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ECONOMICS
AND BUSINESS



Data Warehouse Management Using SAP BW

Alexander Prosser

What problems does a data warehouse answer ?

CEO: “We may have a problem in procurement. I have a feeling that we employ too many suppliers. We are not focused enough, and probably the issue is even growing. Give me a flexible analysis tool to check that out.

We should have all data in our SAP ECC system.”

You (IT manager): “.....?”

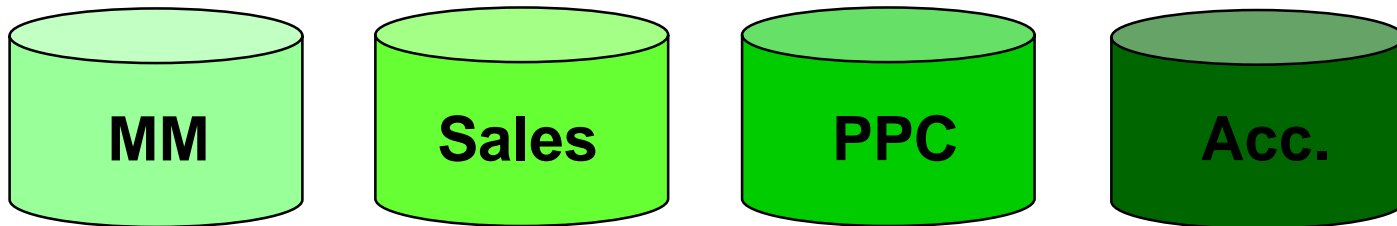
What can I expect of a Data Warehouse ?

What not ?

What can I expect of my consultants/IT professionals ?

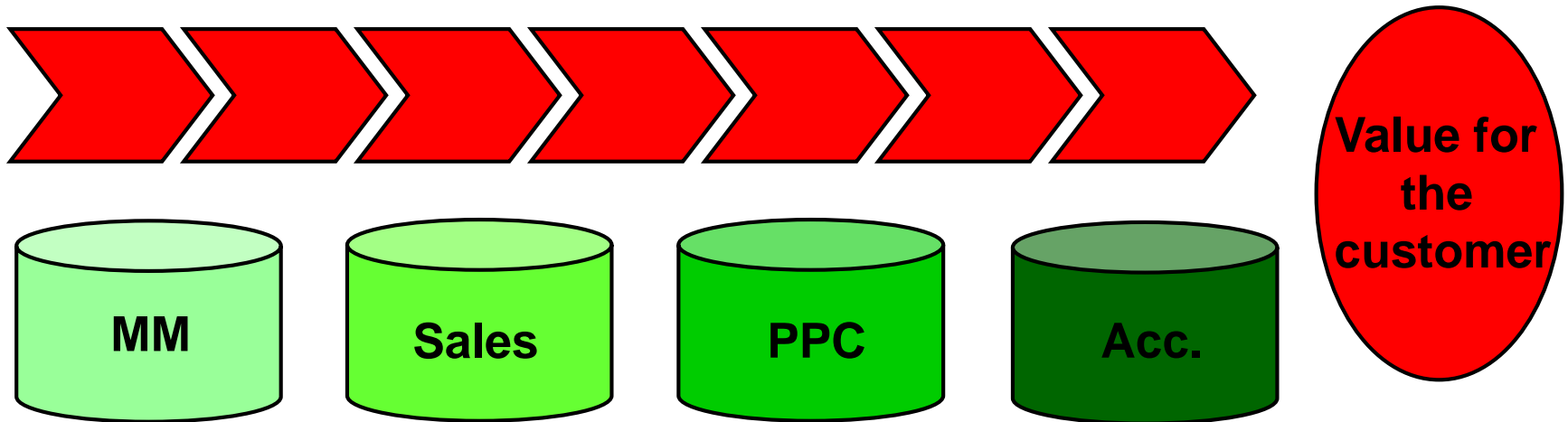
How can I ensure that I get what I/my organisation needs ?

1980-ies: Functional software

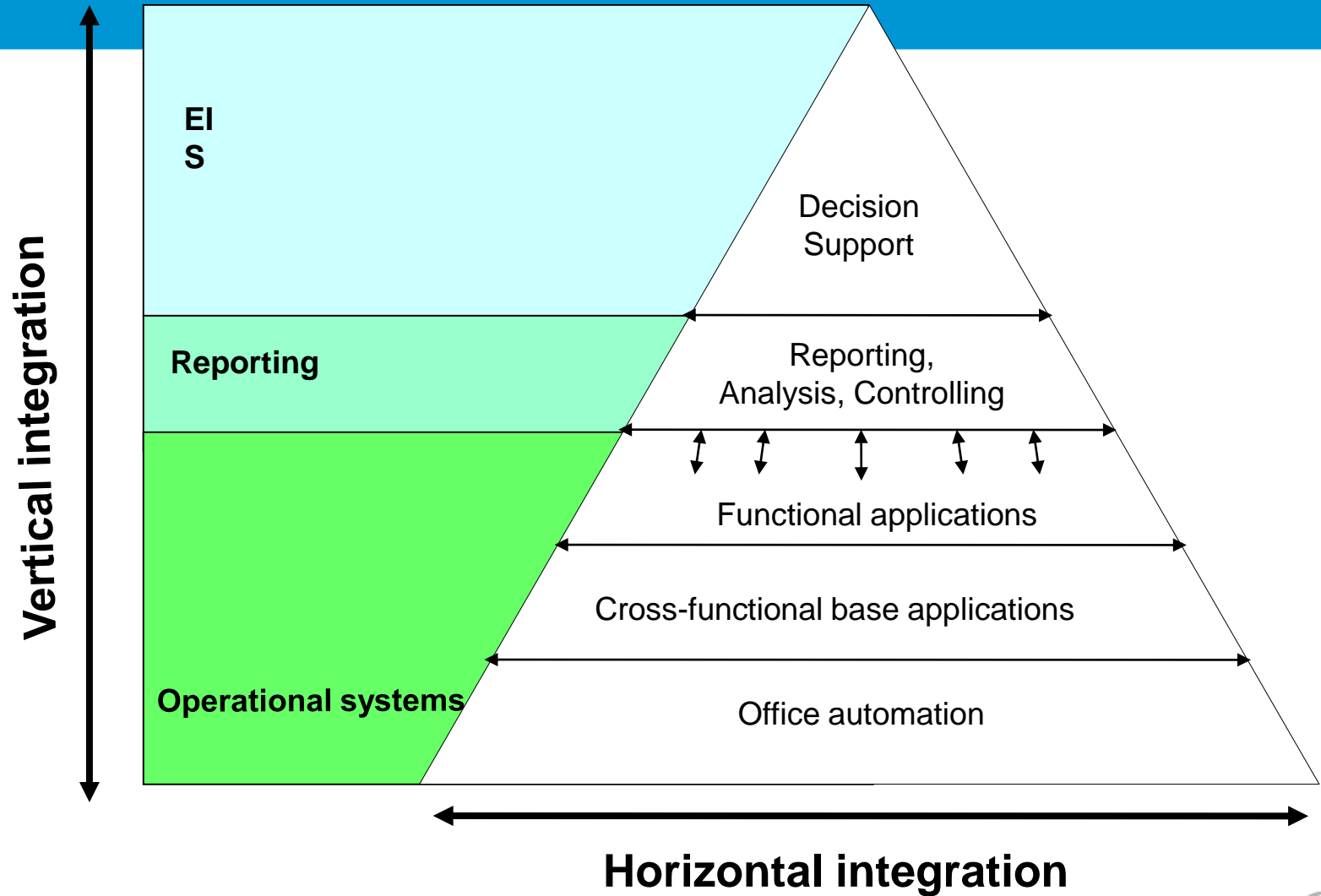


1990-ies: Process orientation:

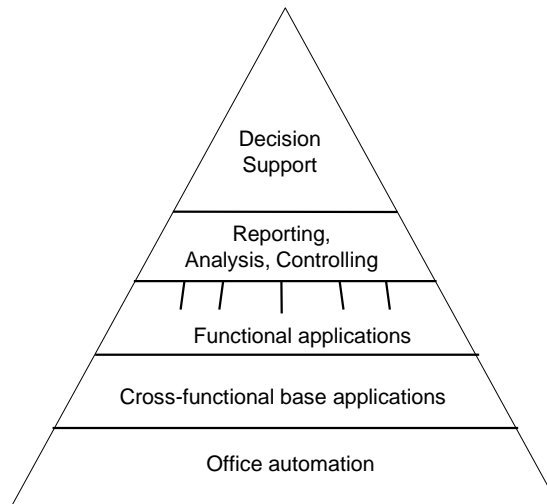
Business Process



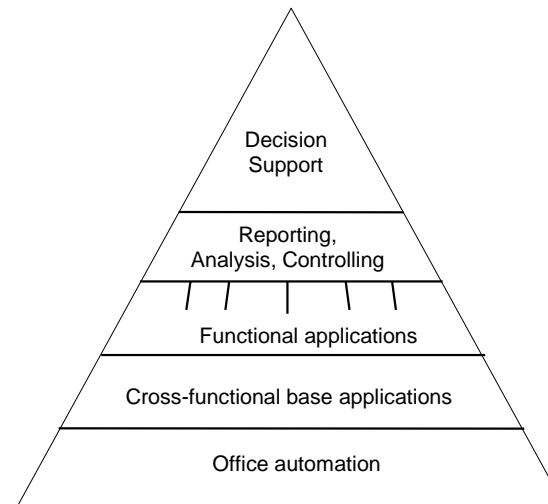
Overview



Organisation #1

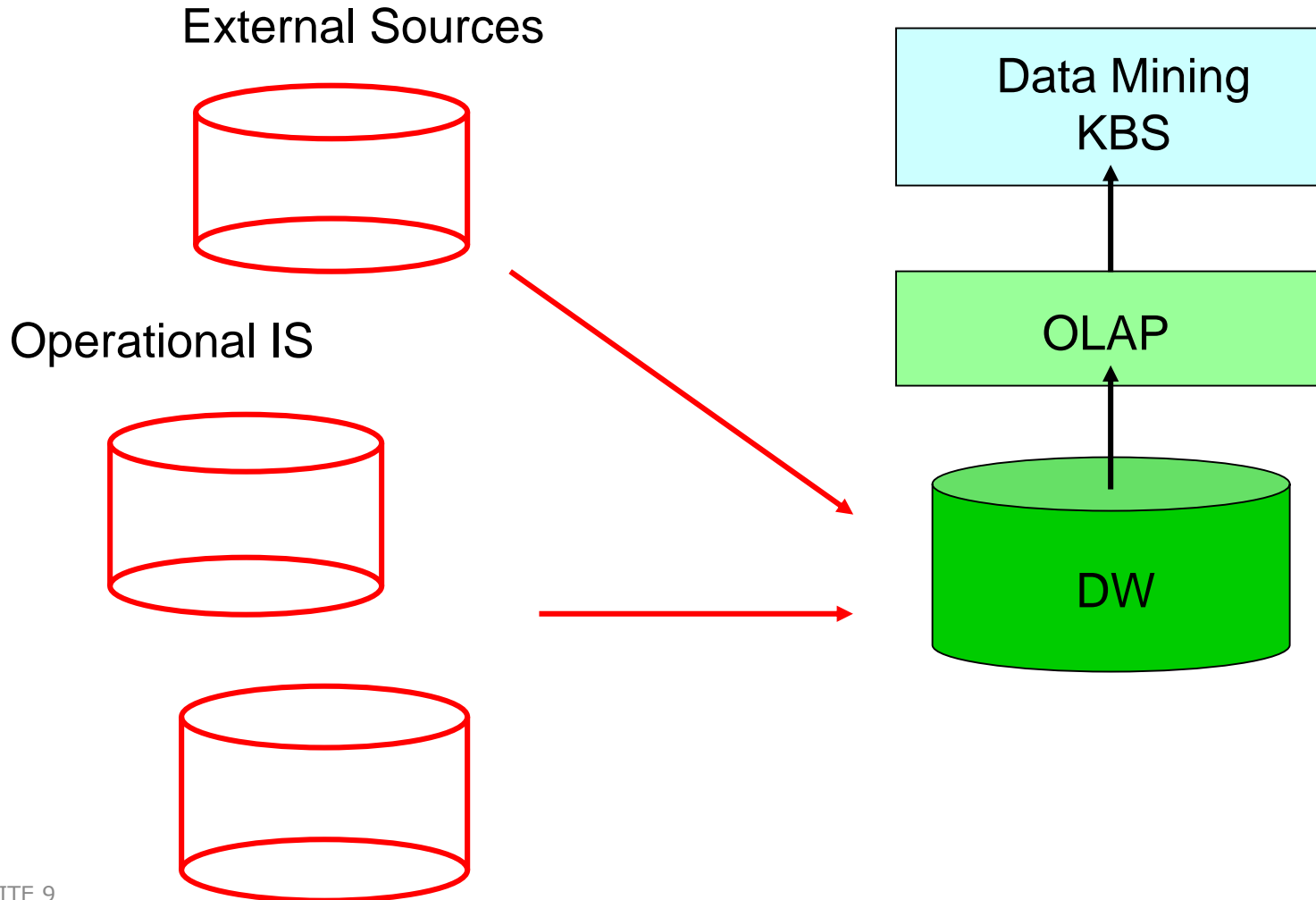


Organisation #2



Cross-company integration (e.g., supply chain management)

Overview



Overview

Operational system

Procurement

Sales and order processing

Production planning and shop floor control

Data warehouse

Vendor assessment

Analysis of customer behaviour

Analysis of rework/reject and overdue production orders

A data warehouse is NOT a list generator.

A data warehouse is NOT an address database for mail merge operations.

It is an analytical tool for analysis and decision making.

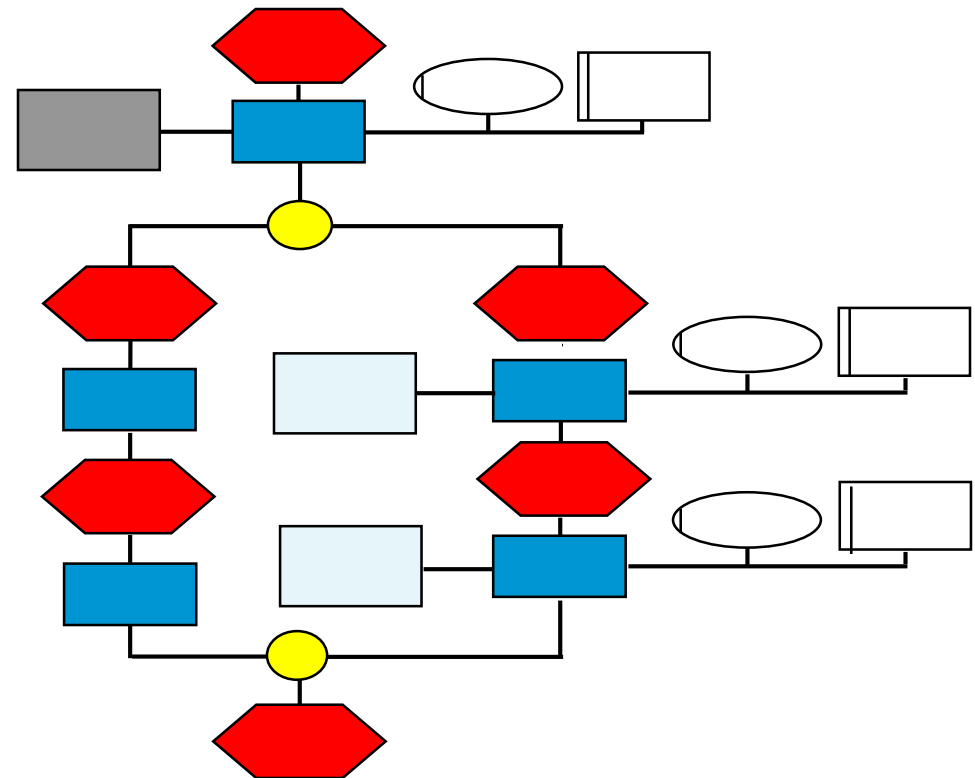
Overview

	Operational system
Usage	Transaction-intensive (read and write)
Users	Relatively large number
Coverage	(In most cases) current data only

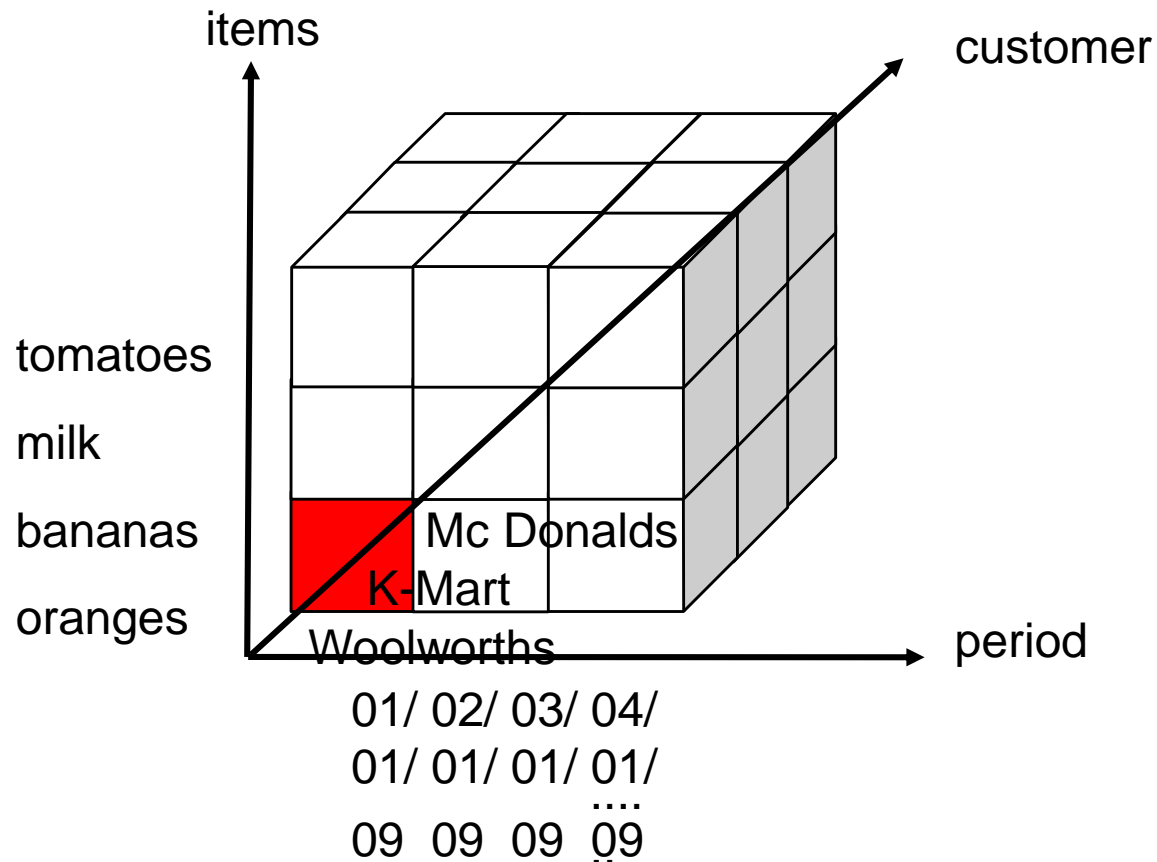
Overview

	Operational system	Data warehouse
Usage	Transaction-intensive (read and write)	Query-intensive (read only)
Users	Relatively large number	Relatively small number, unless used as a general reporting tool
Coverage	(In most cases) current data only	Current & historical data; time-dependent

	Operational system
Model (typical)	Data is organised according to a process
Data structure	Flat

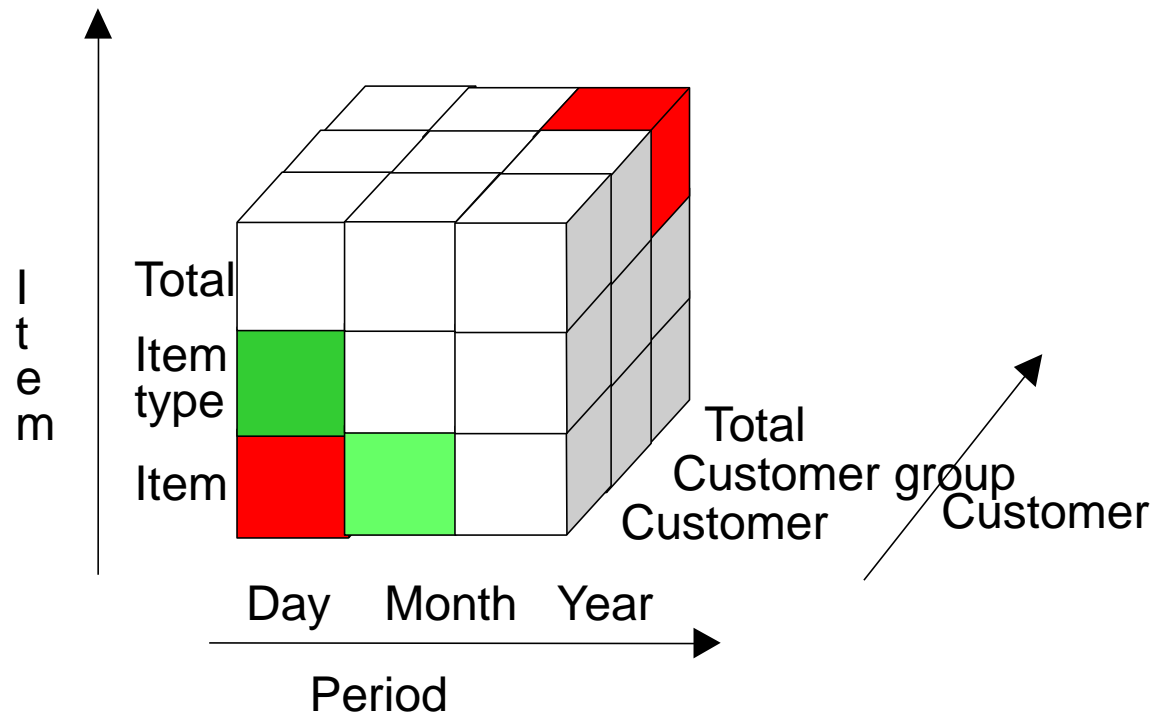


	Operational system	Data warehouse
Model (typical)	Data is organised according to a process	Data is organised according to a subject matter
Data structure	Flat	Multi-dimensional according to the subject matter



Modeling a Data Warehouse

... and data is multi-dimensional.



**You have to unequivocally specify what you want
... before you sign the contract.**

Otherwise, you will not get what you want.

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... before you sign the contract.**

Otherwise, you will not get what you want.

- => Dimensional Fact Modeling as a „language“ to specify your needs and to assure the quality of the system delivered.**
- => Conceptual system modeling is not an academic luxury item, but a means to save €€€**

Let's design a data warehouse:

Please suggest a case from your experience.

STEP 1:

What is the fact I want to analyze ?

What are the key figures representing the fact ?

What do the key figures look like ?

Nominal: numerical coding without meaningful values

Ordinal: coding represents $><$ relationships,
no meaningful sum

Interval: metric, but have a “beginning” and/or “end”,
hence, no meaningful sum

Rational: metric, any operation

STEP 2:

What are the axes in my analyses ?

What are their aggregation levels (if any) ?

STEP 3:

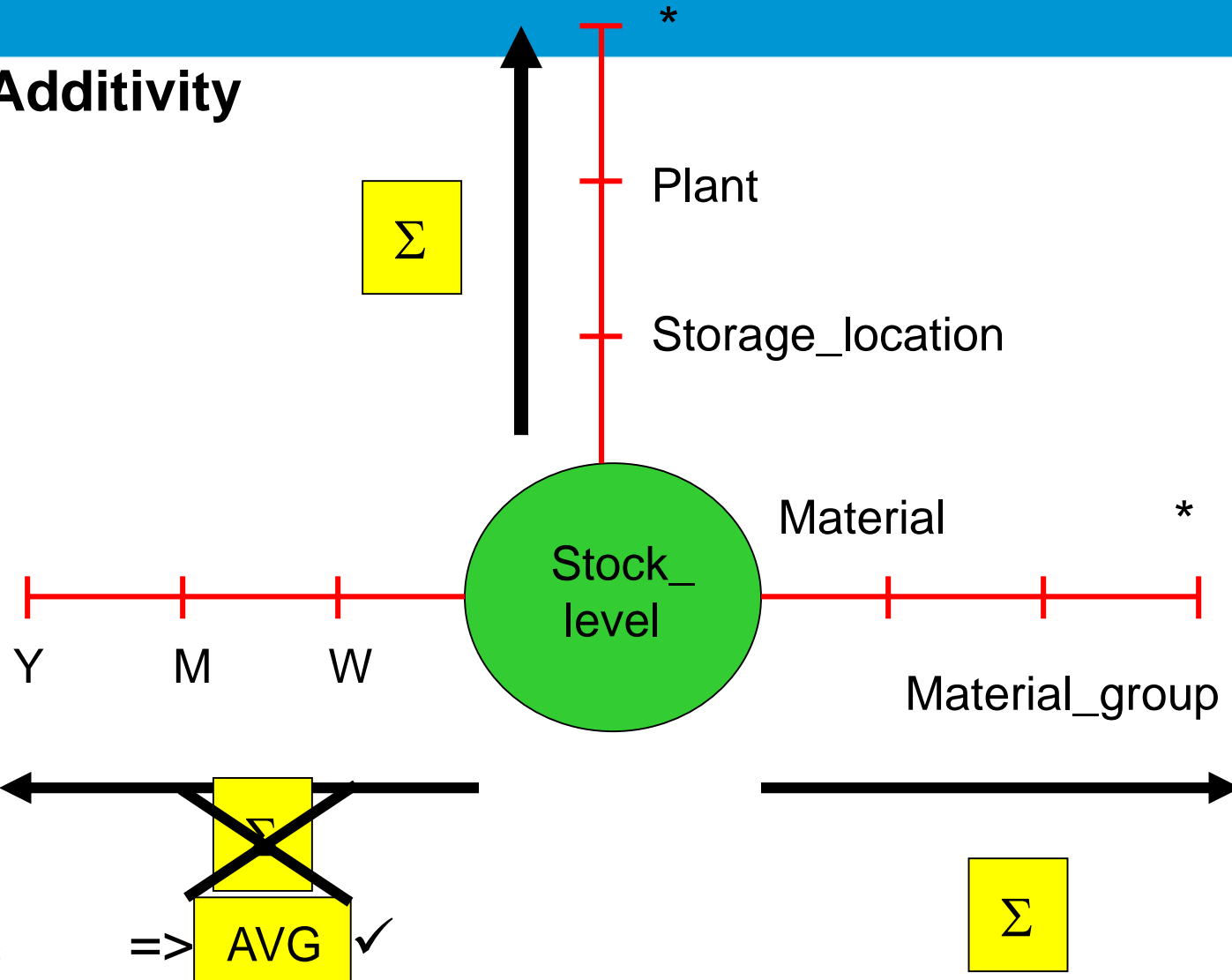
Are the axes of aggregation independent of one another ?

Are there any restrictions in aggregation ?

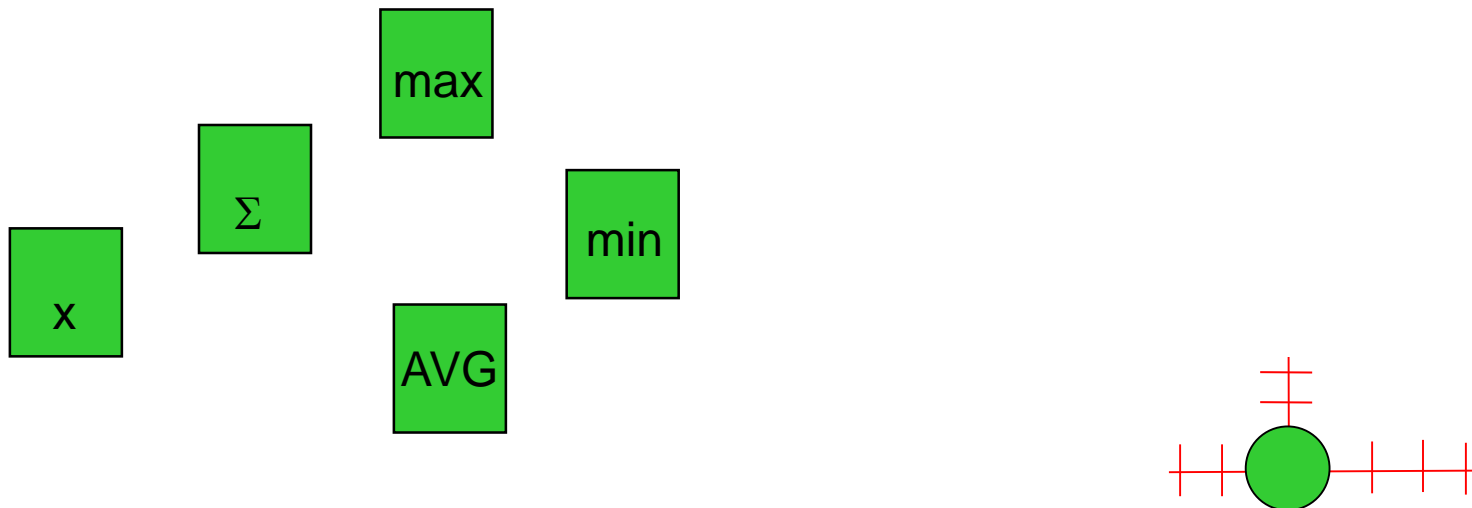
Modeling

Operator	Nominal	Ordinal	Interval	Rational
Sum	No	No	No	✓
Average	No	(✓)	✓	✓
Minimum	No	✓	✓	✓
Maximum	No	✓	✓	✓

Additivity



Modeling



	Some dimensions	All dimensions
Some aggregation operator	Semi-additive	Semi-additive
All aggregation operators	Semi-additive	Additive

STEP 4:

Are there any non-aggregation attributes ?

Do I have parallel hierarchies ?

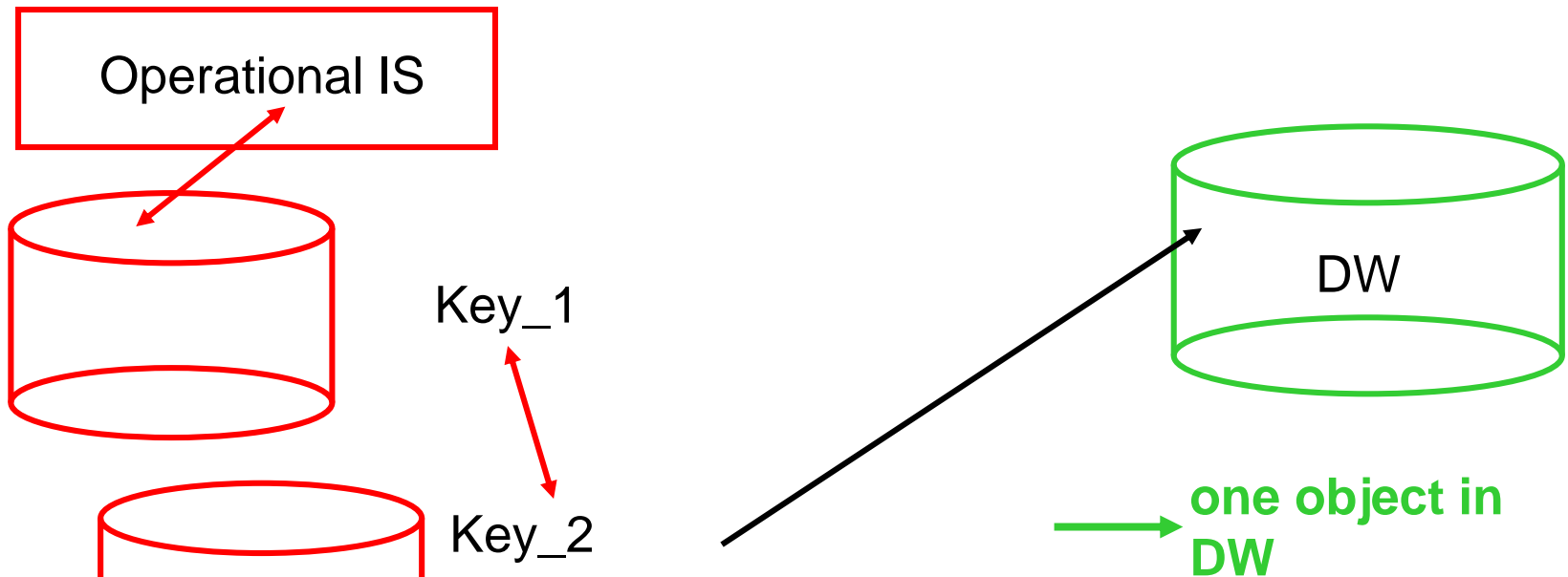
STEP 5:

Where does the data come from ?

Do I need to reconcile data from different sources ?

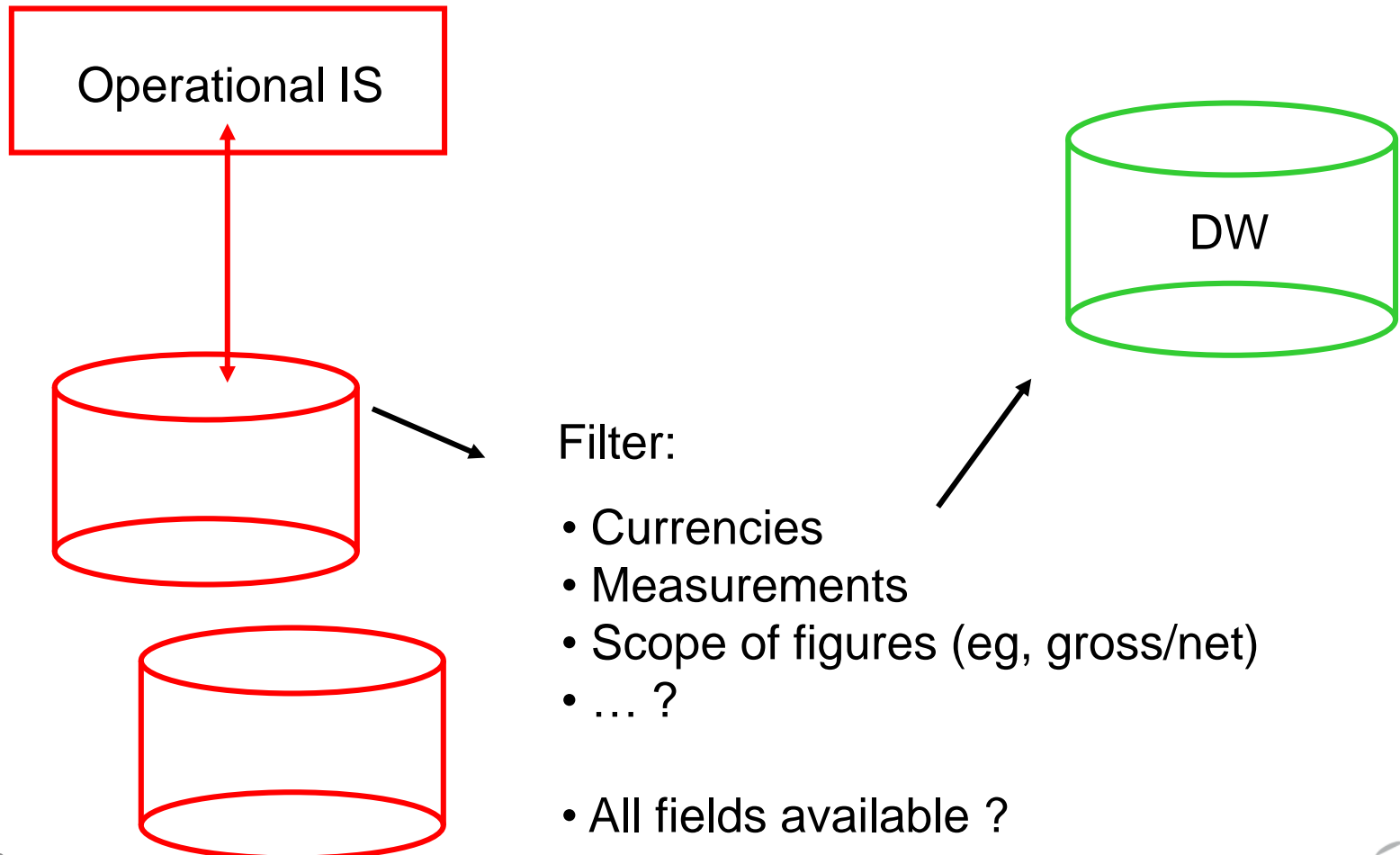
Modeling

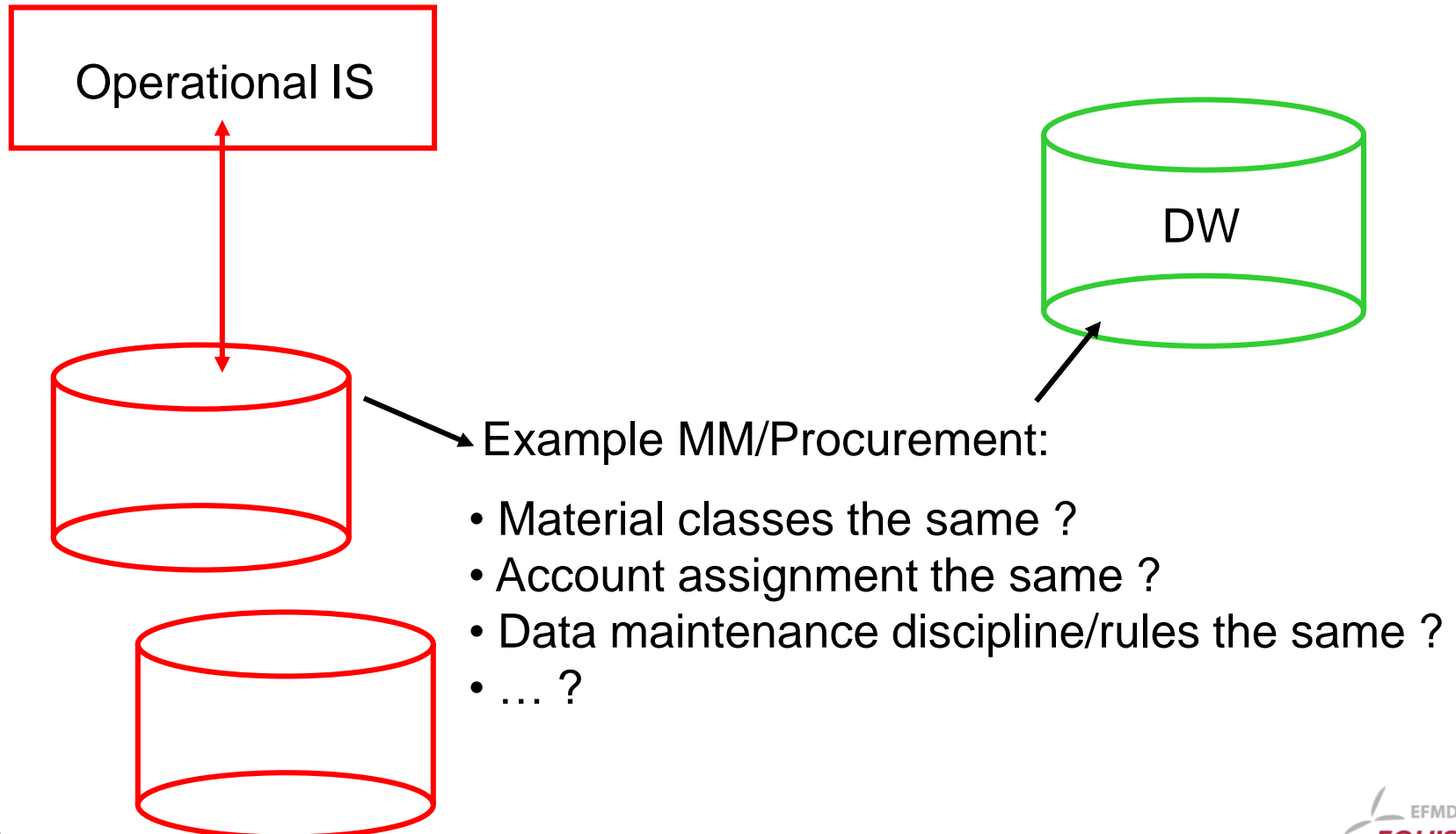
Key Integration



Example:

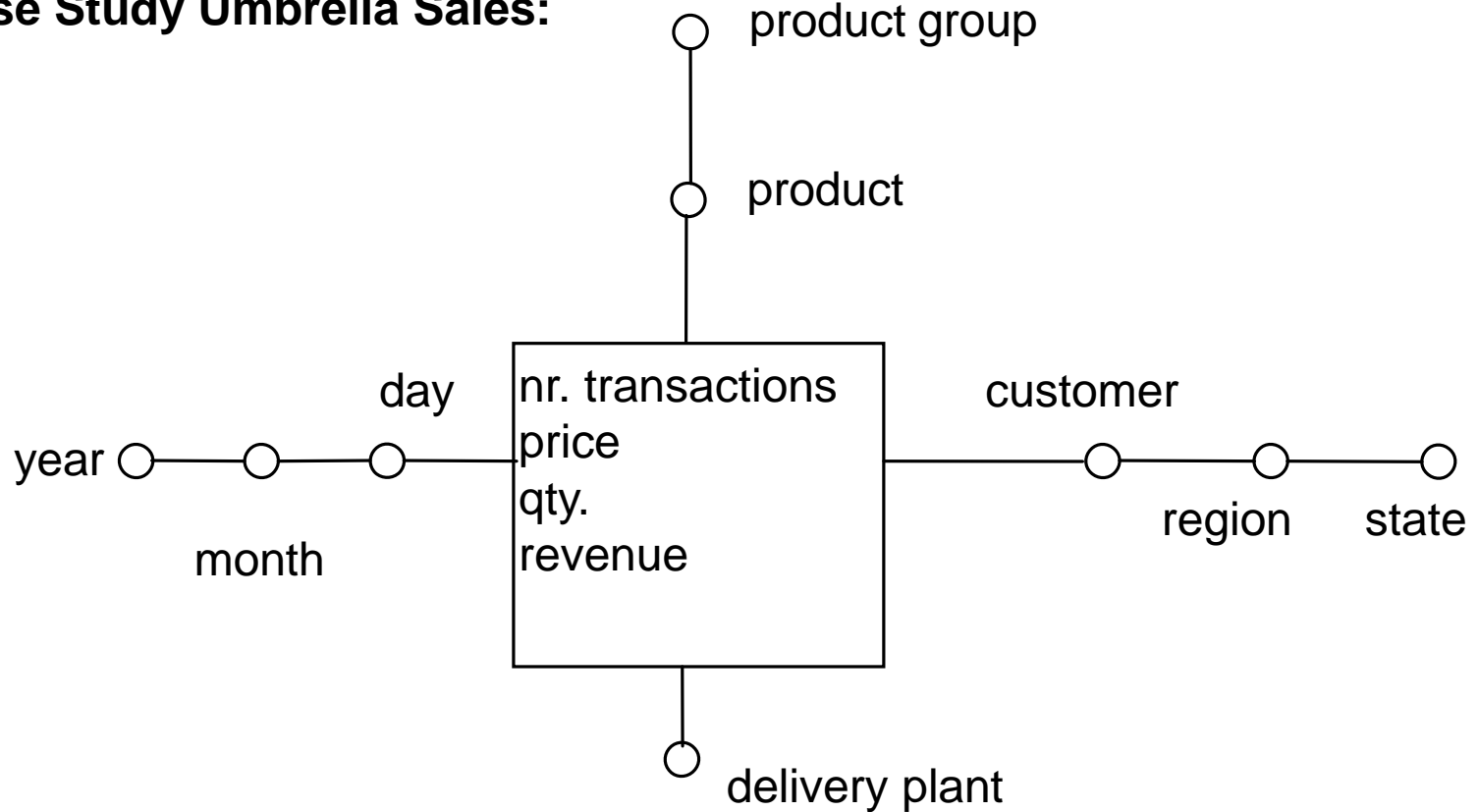
- Accounts receivable
- Customer
- Transport destination





Case Study

Case Study Umbrella Sales:



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