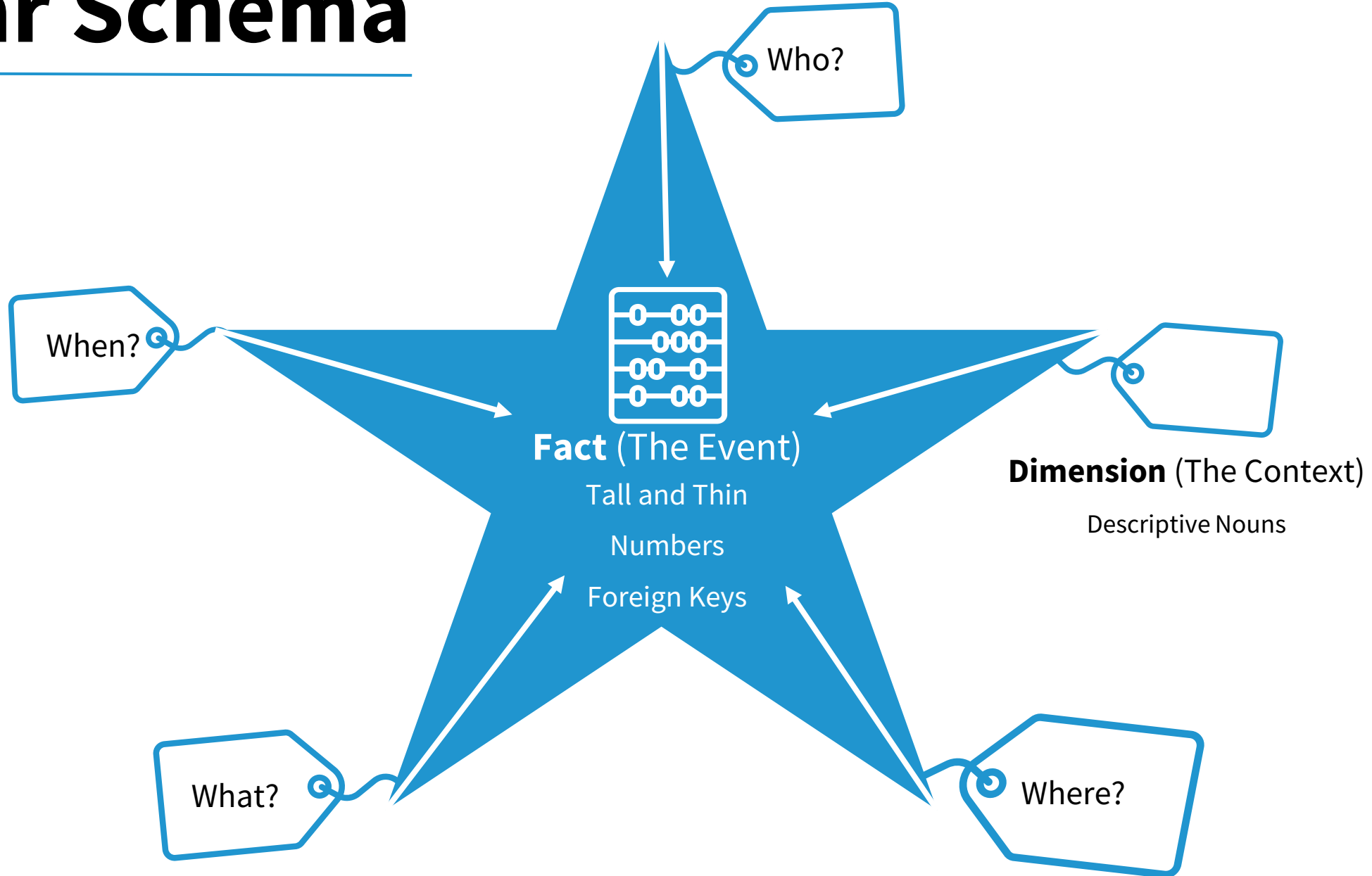




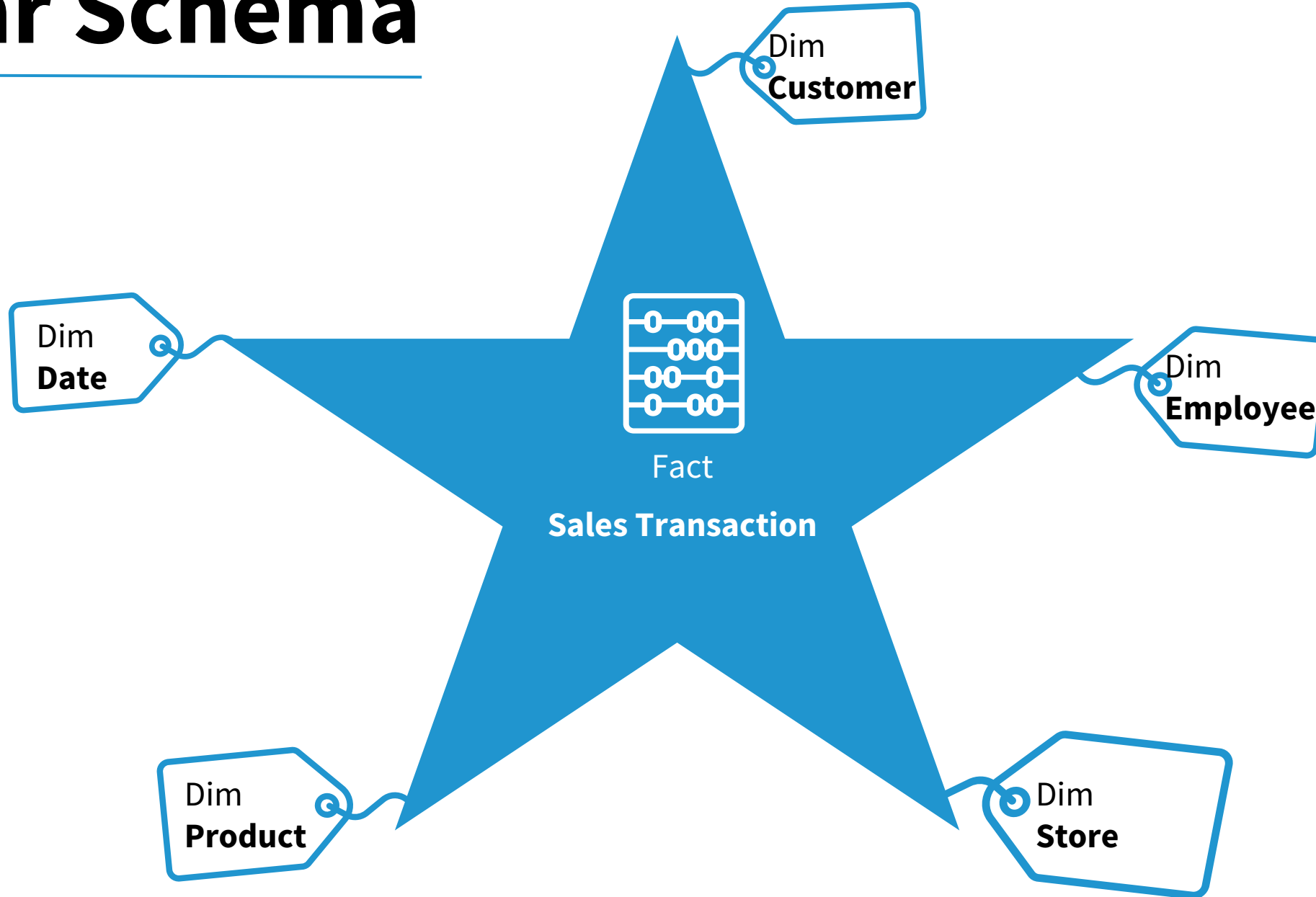
# What is the Star Schema?

An introduction to the star schema

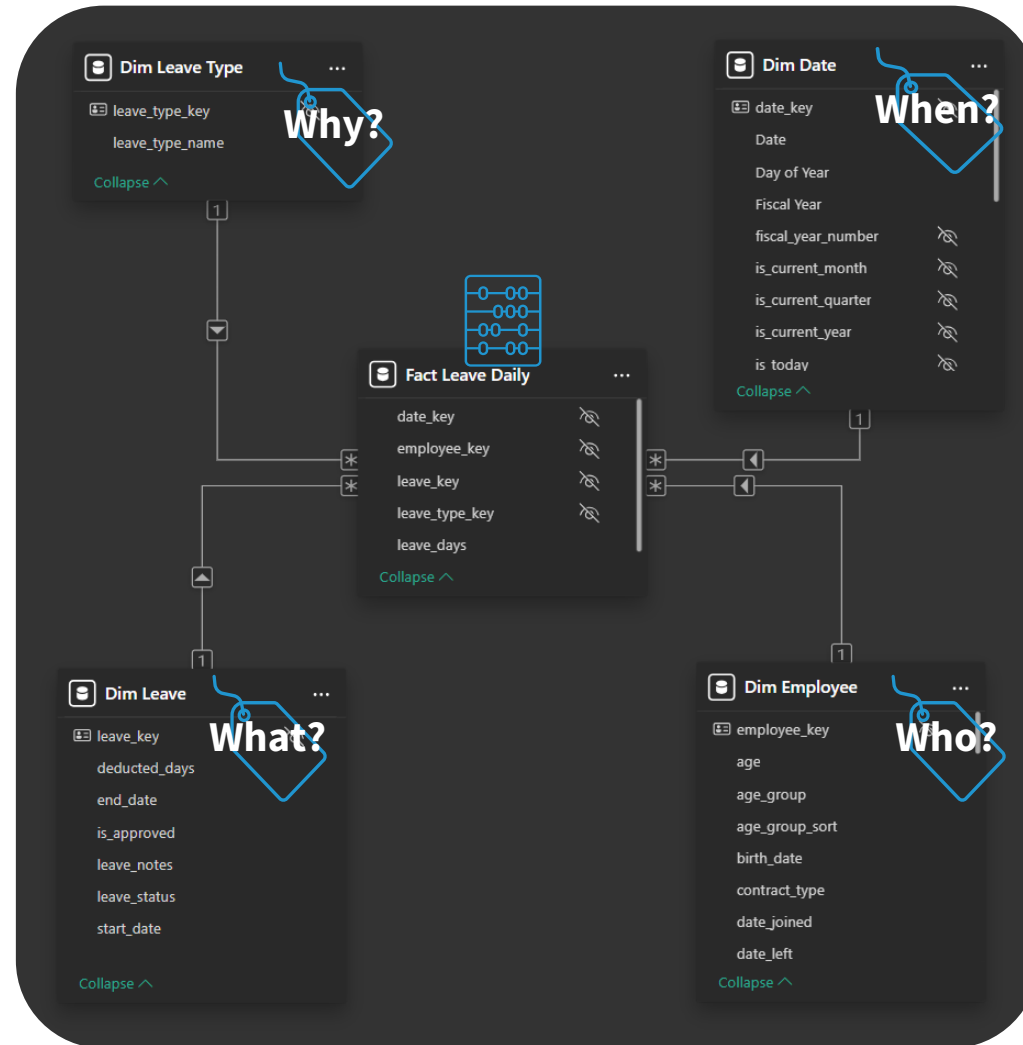
# Star Schema

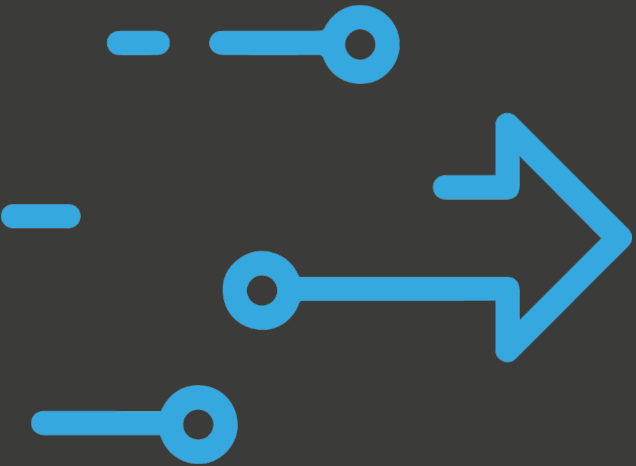


# Star Schema



# Star Schema





# The 4 Rules for a Fast Model

Guidelines to help build efficient and simple star schema models

# The Rules

---

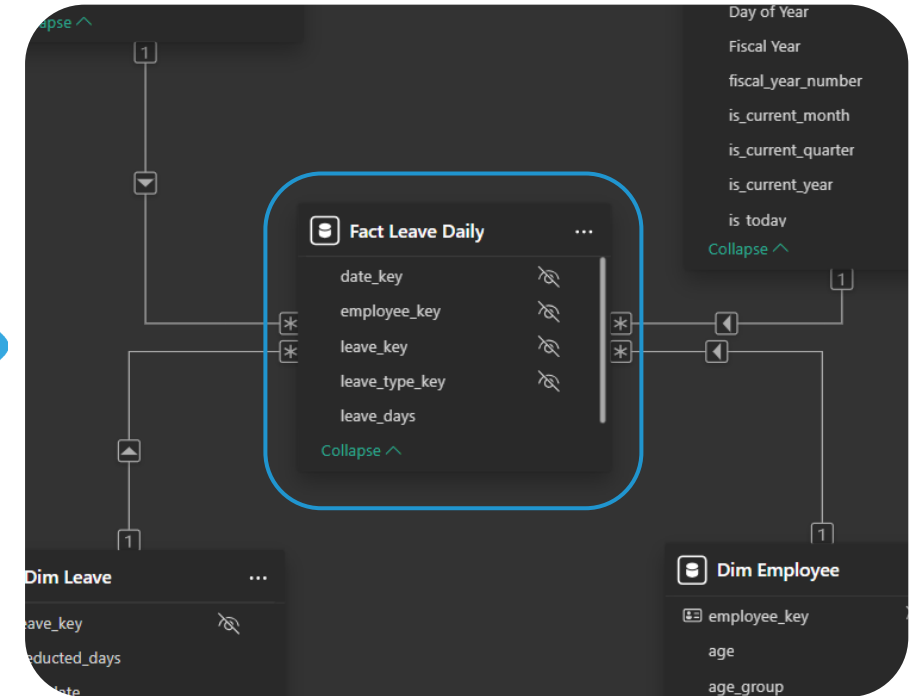
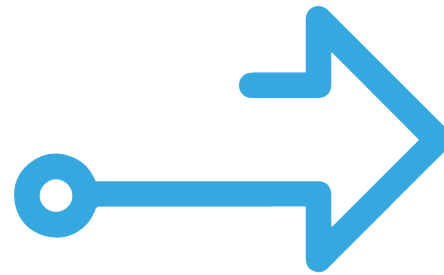
1. Same Fact Grain
2. Thin Fact Table
3. One-Table Dimension
4. No Messy Joins

# 1. Same Fact Grain

## Best Practice

One Fact Table per Business Process at its lowest Granularity

- **Same grain** (level of detail)? → Same fact table.



# 2. Thin Fact Table

## Best Practice

Take descriptive text out of the Fact table  
(Normalise)

- **Measure** or **foreign key**? → keep it in Fact
- **Descriptive text**? → move to a Dimension

## Example

### Bad:

- **Fact** has `customer_name` and `customer_address`

### Good:

- **Fact** has `customer_key`
- **Dim Customer** has `customer_name` and `customer_address`

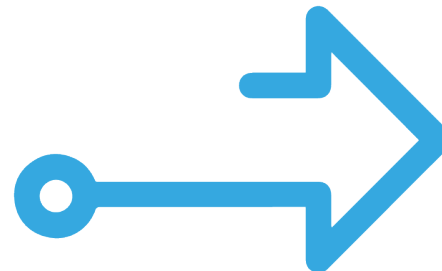
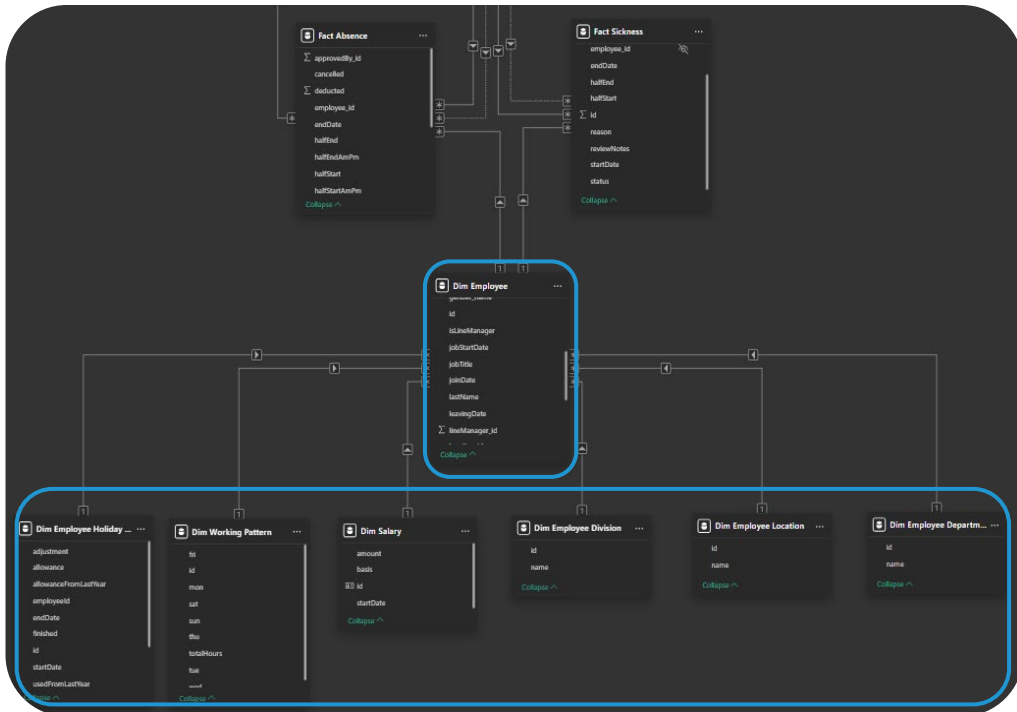


# 3. One-Table Dimension

## Best Practice

**Avoid 'snowflaking'** - Reduce joins for simple models and improved performance.

- **Does it describe the same thing?** → Keep it in the same table



**Dim Employee**  
Employee Key  
Holiday Allowance  
Working Hours per Week  
Current Annual Salary  
Location  
Division  
Department

# 4. No Messy Joins

## Problem

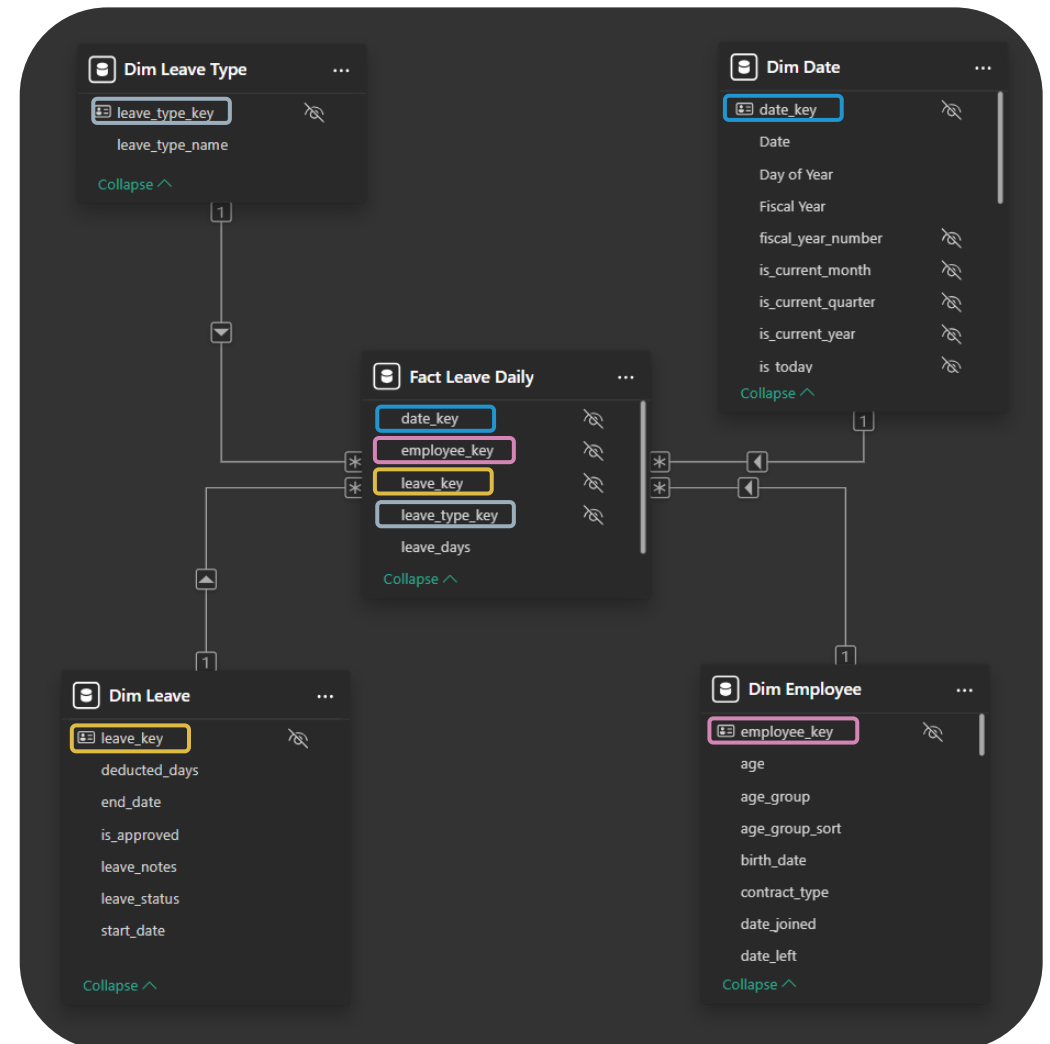
- Ambiguous filters and wrong aggregations

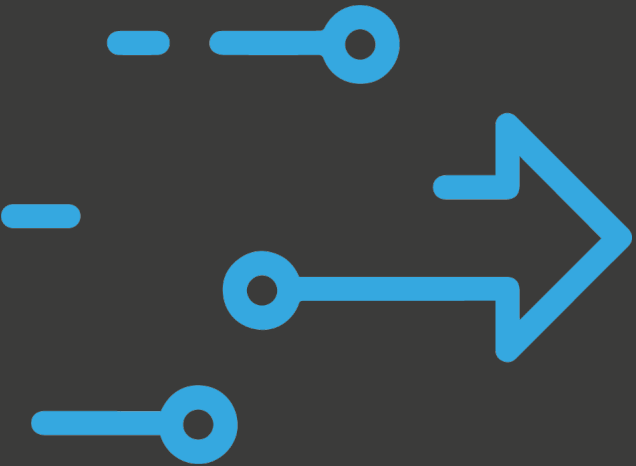
## Solution

- Use **single-directional** relationships: Dimension → Fact
- **No fact-to-fact** relationships
- **Explicitly typed keys** (text, integer, date)

## Example

- Dim Status → Fact Items





# Key Takeaways

And Actionable Steps Going Forward

# Jargon Decoder

Term	Plain English
<b>Star Schema</b>	The fast <b>data structure</b> for reporting, with a central table (Fact) and surrounding descriptive tables (Dimensions)
<b>Fact Table</b>	The central table of <b>numbers/measures</b> (This is what you count or sum)
<b>Dimension Table</b>	The surrounding tables of <b>descriptions or attributes</b>
<b>Key</b>	A column used to <b>link</b> tables together
<b>Natural Key</b>	<b>Original ID</b> from the source system
<b>Surrogate Key</b>	A <b>simple integer ID</b> we create for fast, clean table linking
<b>Snowflake</b>	A structure where Dimension tables are heavily split, with <b>multiple layers of dimensions</b> branching out (less preferred than Star Schema)



# Key Takeaways

1. **Build for Power BI**, not the Source Database
2. **Star Schema** is the Gold Standard
3. 4 Rules to Guide Modelling Choices:
  1. **Same Fact Grain**
  2. **Thin Fact**
  3. **One-Table Dimension**
  4. **No Messy Joins**



# What's Next

---

1.1 – Star Schema Architecture & Integrity

**1.2 – Fact Granularity & Real-World Choices**

1.3 – Modelling Degenerate Dimensions

1.4 – Event-Based Modelling for HR/CRM

1.5 – Data Quality Strategies

1.6 – ETL Architecture & Staging Layer



# Q&A

---

## Let's Chat!

- Any Questions?
- Topics you would like to be covered in future sessions?



# tugger

See the full webinar schedule  
<https://tuggerapp.com/Webinars>

Website: <https://tuggerapp.com>  
LinkedIn: [www.linkedin.com/in/timothy-amison](https://www.linkedin.com/in/timothy-amison)  
Email: [timothy.amison@tuggerapp.com](mailto:timothy.amison@tuggerapp.com)



[\*\*tuggerapp.com\*\*](https://tuggerapp.com)