BUSINESS ANALYSIS CONFERENCE EUROPE

16 - 18 September 2024 • London, UK

Please score and comment on this session and speaker in the event mobile app

IRMUK

Concise Requirements for Dashboards

Helen Appleton

Methods Analytics
AN ALTEN COMPANY

Methods Group
Combined UK turnover of £110M

Business Transformation

methods
AN ALTEN COMPANY

Data and Analytics

Methods Analytics_
AN ALTEN COMPANY

MS Cloud

CoreAzure
AN ALTEN COMPANY

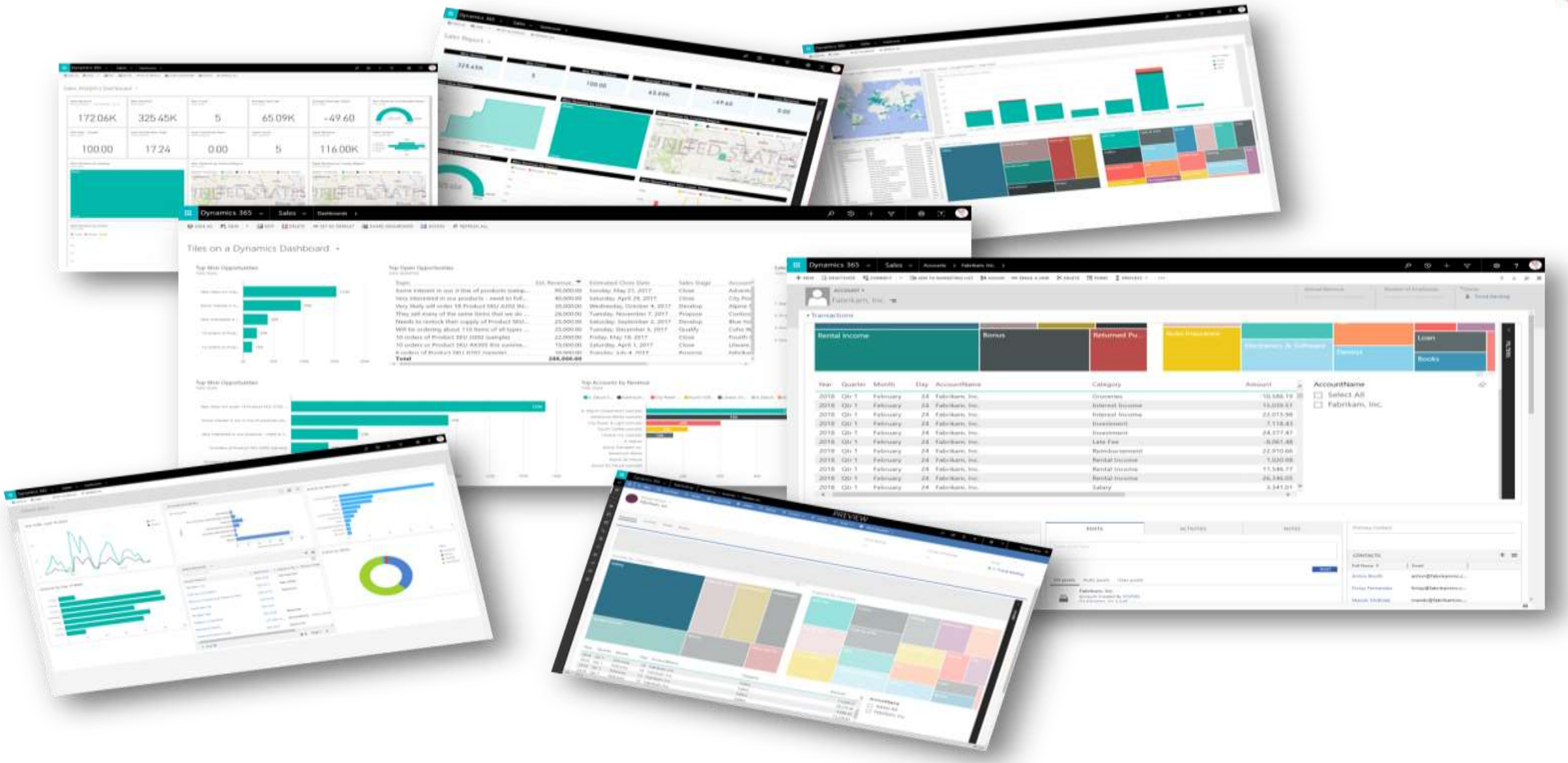
DATA FOUNDATIONS

DATA PLATFORM

DATA SCIENCE

ANALYSIS & REPORTING

Where to start?



Traditional Reporting

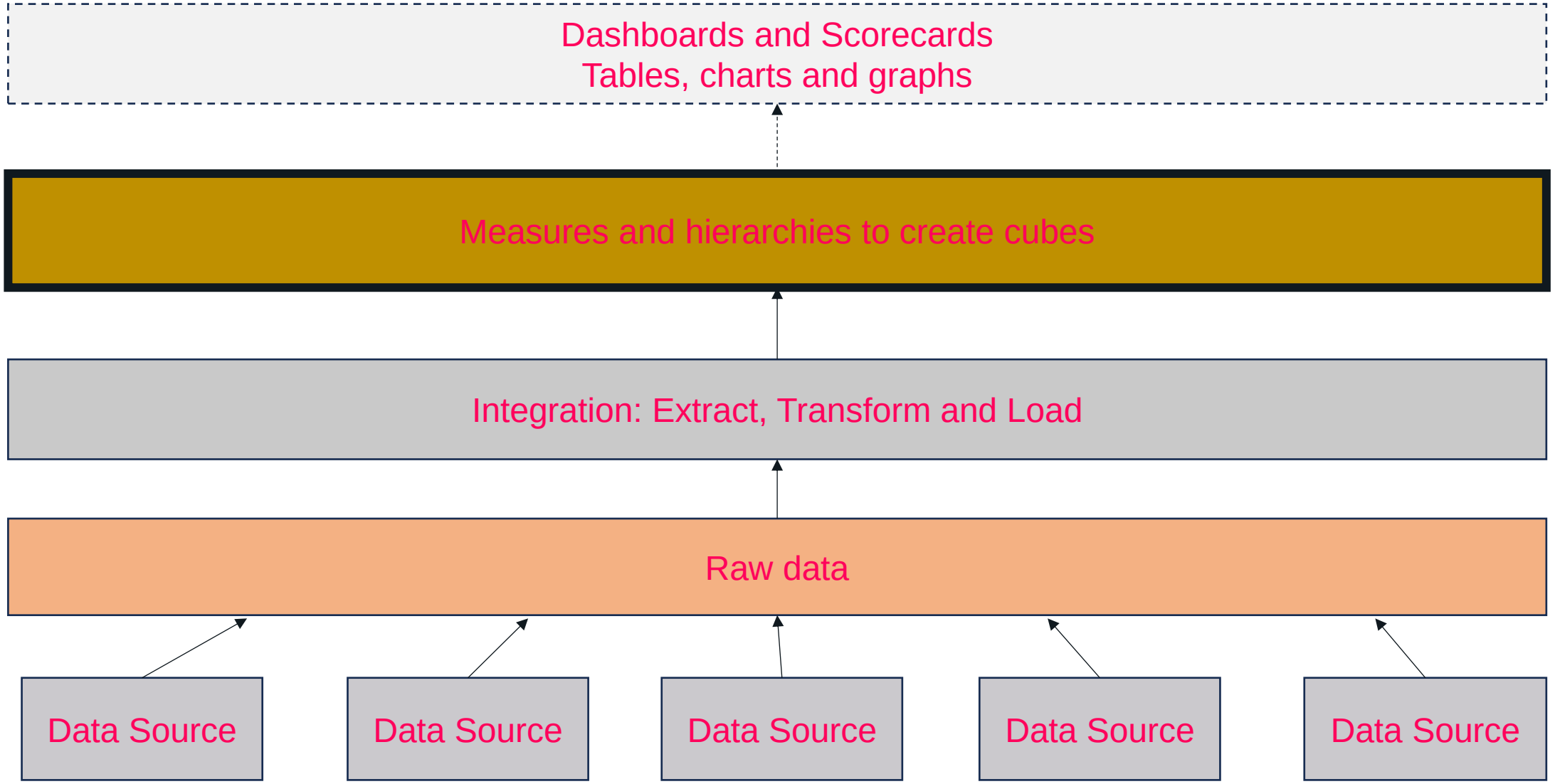
- Single reports built and specified.
- Specify, design, test and release.
- Static data

Business Intelligence

- Full reporting catalogue available.
- Dynamic - Slice and dice, drill down and drill through to raw data.
- **But more up-front design needed**

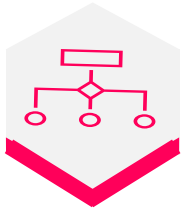
Target the cube layer -

The user will decide the visual layer once they can see & manipulate it.



Specifying Dashboard Design

Questions designed to elicit measures for the **fact** table of a **star schema**.



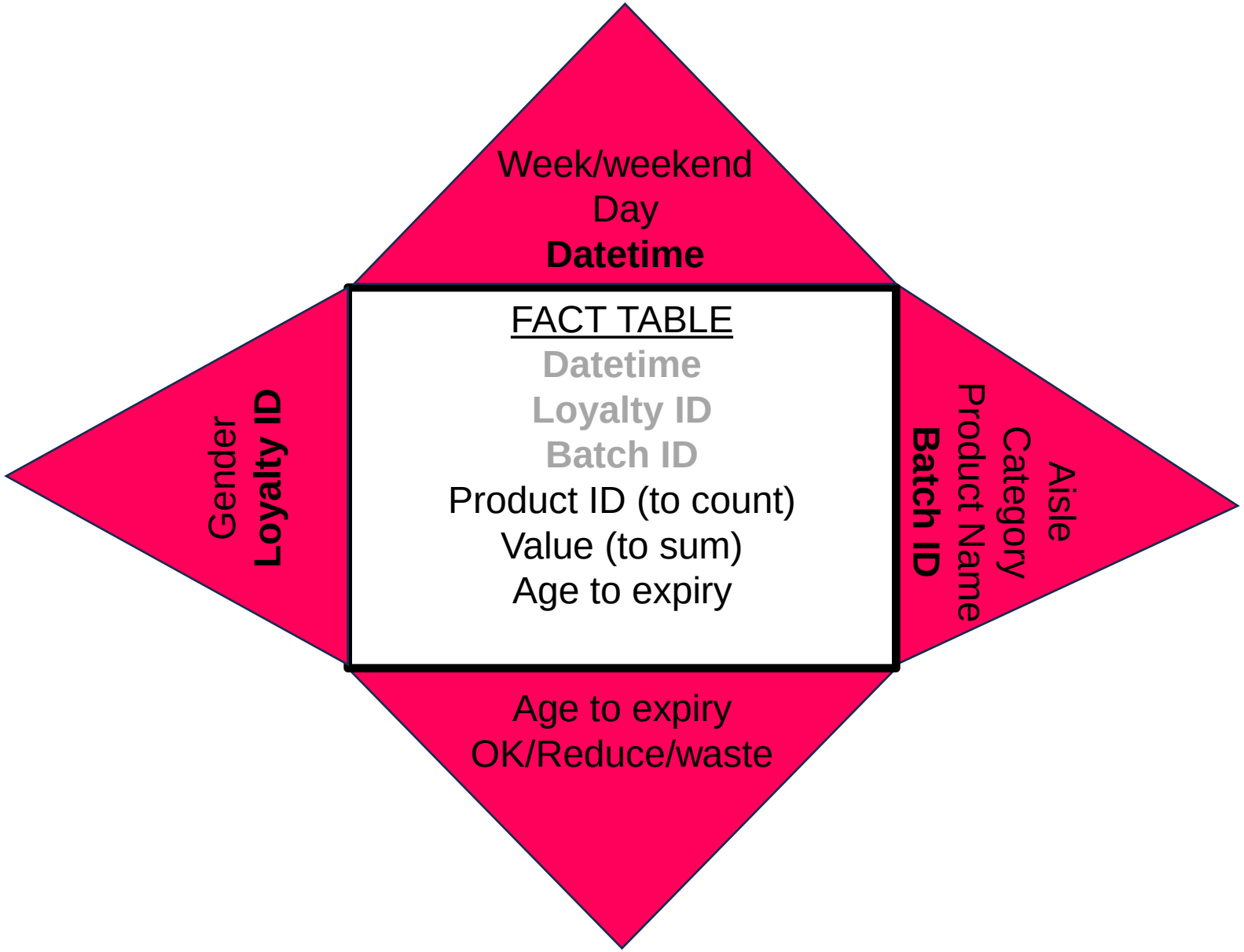
Trends & focus areas define the **dimensions** & **hierarchies** so should not be in the raw question.

Raw data sources for improved ETL.

Aim to be **more**:	**NOT**
Architectural	Granular
Specific	Verbose,
Concise	Detailed

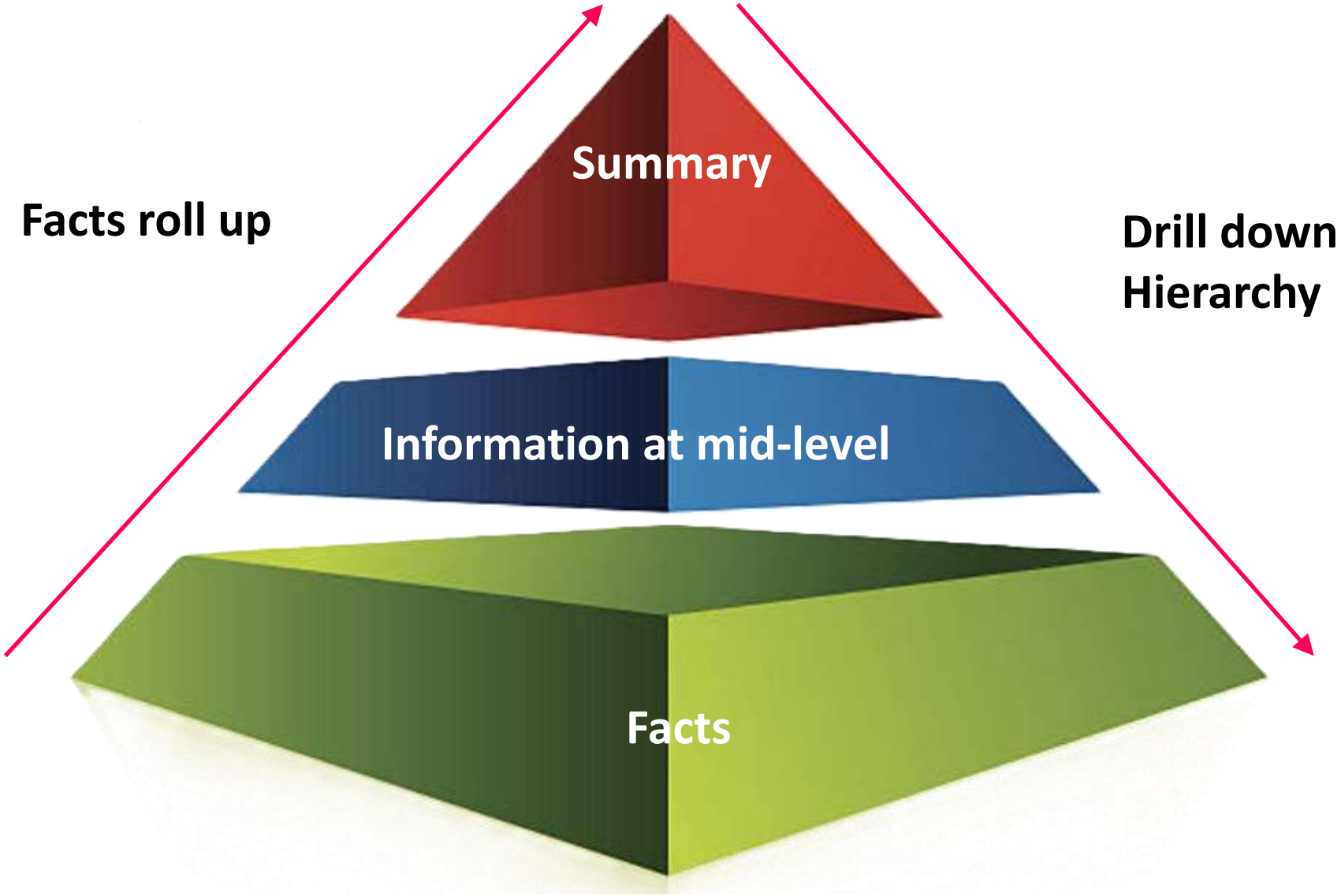
Methods Analytics

What is Star Schema?

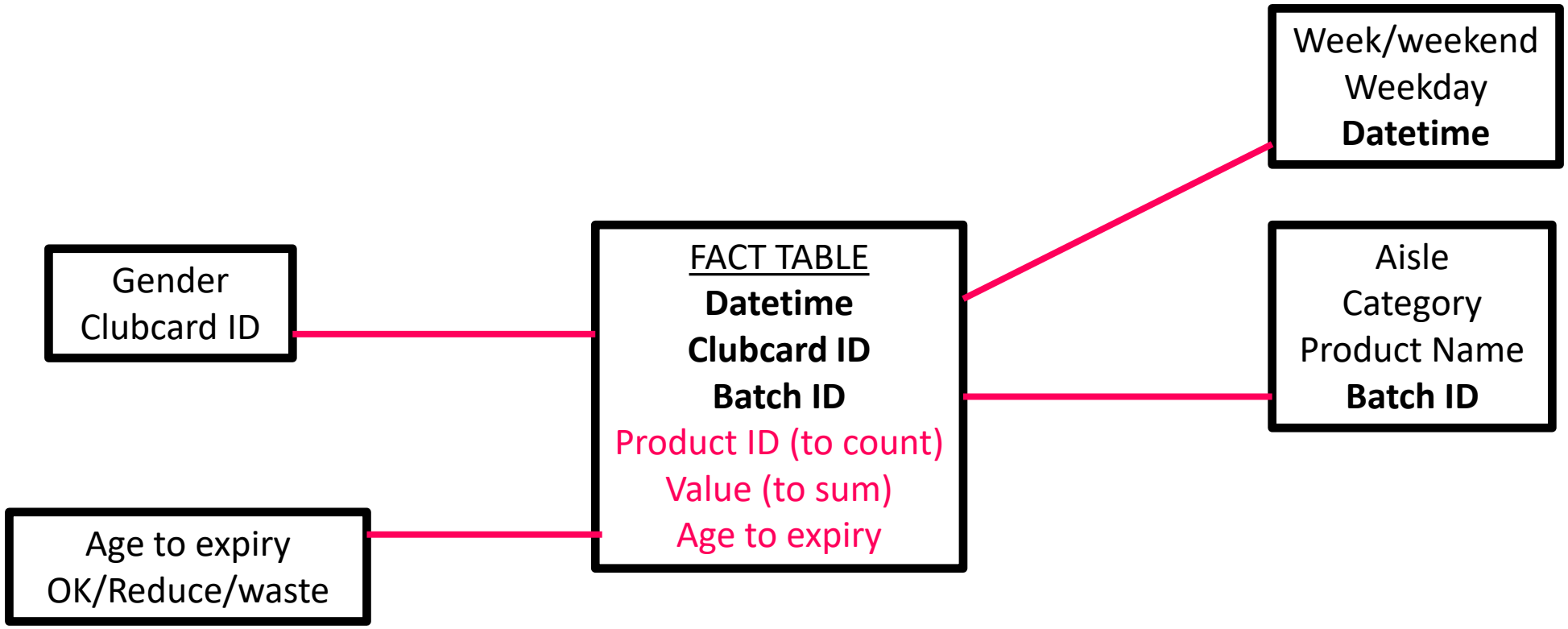


- Hierarchies
- Base layer keys
- The measures

Stars Become Pyramids



Star Schema Documentation

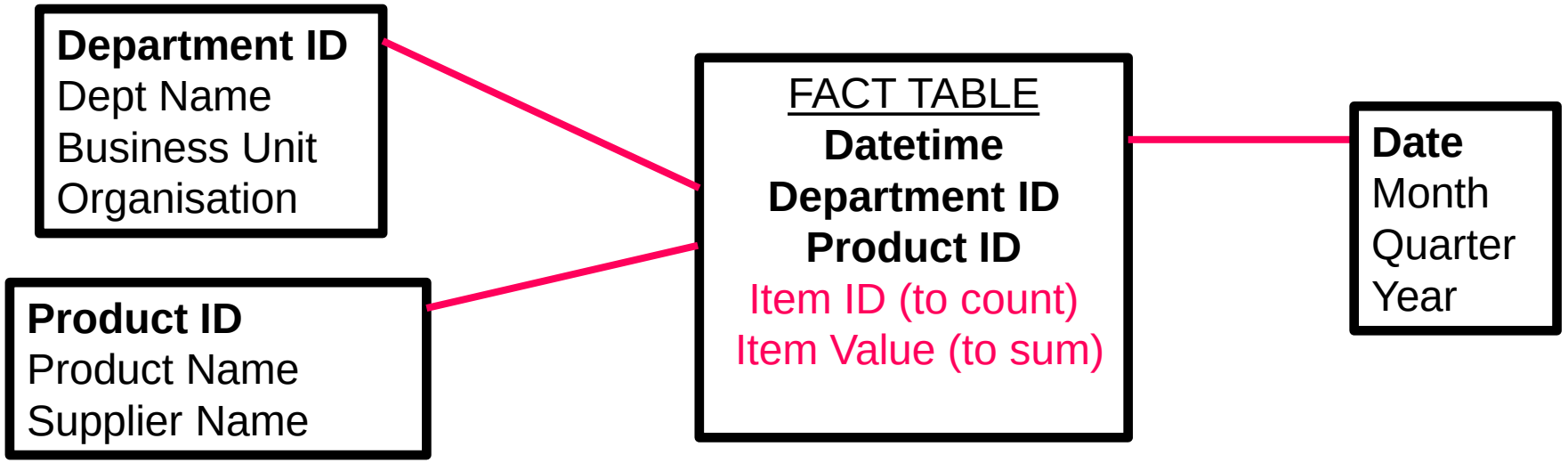


Pinpointing the Core Requirement 1

Client Asks:	Actual question	Measure	Hierarchies
What is the trend in sales - over time and by business unit?	What is happening to sales performance?	# items sold £ items sold	Department>BU >Organisation Time: Month>Qtr>Year (FY or C)
What products have sold best and which suppliers are they from?	What is happening to sales performance?	# items sold £ items sold	Product>Supplier

Pinpointing the Core Requirement 1

Client Asks:	Actual question	Measure	Hierarchies
What is the trend in sales - over time and by business unit?	What is happening to sales performance?	# items sold £ items sold	Department>BU >Organisation Time Month>Qtr>Year (FY or C)
What products have sold best and which suppliers are they from?	What is happening to sales performance?	# items sold £ items sold	Product>Supplier



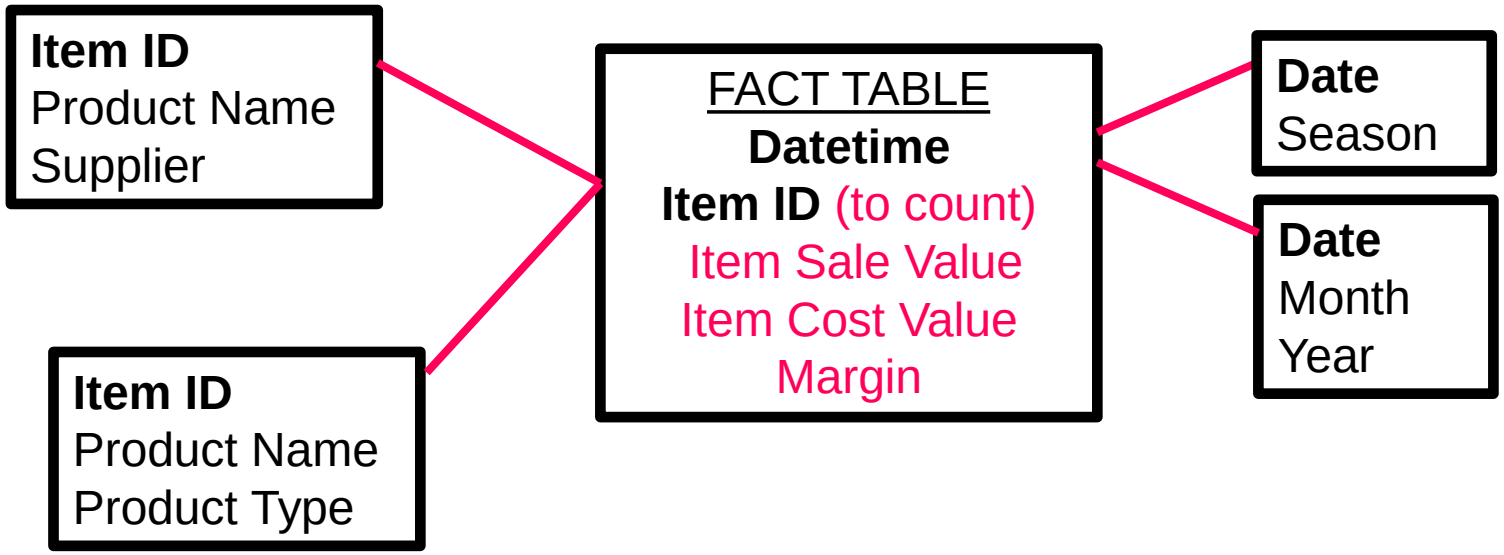
Methods Analytics
AN ALTEN COMPANY

Pinpointing the Core Requirement 2

Client Asks:	Actual question	Measure	Hierarchies
Which product lines were most profitable in the summer?	What is happening to profitability?	£ items sold £ items purchased Profit margin derived	Time: week > season Product>*supplier/ type/storage method*?
Which products had the highest margins and which were often discounted and sold at a loss?	What is happening to profitability?	# items sold £ items sold £ items purchased Profit margin derived	Product> *product type*? Margins are being banded (both +ve and –ve) “Often” indicates frequency so is # and Time

Pinpointing the Core Requirement 2

Client asks:	Actual question	Measure	Hierarchies
Which product lines were most profitable in the summer?	What is happening to profitability?	£ items sold £ items purchased Profit margin derived	Time: week > season Product>*supplier/ type/storage method*?
Which products had the highest margins and which were often discounted and sold at a loss?	What is happening to profitability?	# items sold £ items sold £ items purchased Profit margin derived	Product> *product type*? Margins are being banded (both +ve and –ve) “Often” indicates frequency so is # and Time



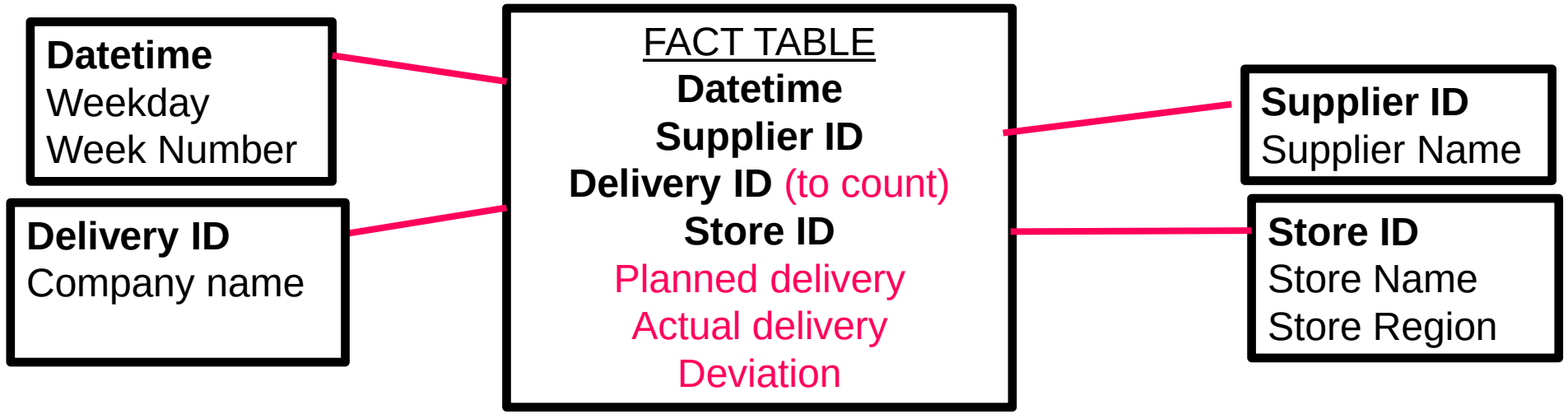
Methods Analytics
AN ALTEN COMPANY

Pinpointing the Core Requirement 3

Client Asks:	Actual question	Measure	Hierarchies
Which suppliers fail to meet delivery date most frequently?	Which orders were not delivered as planned?	# Delivery ID Planned delivery datetime Actual delivery date time Deviation from delivery time	Supplier Time (Planned Day/hour/minute) *Delivery company* *Impact of delay* *Store*

Pinpointing the Core Requirement 3

Client Asks:	Actual question	Measure	Hierarchies
Which suppliers fail to meet delivery date most frequently?	Which deliveries were not on time?	# Delivery ID Planned delivery datetime Actual delivery datetime Deviation from delivery time	Supplier Time (Planned Day/ hour/ minute) *Delivery company* *Impact of delay* *Store*



Methods Analytics
AN ALTEN COMPANY

The Base of the Pyramid must be at the Same Level

FACT TABLE 1
Datetime
Department ID
Product ID
Item ID (to count)
Item Value (to sum)

FACT TABLE 2
Datetime
Item ID (to count)
Item Sale Value
Item Cost Value
Margin

FACT TABLE 3
Datetime
Supplier ID
Delivery ID (to count)
Store ID
Planned delivery Actual delivery
Deviation

FACT TABLE 4
Order ID (to count)

FACT TABLE 4
Contract ID (to count)

FACT TABLE 6
Account ID (to count)

Methods Analytics
AN ALTEN COMPANY

Sourcing Data

1. Load direct from master systems
2. Validate logic and calculations
3. Don’t do excessive calculations
   - Averages
   - Percentages
   - Rates

1. Don’t redesign the existing reporting
2. Focus on
   - Facts,
   - Hierarchies
   - Calculations at the base layer
3. Get data from a raw source

Appendix

Example Template – Core information

Ref	Resp	level	Requirement	Measures	Hierarchies	Notes
1.1		Item	What is happening to sales performance?	# Items sold Σ value sold	Org: Department>BU >Organisation Time: Month>Qtr>Year (FY or C)	Preference to default at BU level
1.2		Item	What is happening to sales performance?	# Items sold Σ value sold	Supplier: Product name> Supplier Name	13 month rolling average prefered
1.3		Item	What is happening to Profitability?	Σ value sold Σ value purchased Profit = sold-purchased	Time: week > season Product>supplier/ type/storage method	
1.4		Item	What is happening to Profitability?	# Items sold Σ value sold Σ value purchased Profit = sold-purchased	Product>Product type Margin range Time	Margins should show both profit and loss ranges
2.1		Delivery	Which orders were not delivered as planned?	Planned delivery datetime Actual delivery date time Deviation = Planned - actual	Supplier: Product name> Supplier Name Time: (Planned Day/hour/minute) *Delivery company* *Impact of delay* *Store*	

Questions - Lower Level & Checks

Client	Requirement	Check
I need more identifiers to resolve issues.	Can we source more identifiers in the raw dataset?	Usability
I would like to know the validation rate.	Can we get both the numerator and denominator to calculate a rate?	Feasibility

Topic	Check
Refresh period	Can the frequency be increased? (Monthly/Weekly/Overnight/Intraday) Is there value in doing so? Overnight is normal, but intraday is possible.
Defaults levels	Monthly or Quarterly views? Where in the organisation structure?
Does the hierarchy have the same number of levels?	If not, some layers may need to repeat levels.
Does the bottom layer of the hierarchy tie up to the fact table keys?	If the lowest level of Identifiers are missing a dummy value may need to be created. The lowest level does need to be a flat base layer. If some go to item level while others would only go to a balance level, you may need to think about 2 separate cubes.

Definitions

Term	Explanation
Cube	The model that holds detail of the report structures. Think of each report like a box inside a huge Rubix cube
Dashboard	In instant overview of status, not trends, think of a car dashboard.
Dimension	A hierarchical structure that enables the user to slice and dice the data.
Drill down	The ability to analyse data by breaking categories into lower levels of detail.
Fact Table	The base level of a cube/pyramid, which holds the links to the dimensions and the measures for analysis.
Hierarchy	A structure that starts with one category at the top and fans out in one-to-many relationships
Scorecard	Reporting against targets & trends towards them.
Snowflake Scheme	A model with hierarchies that split. (E.g. Organisations may have line management and project reporting lines).
Star Scheme	A simple model that has single dimensions radiation from a fact table.
OLAP	On-Line Analytical Processing

BUSINESS ANALYSIS CONFERENCE EUROPE

16 - 18 September 2024 • London, UK

Please score and comment on this session and speaker in the event mobile app

IRMUK