

THE JOURNEY OF FASTCHANGECO™ TO DATA VAULT

28. Februar 2024

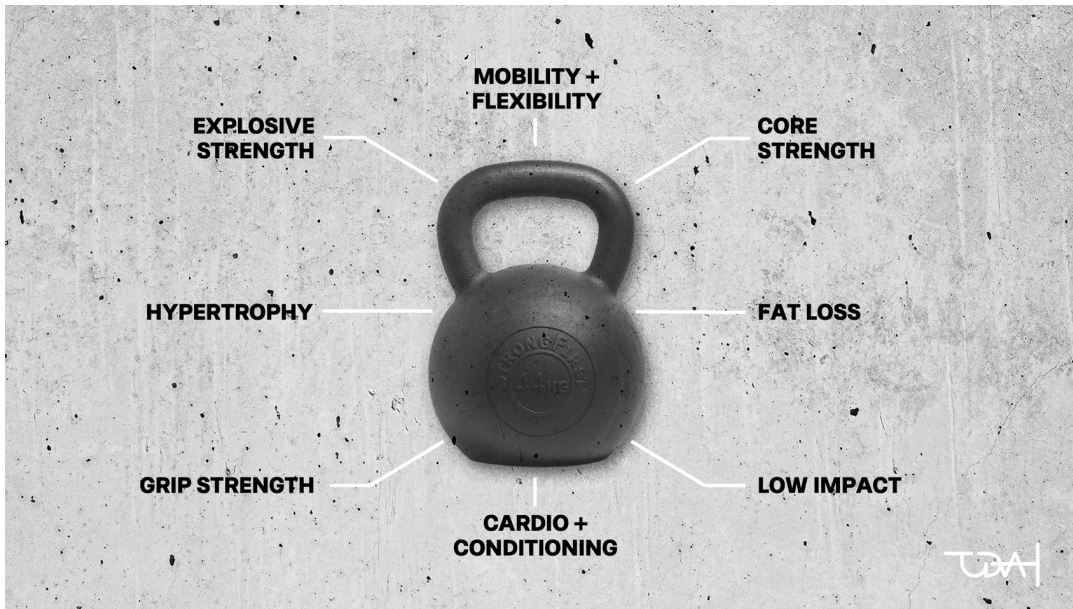
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ABOUT ME

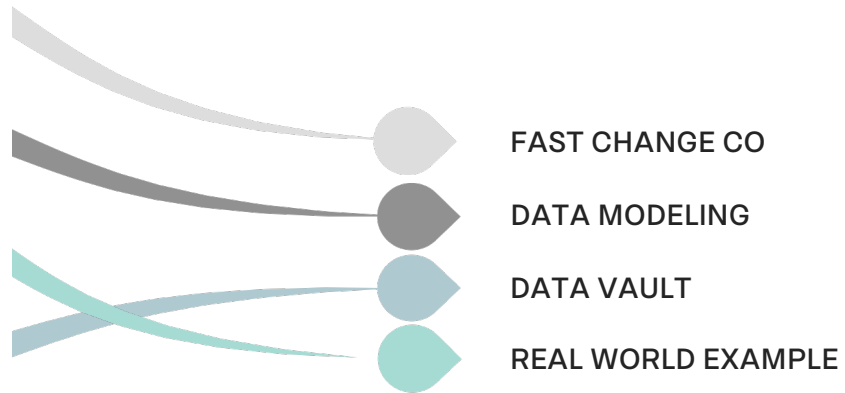
Dirk Lerner



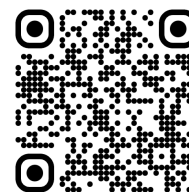
MODULES

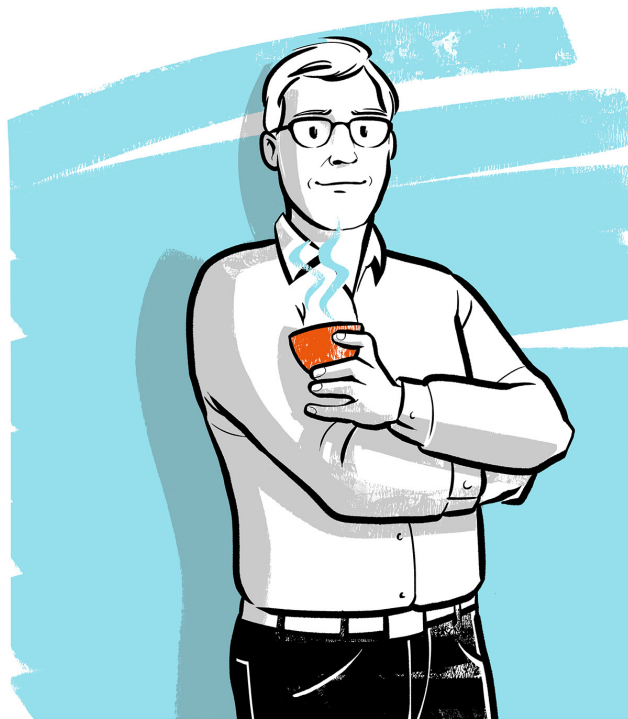


AGENDA

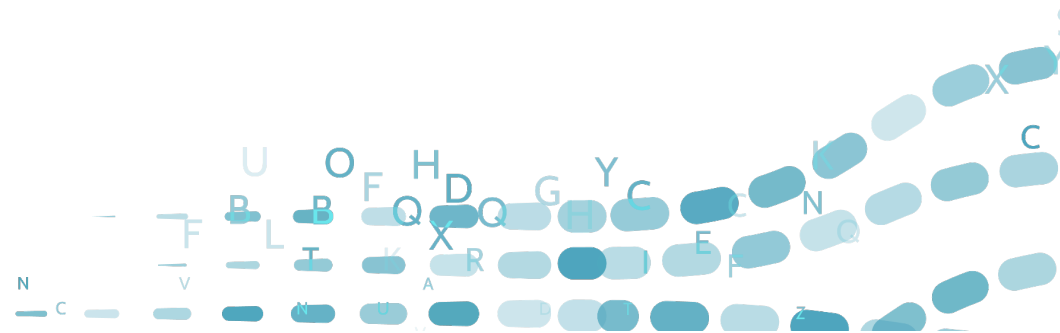


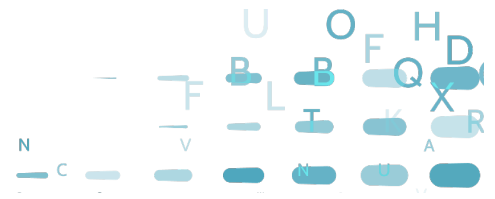
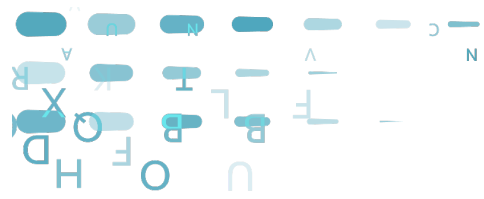


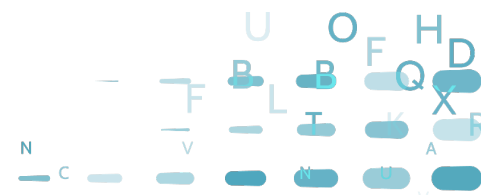
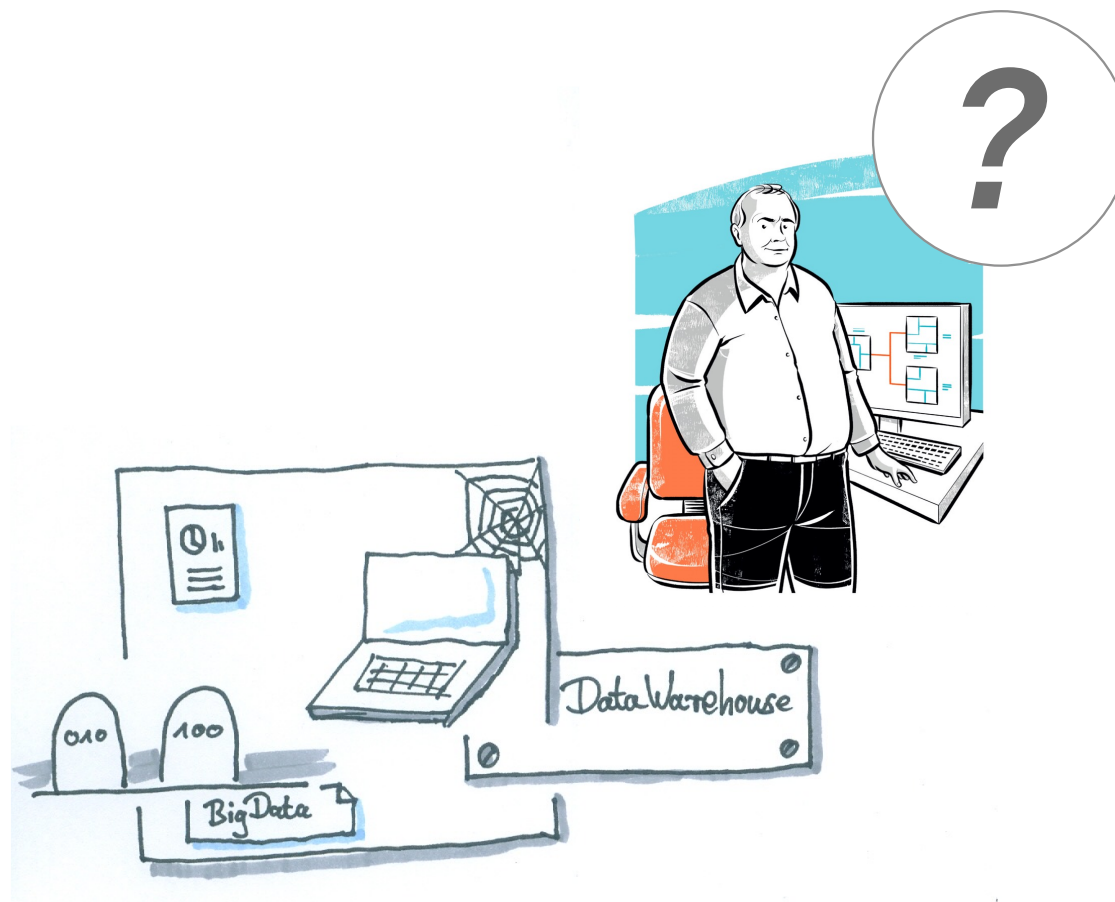
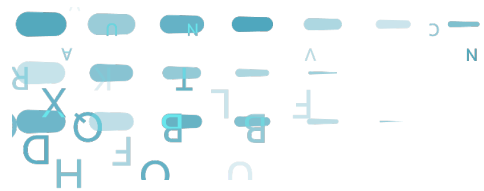




This is Michael Mueller – the freshman at FastChangeCo and the new BI manager!







VISION GOAL

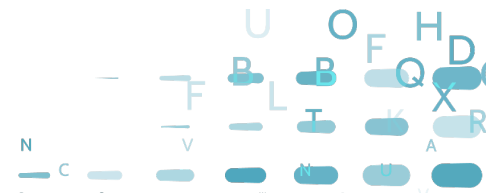
Be more flexible

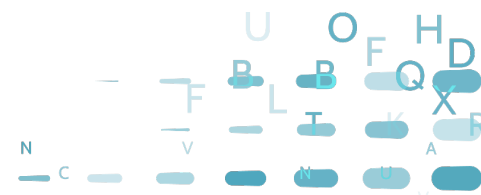
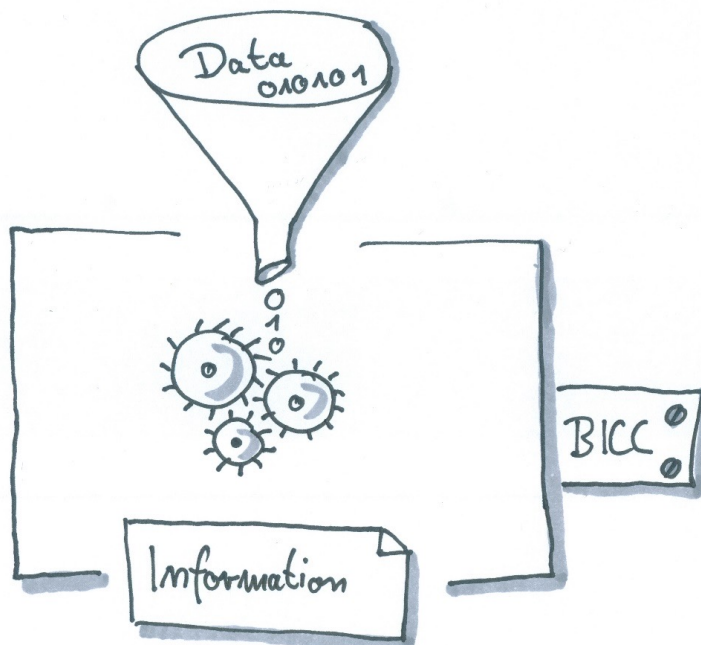
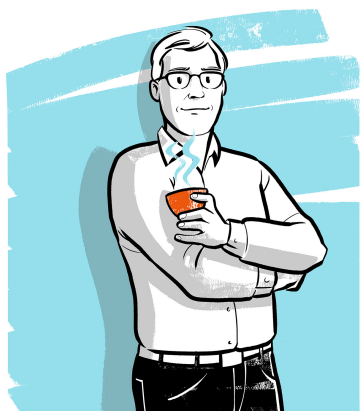
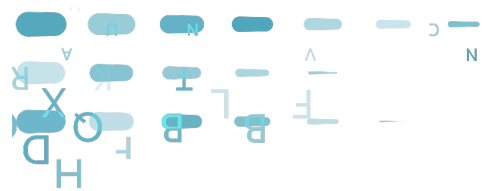
Be more agile

Be faster

Be less complex

In all upcoming decisions, tasks and implementations.





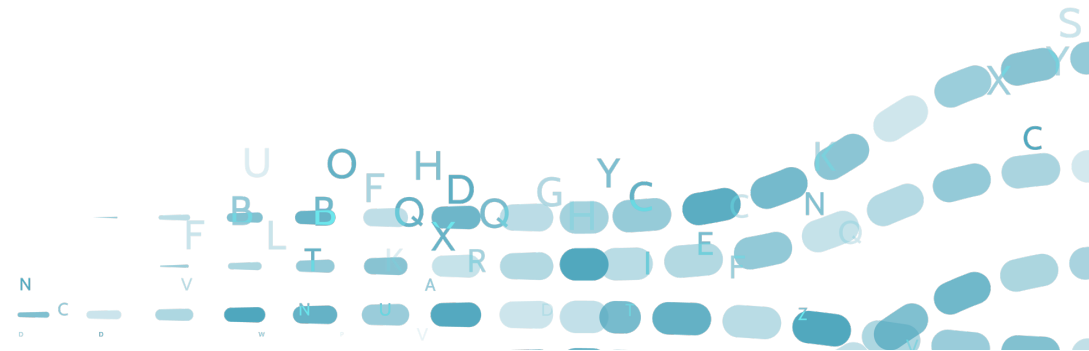
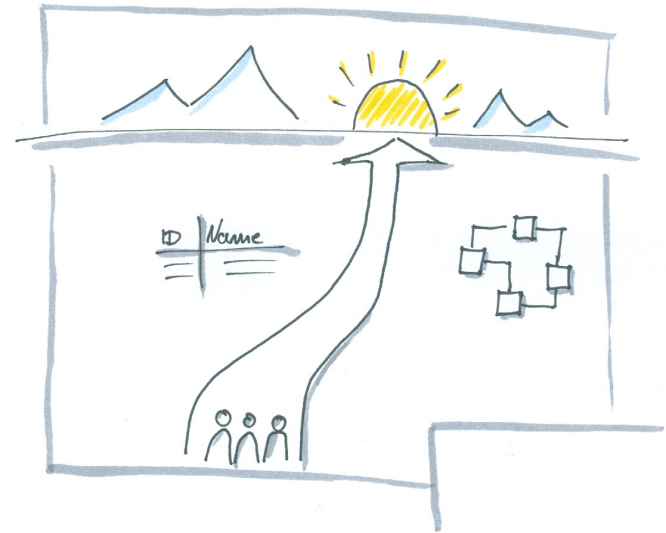


DATA MODELING



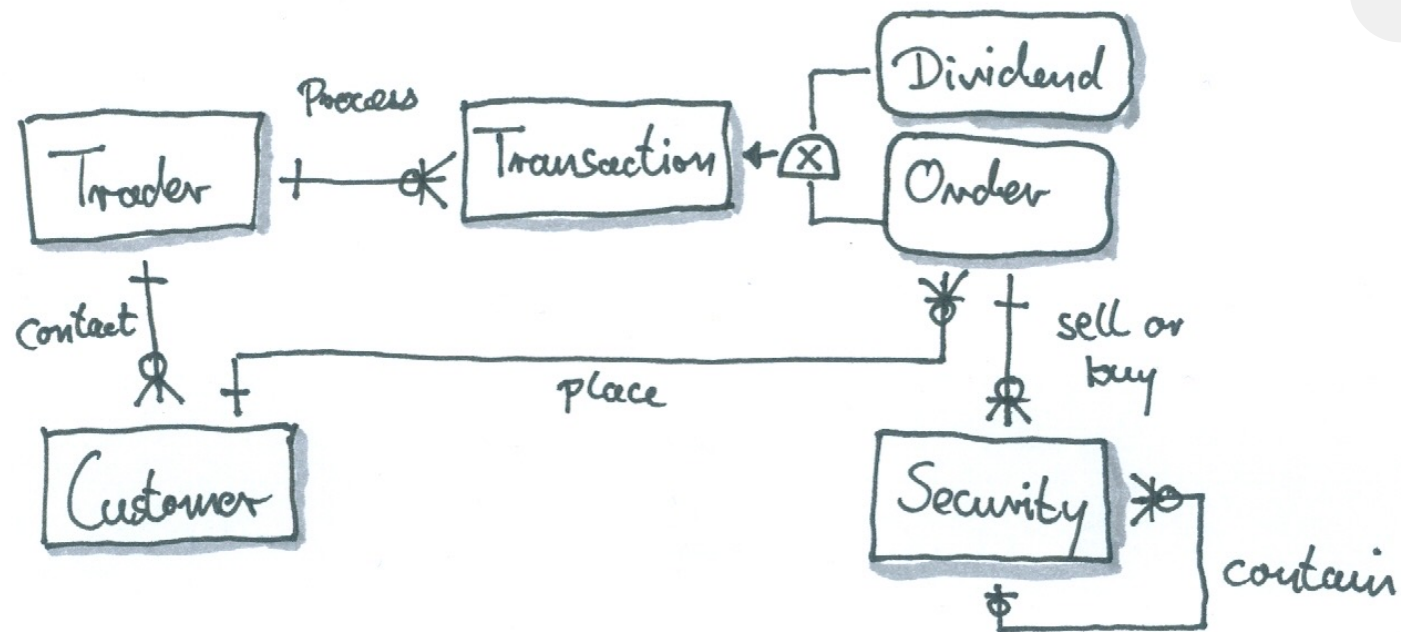
A DATA MODEL

- is a kind of landscape of your data
- is a method to find the way through your data
- is a simplification of the real world
- is for communication
- is precise

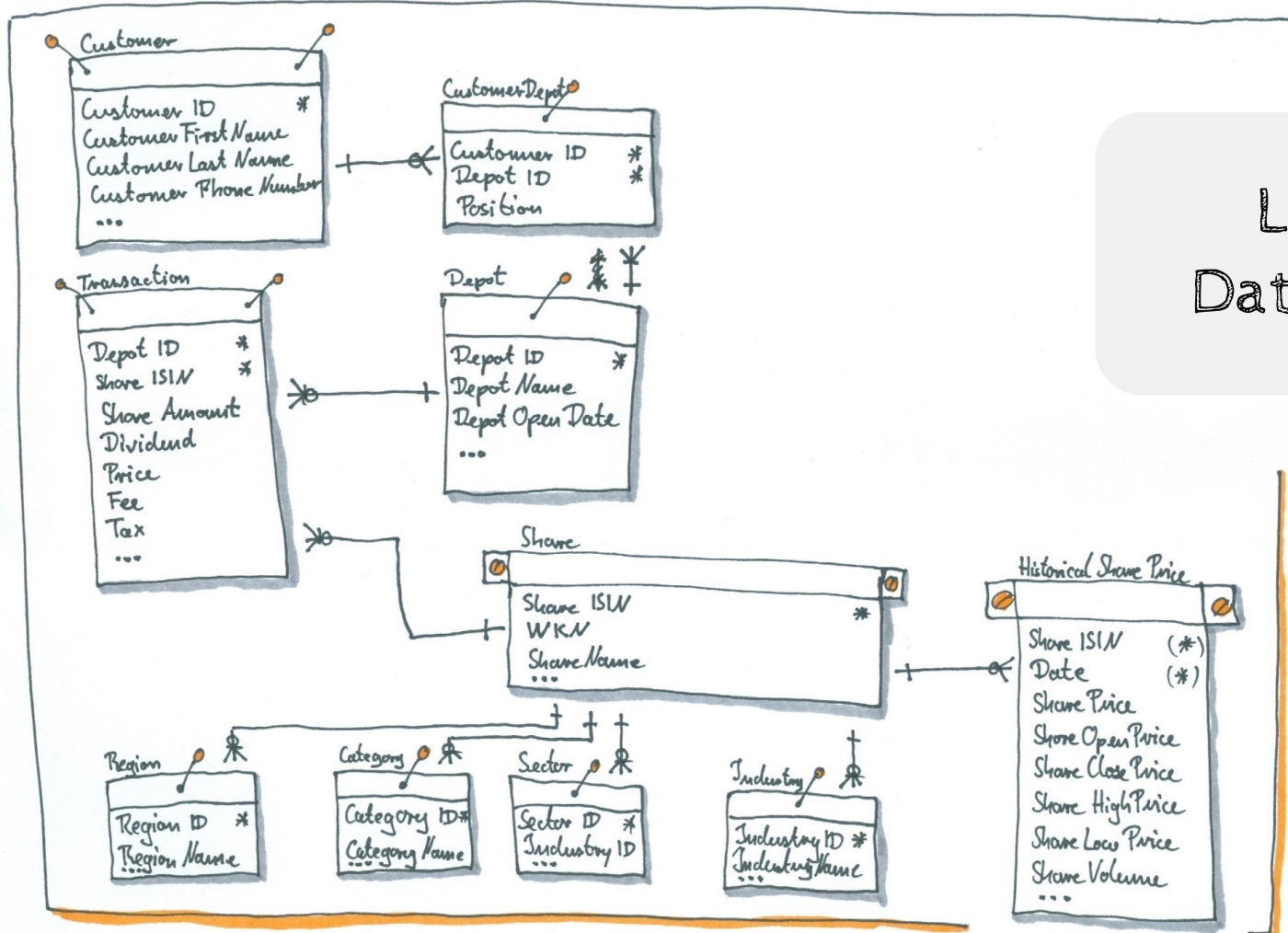


A DESIGN MODEL

Business Term Model

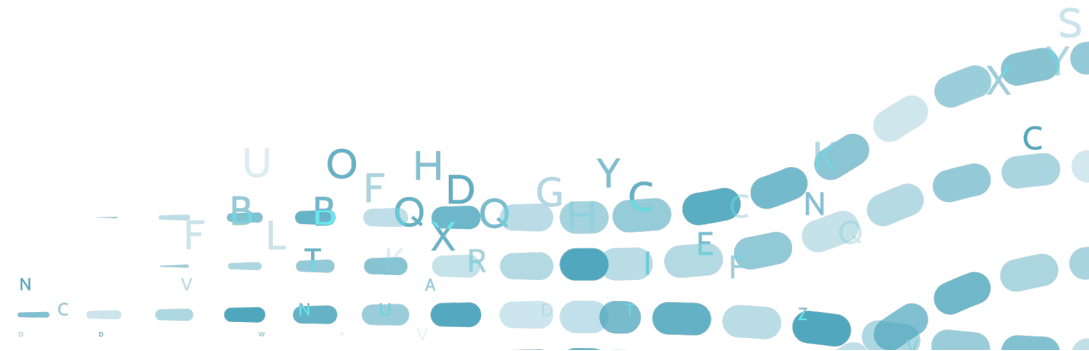


Logical Data Model



A PHYSICAL DATA MODEL

- is a logical data model modified for specific soft- & hardware
- is an instantiation of a logical data model as detailed technical solution
- is about speed, space and security
- is with time context
- and nowadays also gives flexibility, agility and auditability (Data Vault)



DECISION FOR ...





PHYSICAL DATA MODELING WITH DATA VAULT



DATA VAULT | NAMING STANDARDS

Separation of business keys, relationships and context

DV-SK

- ▮ Data Vault Surrogate Key
- ▮ Data Vault: Sequence
- ▮ Data Vault 2.0: Hash, e.g. MD5

LDTS

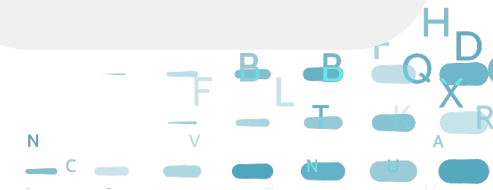
- ▮ Load Date Timestamp
- ▮ Hub: First insert of Business Key
- ▮ Link: First insert of Relation
- ▮ Satellite: Insert of new version of context data

RSRC

- ▮ Record Source
- ▮ Hub: Source (table) of first insert of Business Key
- ▮ Link: Source (table) of first insert of Relation
- ▮ Satellite: Source (table) of new version of context data

LEDTS

- ▮ Load End Date Timestamp
- ▮ Enddate of version of context data in Satellite
- ▮ Not mandatory

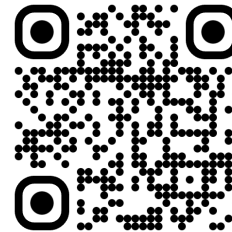


PUBLICATIONS

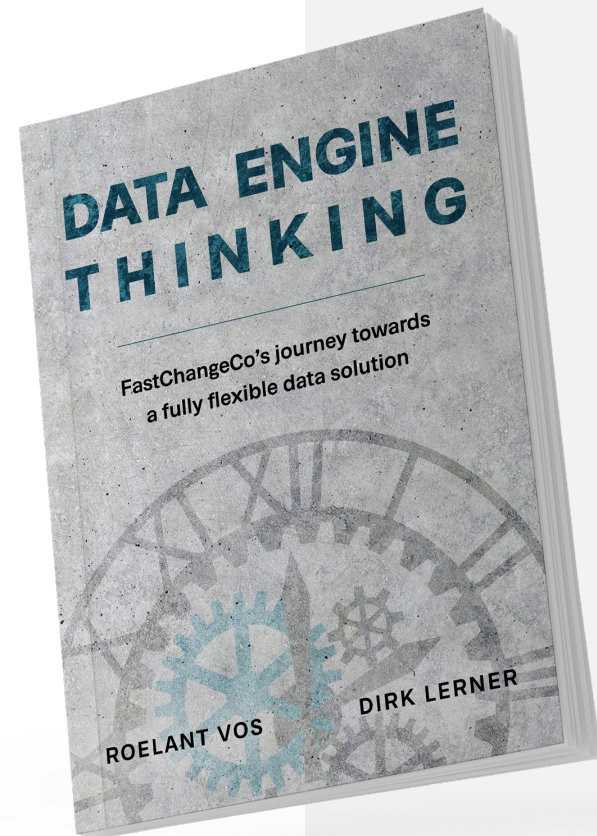
Data is evidence on past activity, events that are frozen in time for us to uncover and analyze. Without understanding the context of how it is created, data is simply 'stuff'.

Data Engine Thinking covers the end-to-end methodology to deliver a data solution that is truly designed to adapt to progressive understanding - and ultimately meet the business' needs.

- Design and implement a solution that is designed for change
- Solve real-world problems encountered when working with data
- Fully automate your delivery



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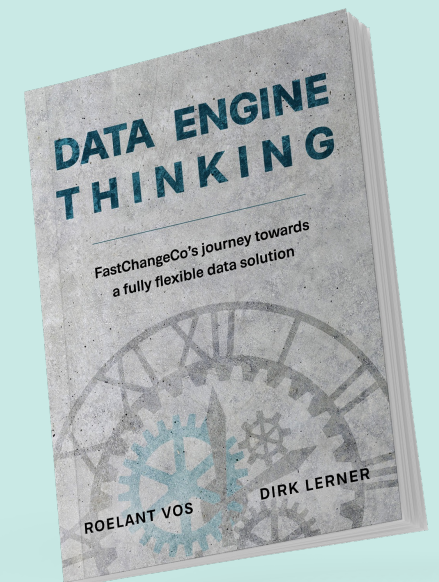
CUSTOMIZING THE STANDARD

STANDARD

- LDTS
- RSRC
- LEDTS

FAST CHANGE CO

- Inscription Timestamp +
Inscription Record Id
- Audit Trail Id
- removed



DATA VAULT | BASIC DATA OBJECTS

Separation of business keys, relationships and context

Hub

HUB

- Only Business Key & nothing else
- E.g. 'Customer ID' or 'Article ID'
- Surrogate-Key (PK)
- Business-Key
- Audit-Information

Hub Customer
Customer SK
Inscription Timestamp
Audit Trail Id
Customer ID (Business Key)

Link

LINK

- Only Relationship & nothing else
- E.g. sales order (customer and article)
- Surrogate-Key (PK)
- SKs of Hubs (FK)
- Audit-Information

Link Customer In Customer Class
Customer In Customer Class SK
Inscription Timestamp
Audit Trail Id
Customer SK [FK]
Customer Class SK [FK]

Satellite

SAT

- Only Context & nothing else (History)
- E.g. address
- SK of Hub or LINK (FK) + date
- Audit-Information
- Context columns

Sat Customer Contact Preferences
Customer SK [FK]
Inscription Timestamp
Inscription Record Id
State Timestamp
Audit Trail Id
First Name
Last Name
Contact Preference
E-Mail
Salutation
Zip
City
Street

Some more (helper)

- Key Satellite
- Link Satellite
- Point in Time Table (PIT)
- Bridge Table
- Hierarchical Link (HAL)
- Same As Link (SAL)
- Key Map Link
- Bi-Temporale data objects

28. Februar 2024

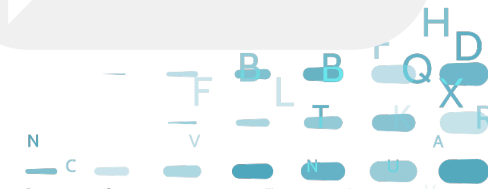
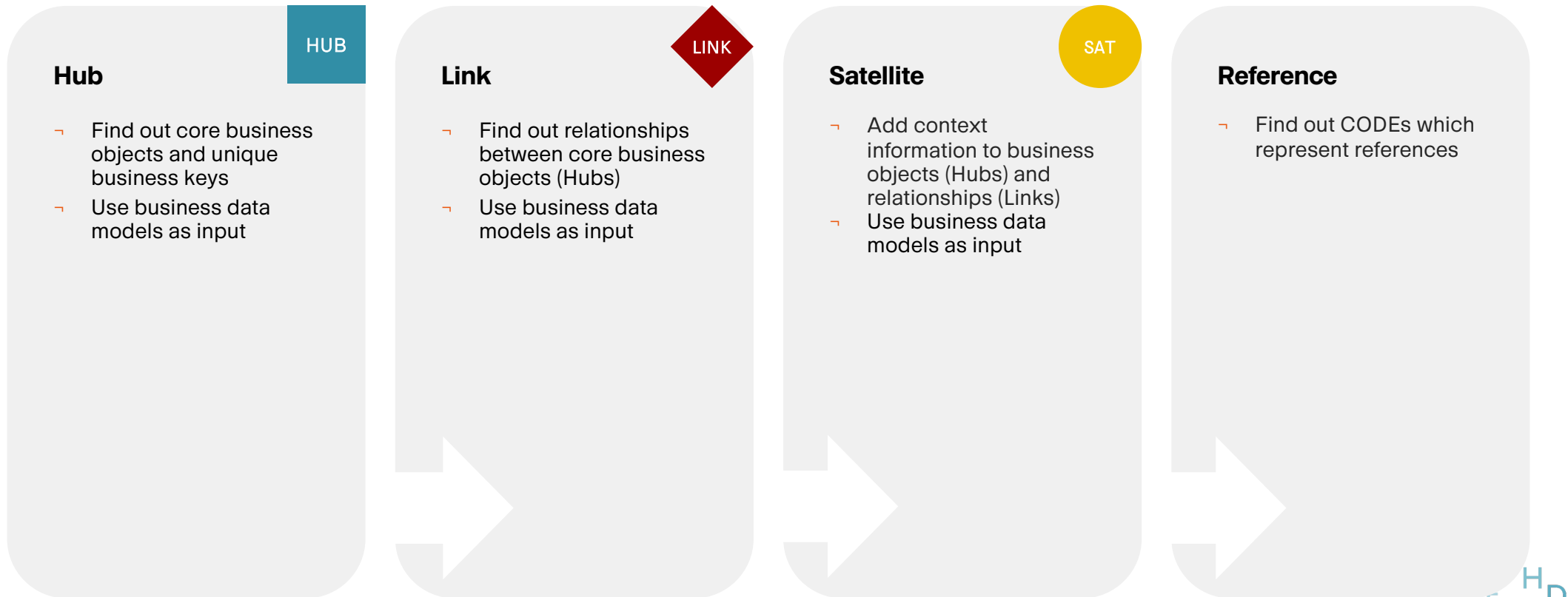
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BUSINESS DATA MODEL



DATA VAULT | MODELING APPROACH

Separation of business keys, relationships and context



DATA VAULT | MODELING APPROACH - RULES

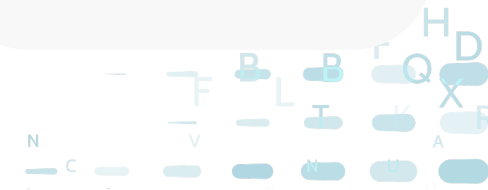
Separation of business
keys, relationships
and context

100% data
100% time

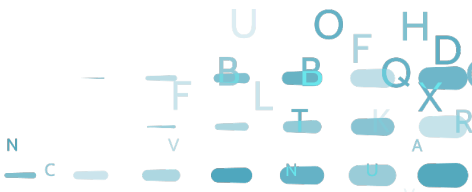
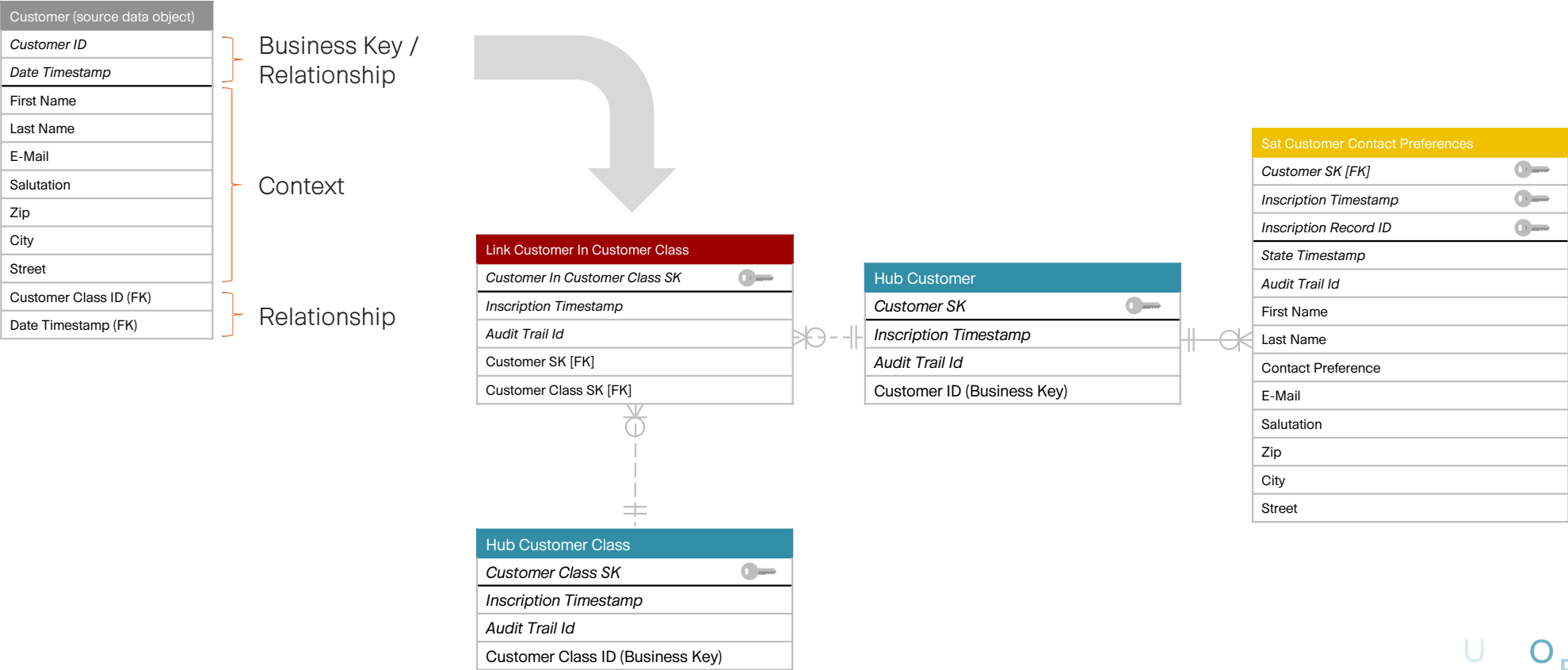
DATA VAULT | MODELING APPROACH - RULES



- A **Hub** must not have a direct connection to another **Hub**
- Any relationship between **Hubs** has to be modeled as a **Link**
- A **Link** can be connected to another **Link** - **Not recommended!**
- A **Link** has to be connected with at least two **Hubs** (or **Links**)
- A **Satellite** has to be connected to a single **Hub** or a **Link**
- A **Satellite** cannot have a direct connection to another **Satellite**
- A **Hub** or a **Link** may have one or more **Satellites**
- A **Satellite** must not have more than one **Sourcetable**
- A **Hub** or a **Link** may have one or more **Sourcetable**



DATA VAULT | FROM 3NF

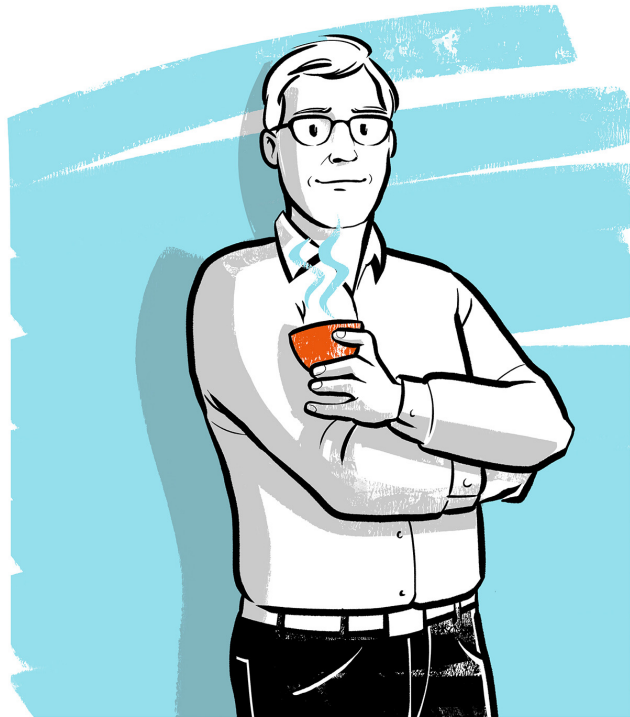




REAL WORLD EXAMPLE (EXCHANGE RATE)

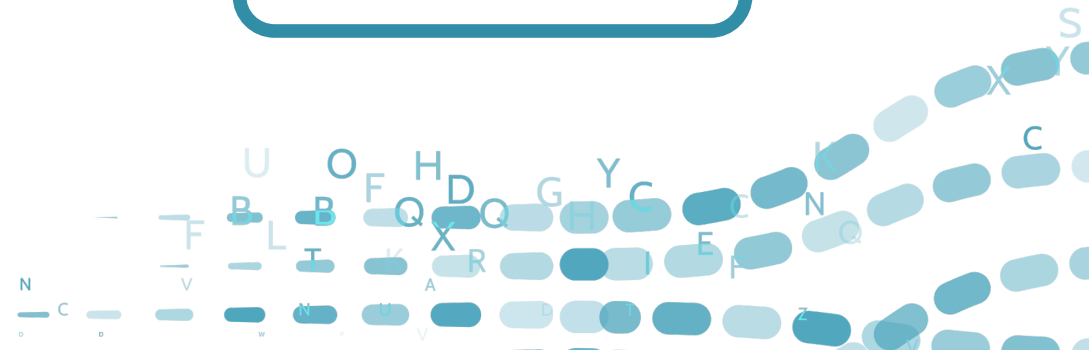


WHAT DO WE NEED FOR...?



... exchange rate dependency in our trading department?
...

**ADDING A
NEW SOURCE**

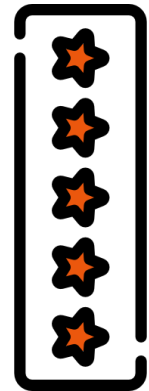


INCOMING INTERFACE - RATING

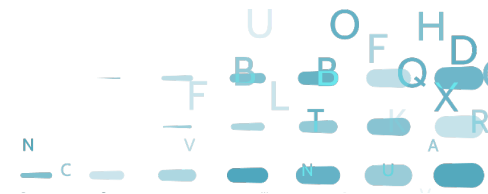


Data Delivery Rating - Quality from 1 to 5 star

- Structur
- Data Definition
- Fully (temporal) consistent
- Responsibility
- Reliability
- Frequency

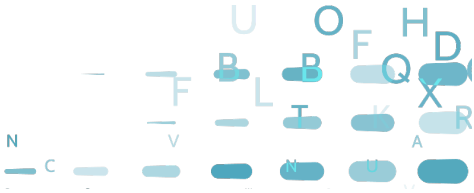
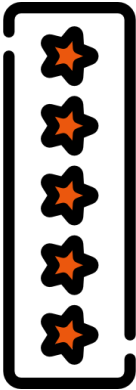


The **fewer** stars in the rating,
the **more** effort in the implementation!

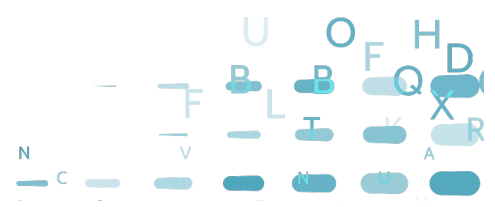
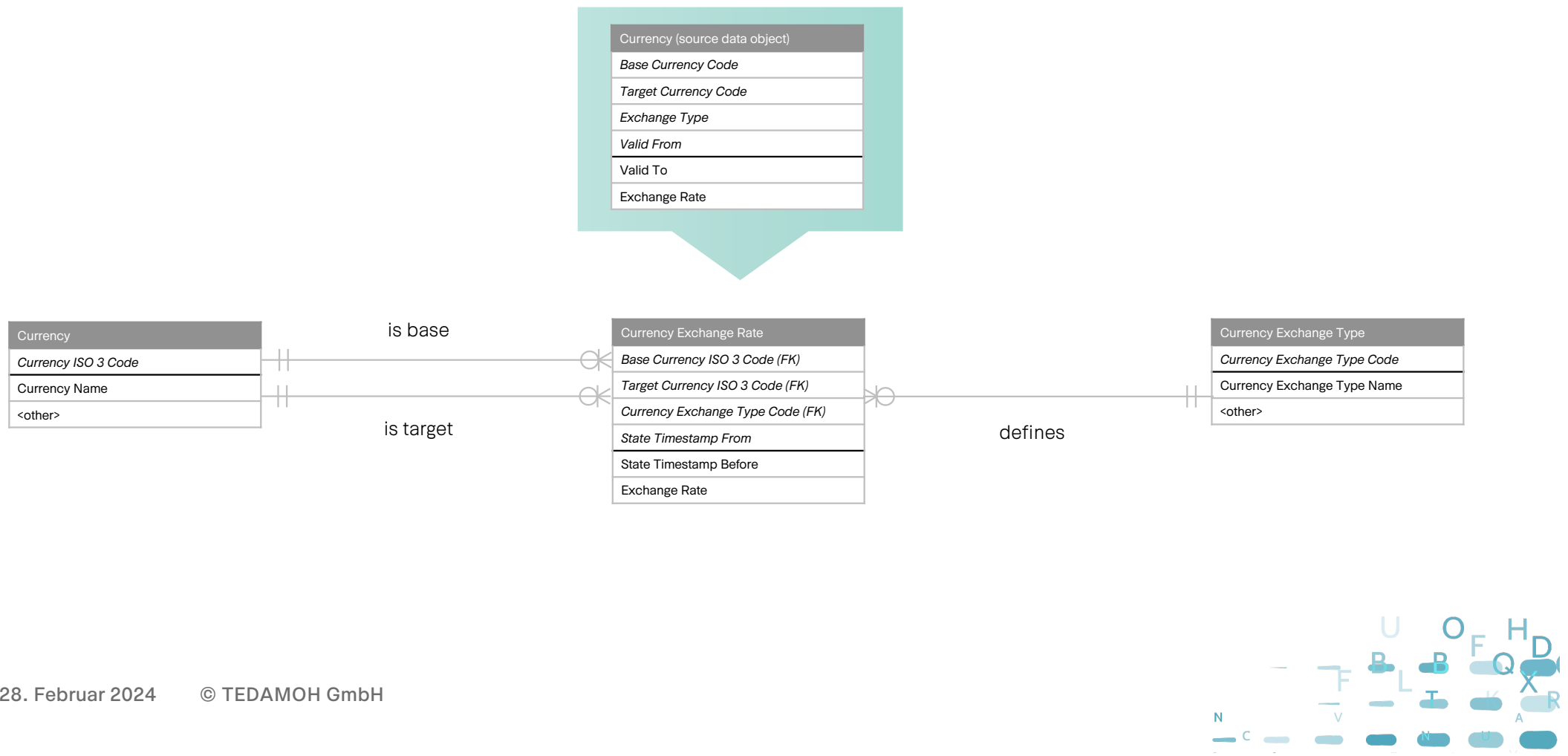


INCOMING INTERFACE - PROFILING

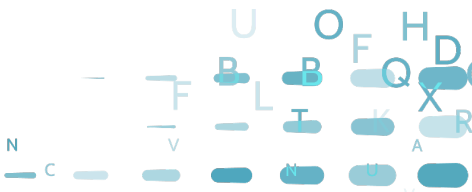
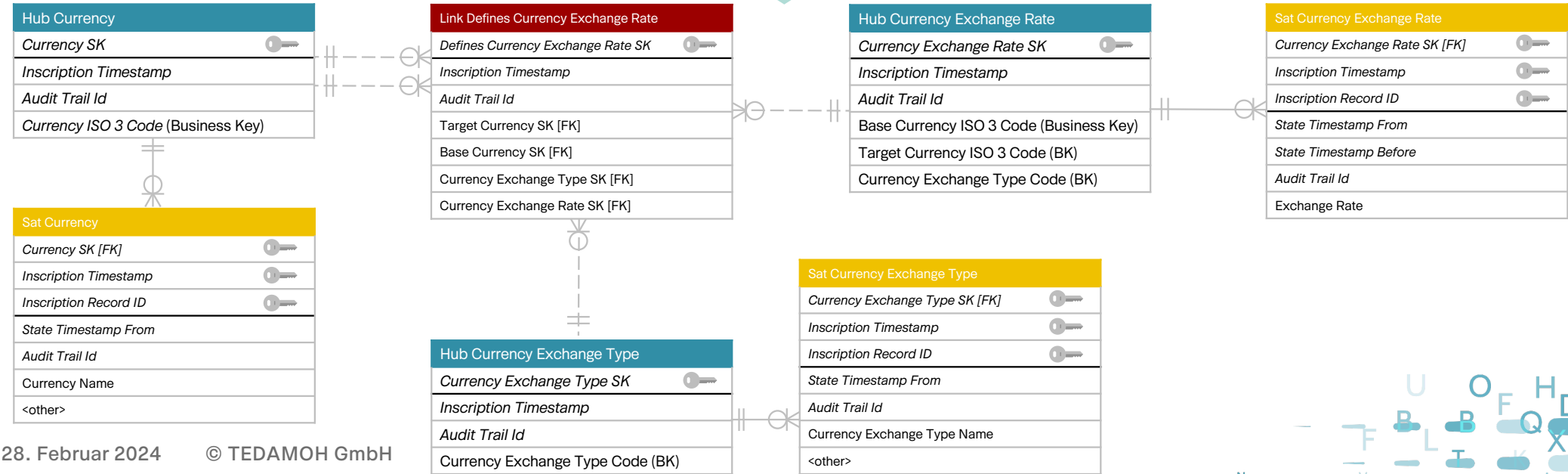
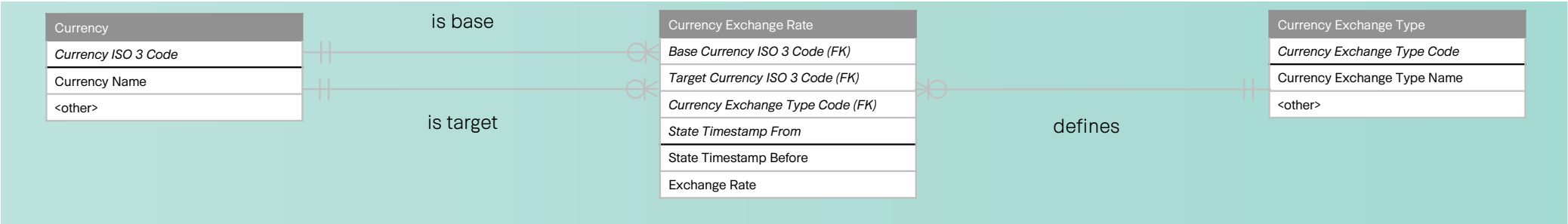
Currency (source data object)	
Base Currency Code	Business Key
Target Currency Code	Business Key (same)
Exchange Type	Business Key
Valid From	Context
Valid To	
Exchange Rate	



BUSINESS DATA MODEL



DATA VAULT | FROM BUSINESS DATA MODEL



DATA VAULT | FROM BUSINESS DATA MODEL



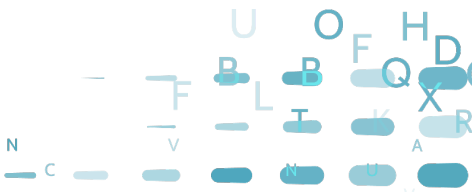
Satellite on Links, yes or no? – The ‘Diego guide’

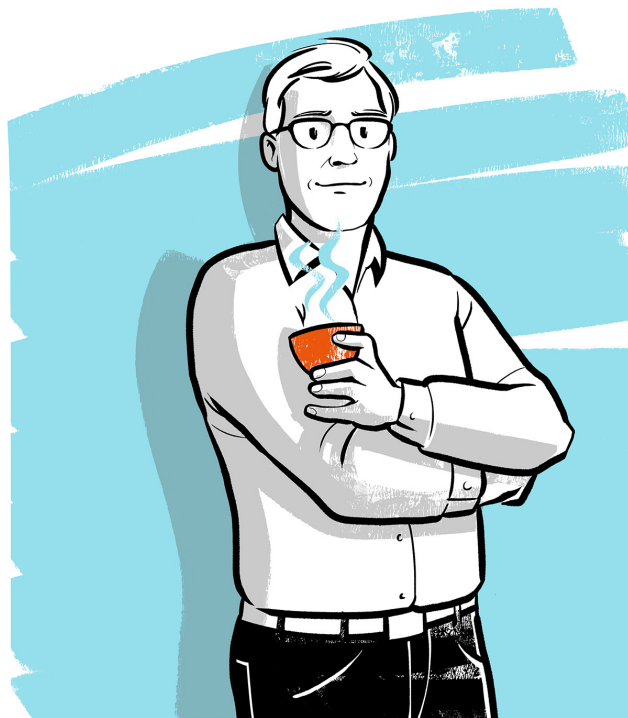


English Blogpost

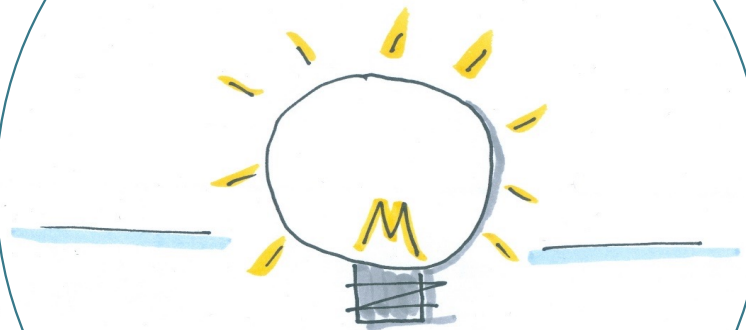


German Blogpost

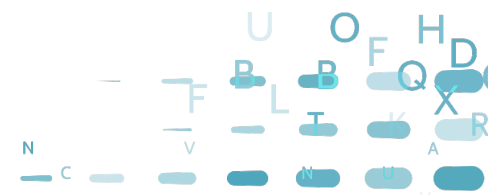




Think Big! Start Small!



Technology Is
NOT A Solution



ACADEMY

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Seminar & Certification

**DATA MODELING
CERTIFICATION**



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**TEMPORAL DATA IN A
FAST-CHANGING WORLD!**



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