

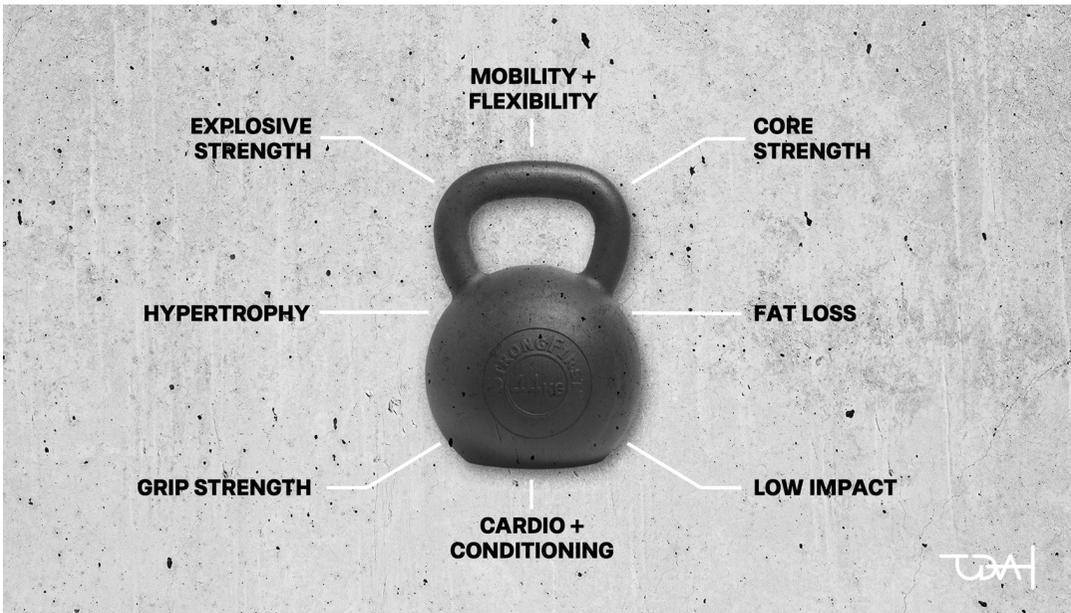
# THE JOURNEY OF FASTCHANGE<sup>CO</sup><sup>TM</sup> TO DATA VAULT





## ABOUT ME

Dirk Lerner



# MODULES

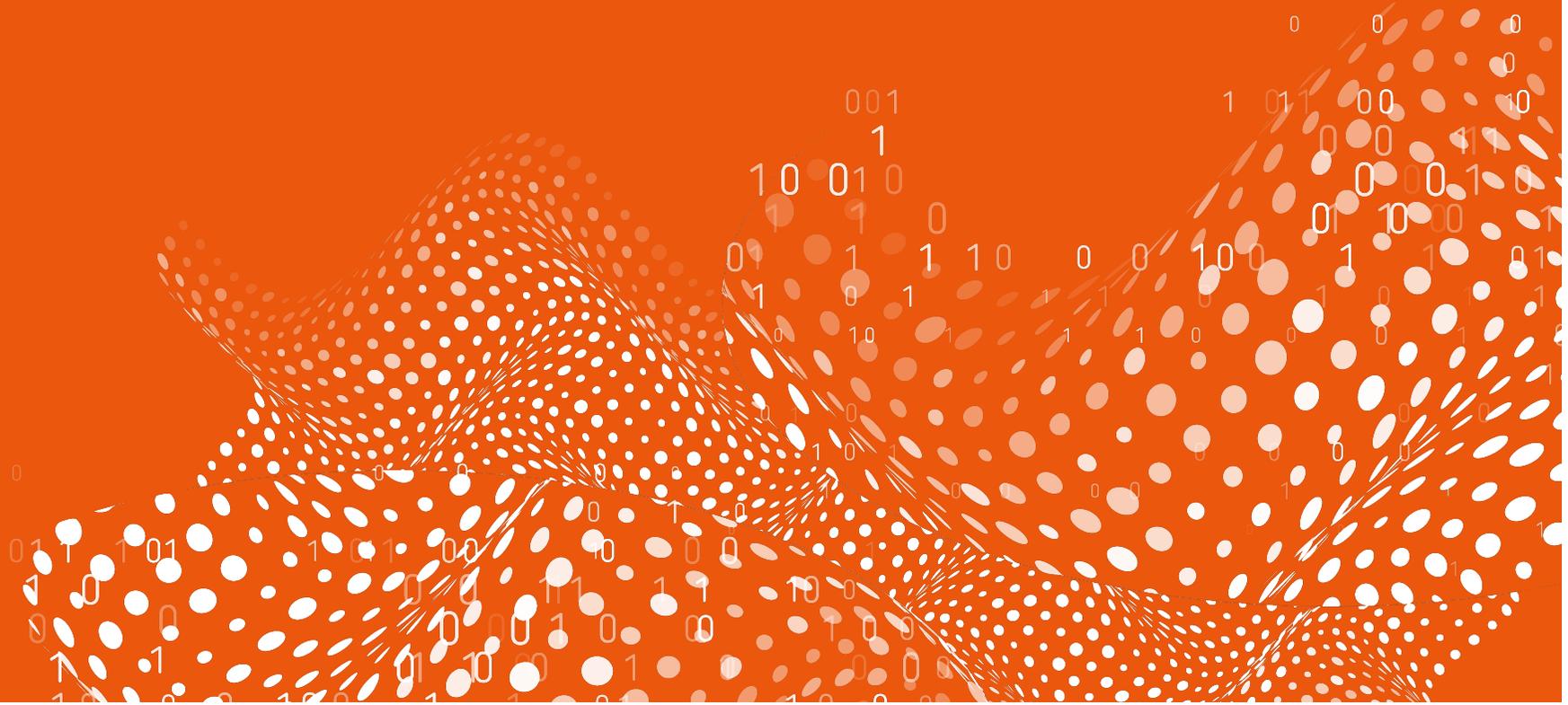


# AGENDA

- 
- A decorative graphic consisting of four curved arrows pointing to the right, stacked vertically. The arrows are colored light grey, dark grey, light blue, and teal from top to bottom.
- FAST CHANGE CO
  - DATA MODELING
  - DATA VAULT
  - REAL WORLD EXAMPLE



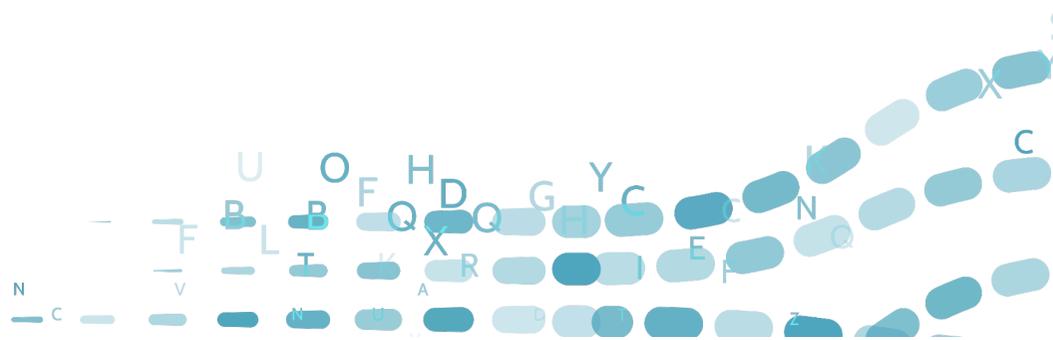
# FAST CHANGE CO

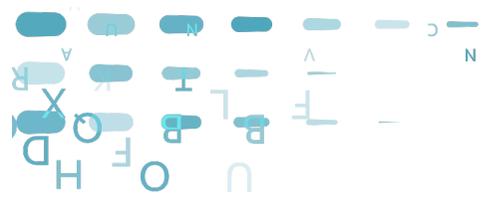




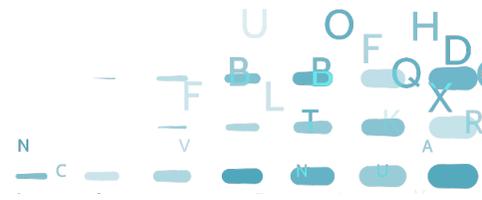


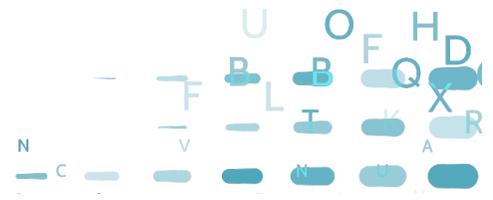
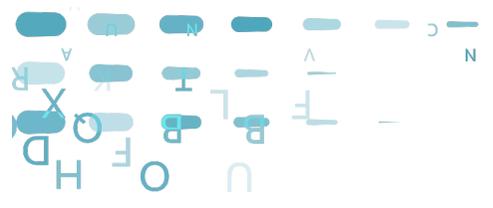
This is Michael Mueller - the freshman at FastChangeCo and the new BI manager!

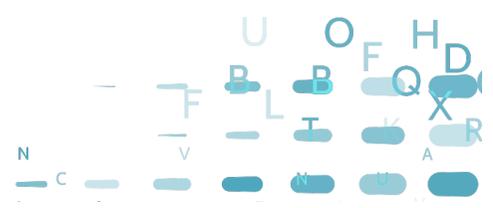
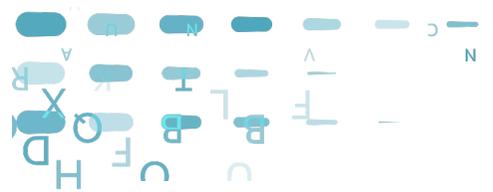




# WHAT DO WE NEED?







# VISION GOAL

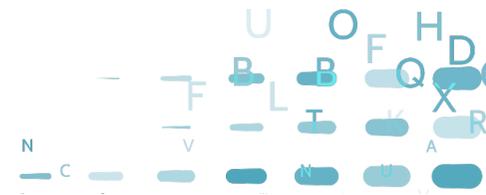
Be more flexible

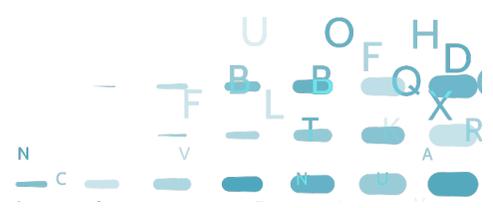
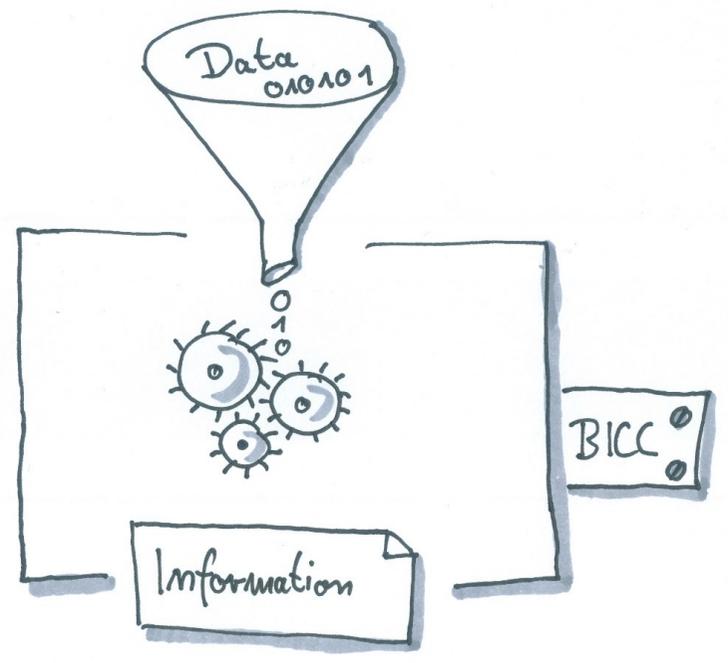
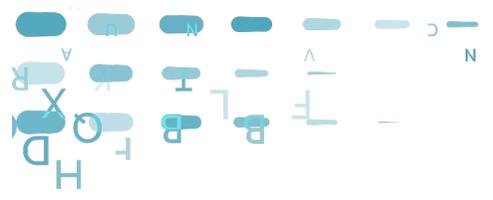
Be more agile

Be faster

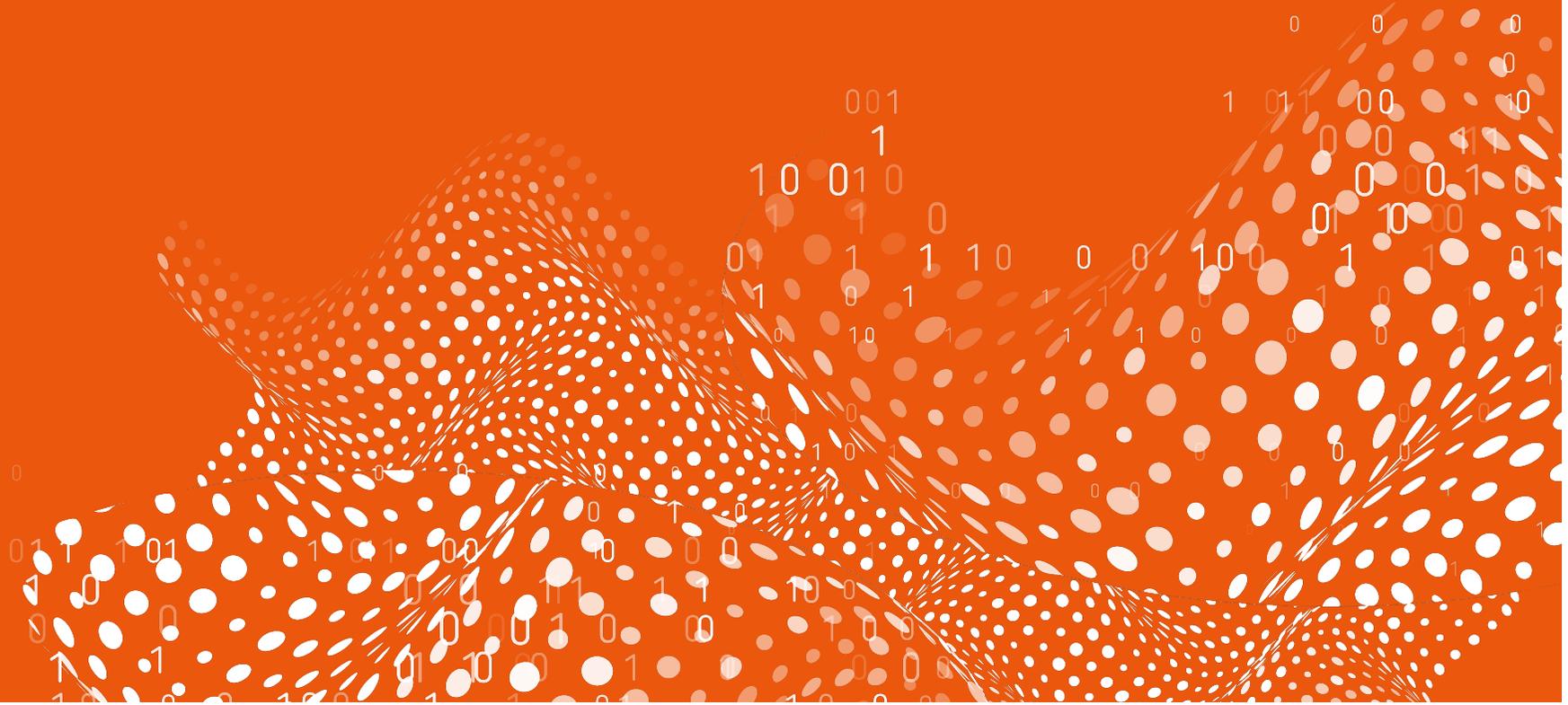
Be less complex

**In all upcoming decisions, tasks and implementations.**





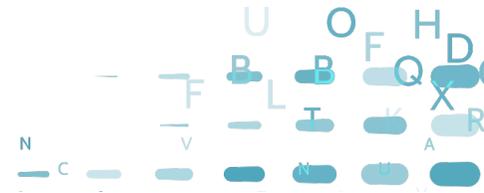
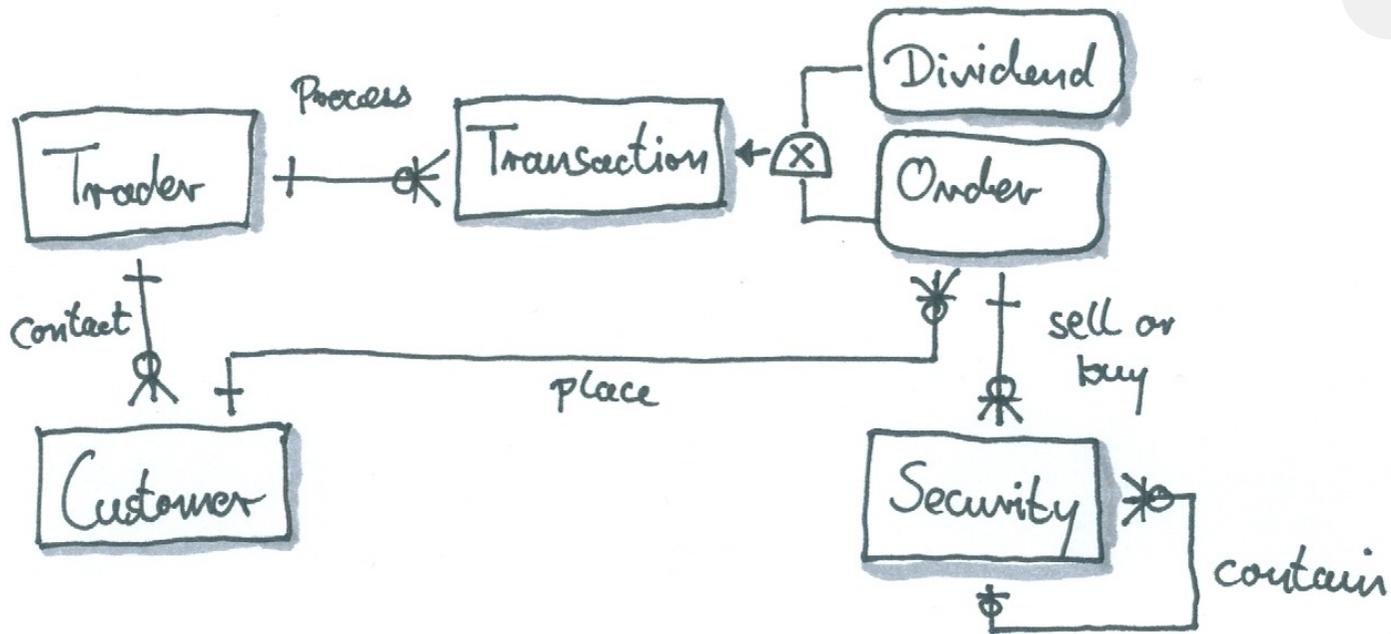
# DATA MODELING



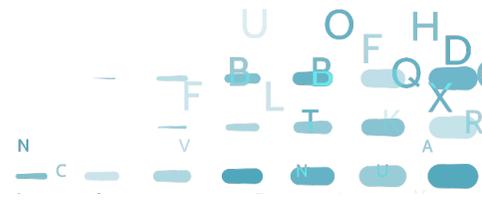
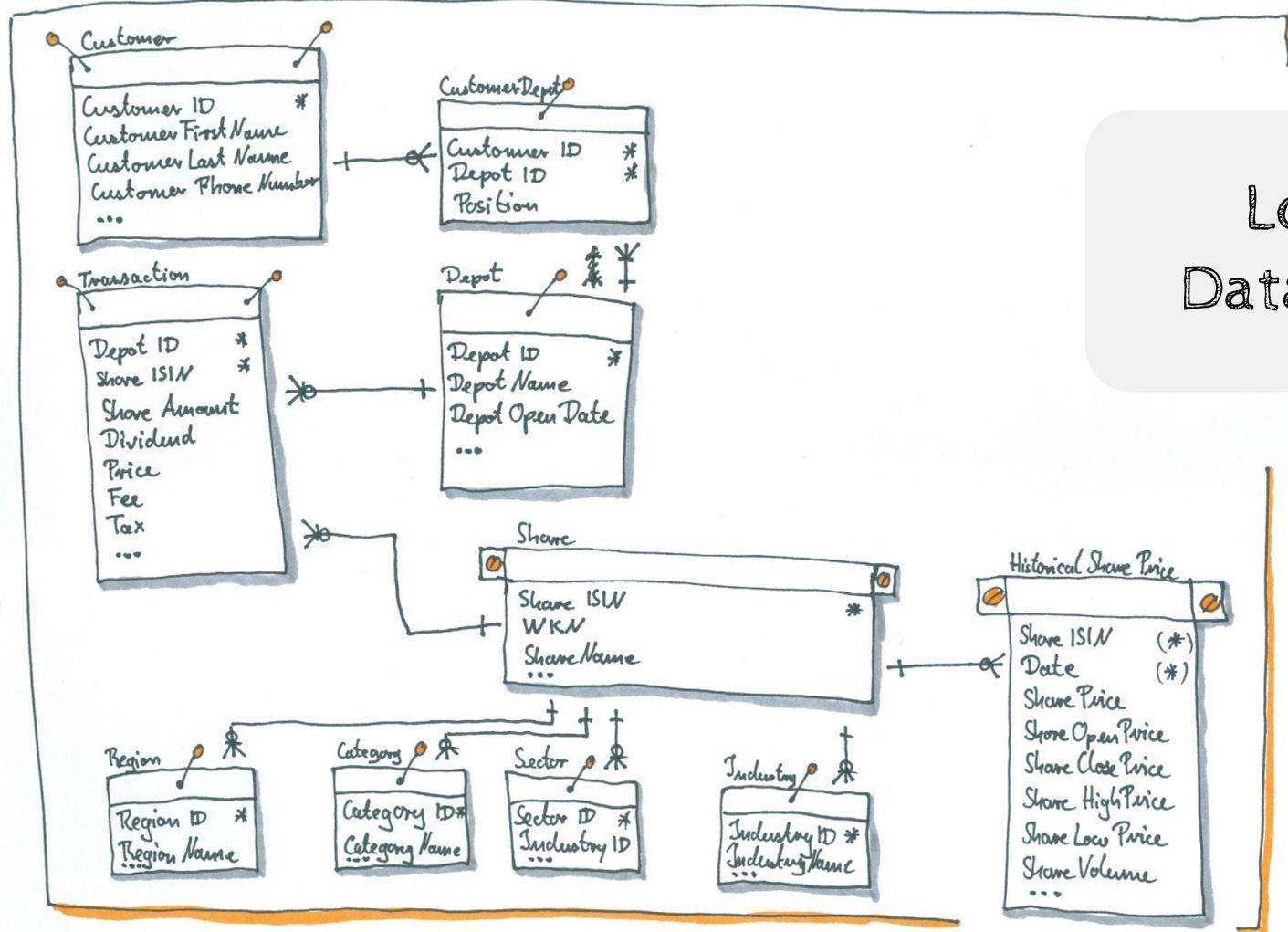


# A DESIGN MODEL

## Business Term Model

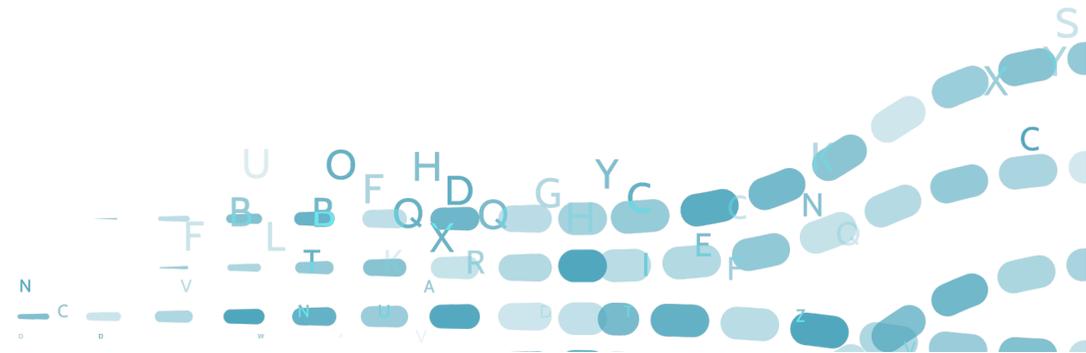


# Logical Data Model

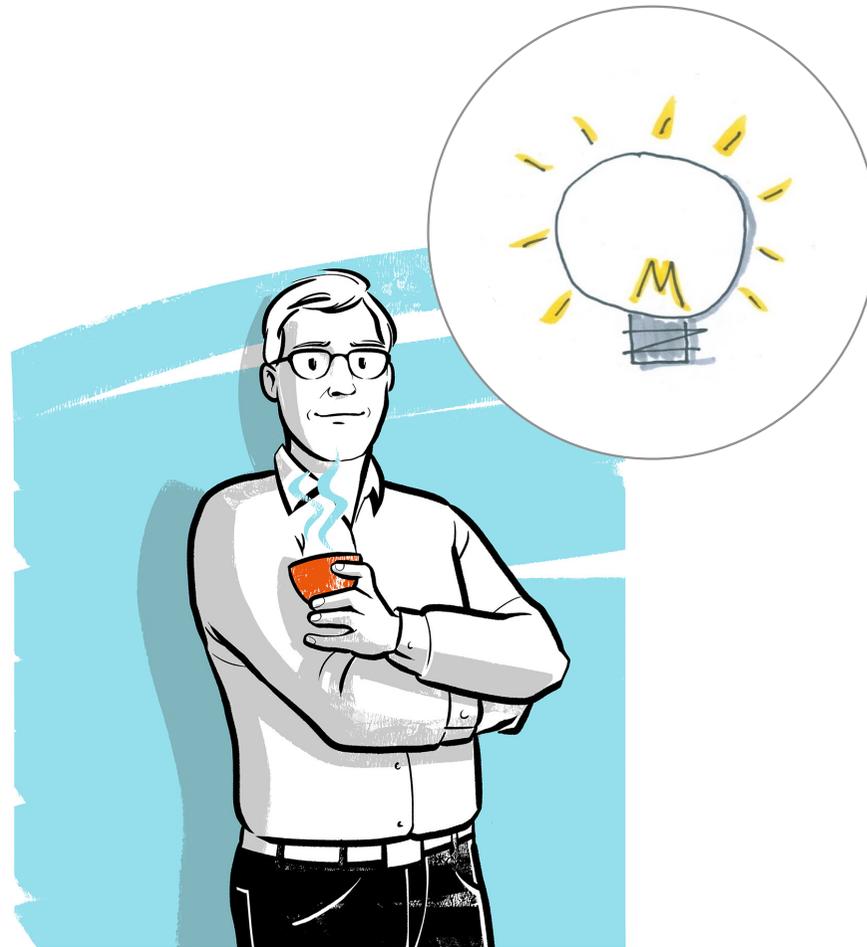


## A PHYSICAL DATA MODEL

- 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)

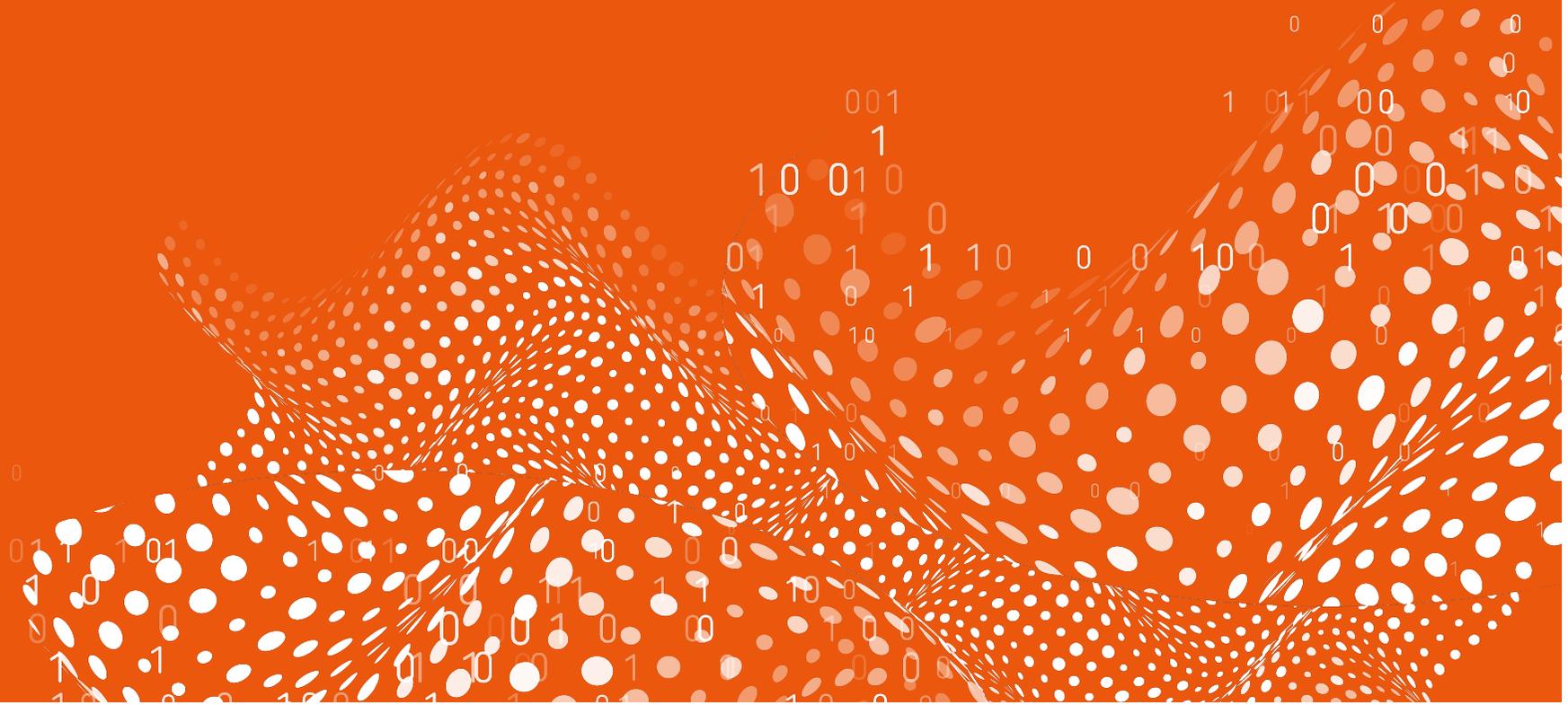


## DECISION FOR ...





# 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

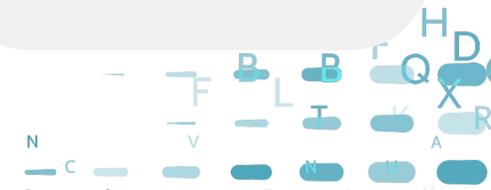
- Load Date Timestamp
- Hub: First insert of Business Key
- Link: First insert of Relation
- Satellite: Insert of new version of context data

## 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

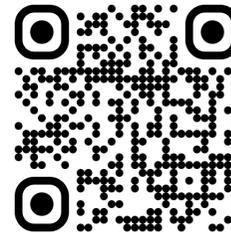


# PUBLICATIONS

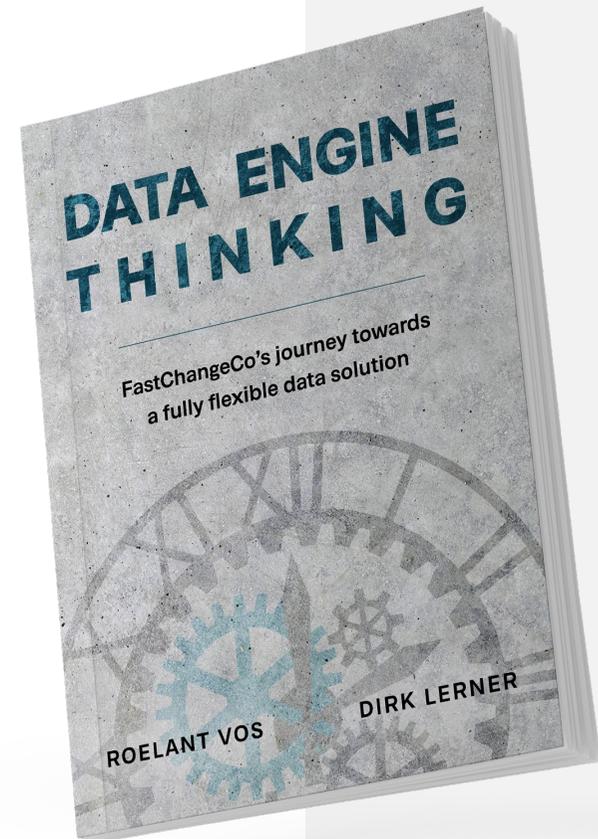
Data is evidence on past activity, events that are frozen in time for us to uncover and analyze. Without understanding the context of how it is created, data is simply 'stuff'.

**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



**Register your interest in the book on our website**



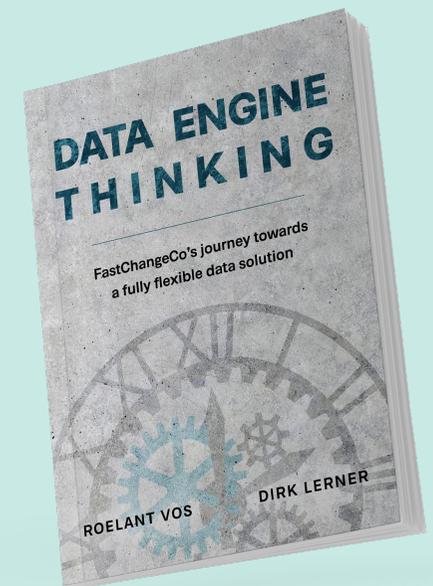
# CUSTOMIZING THE STANDARD

## 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

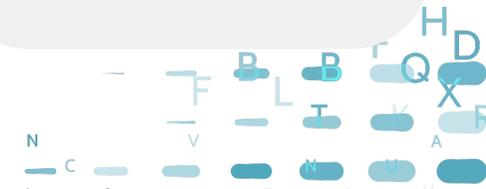
SAT

- 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

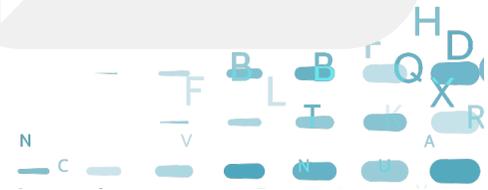
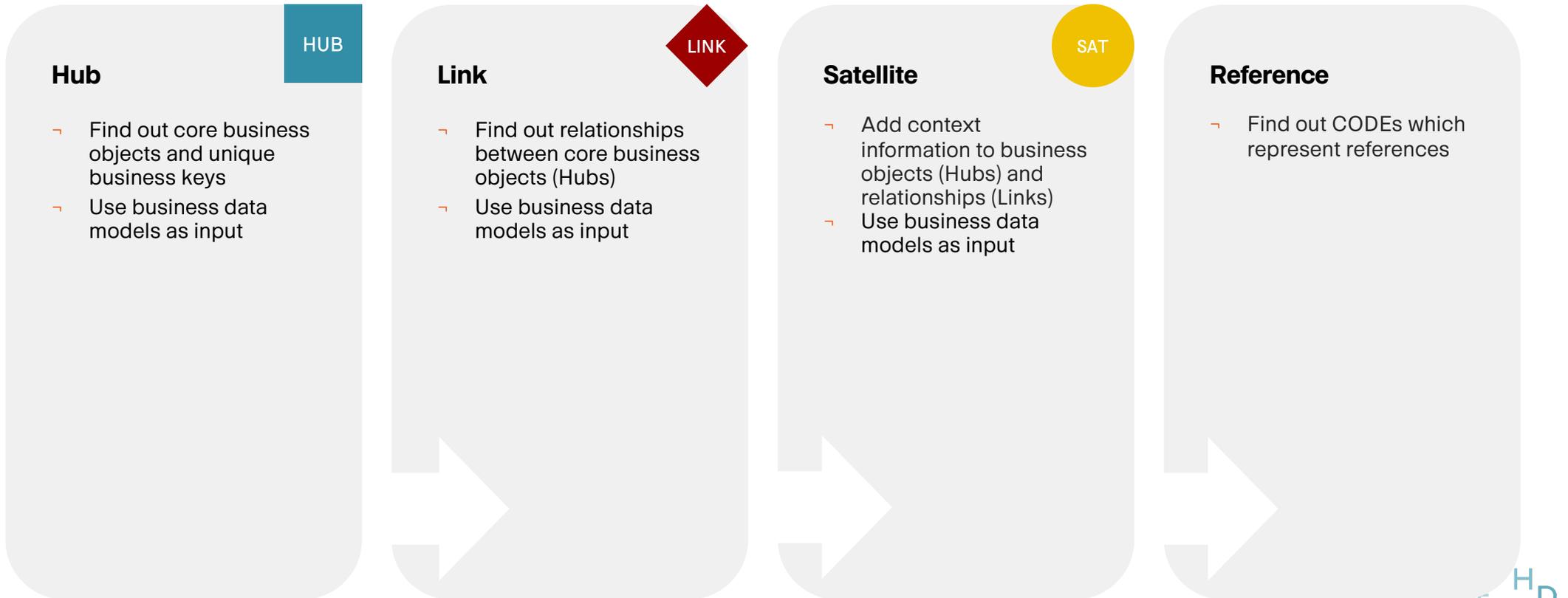


# BUSINESS DATA MODEL



# DATA VAULT | MODELING APPROACH

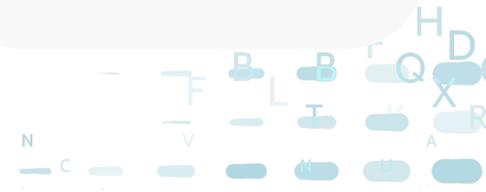
Separation of business keys, relationships and context



# DATA VAULT | MODELING APPROACH - RULES

Separation of business  
keys, relationships  
and context

100% data  
100% time

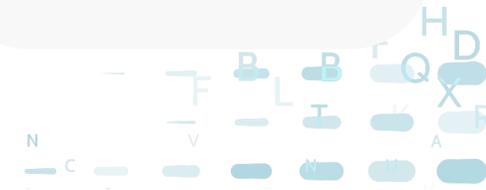


## DATA VAULT | MODELING APPROACH - RULES

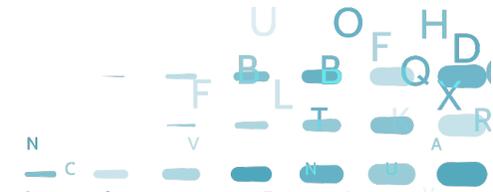
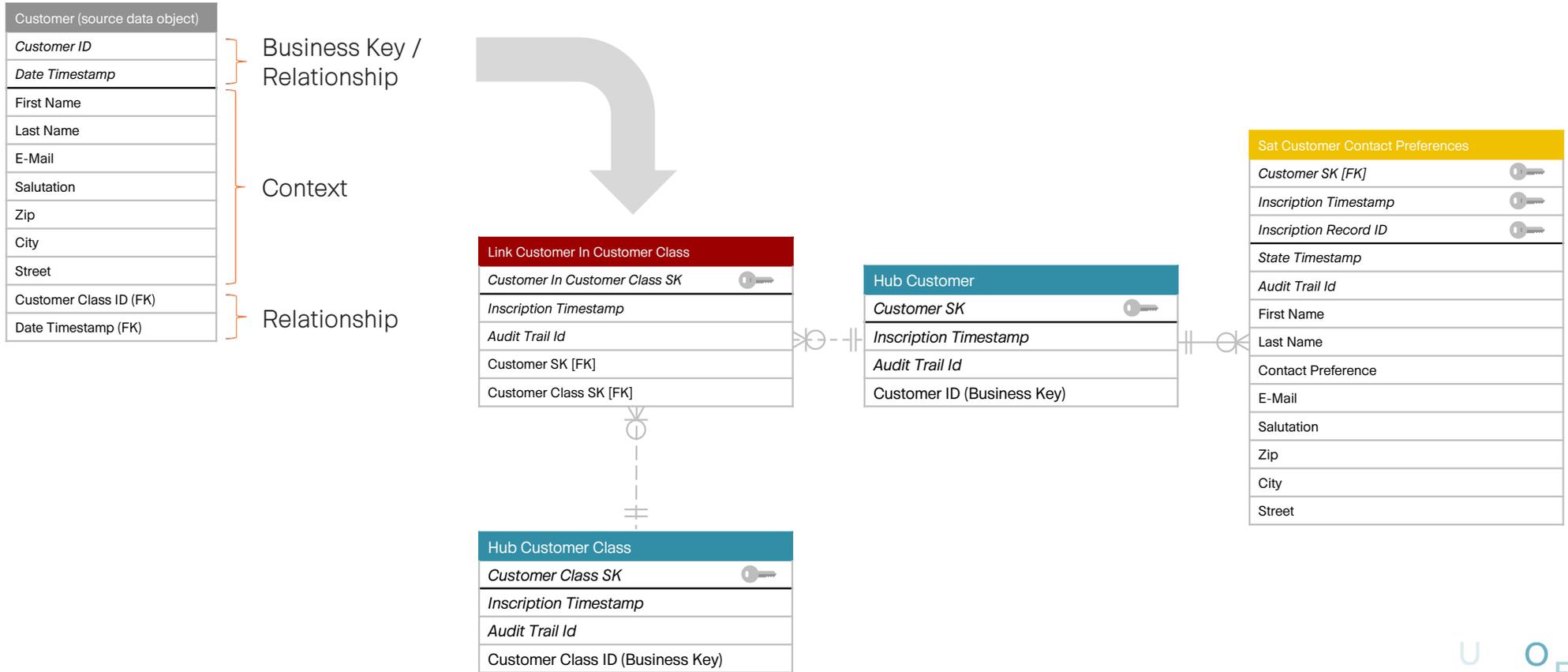
- A **Hub** must not have a direct connection to another **Hub**
- Any relationship between **Hubs** has to be modeled as a **Link**
- A **Link** can be connected to another **Link** - **Not recommended!**
- A **Link** has to be connected with at least two **Hubs** (or **Links**)
- A **Satellite** has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

Separation of business  
keys, relationships  
and context

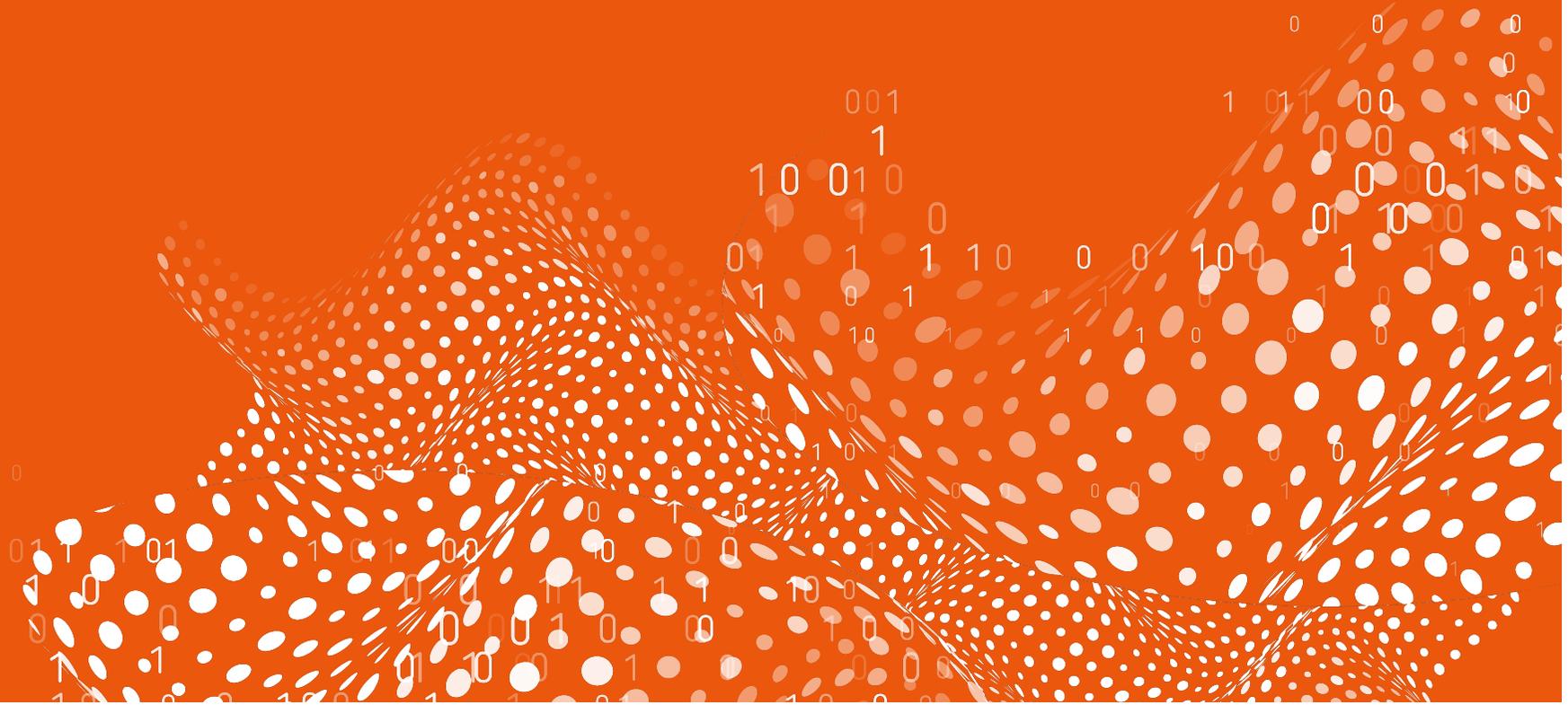
100% data  
100% time



# DATA VAULT | FROM 3NF



# REAL WORLD EXAMPLE (EXCHANGE RATE)

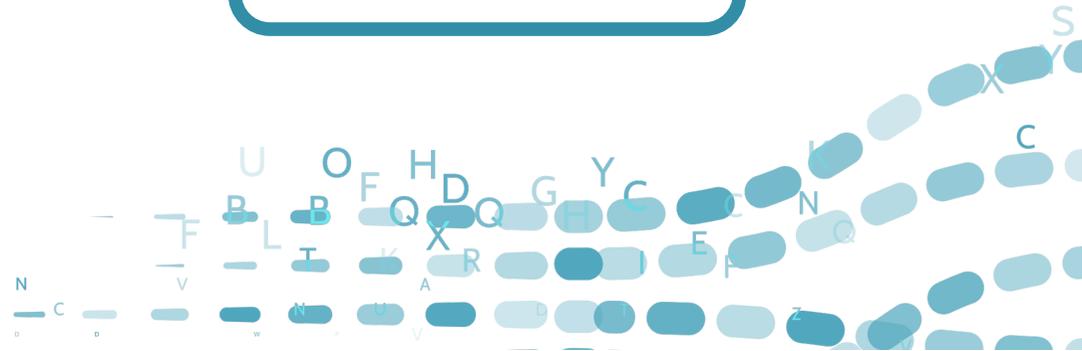


# WHAT DO WE NEED FOR...?



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

**ADDING A  
NEW SOURCE**

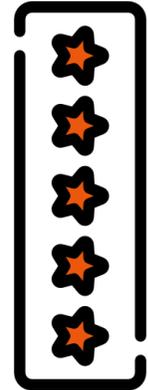


# INCOMING INTERFACE - RATING

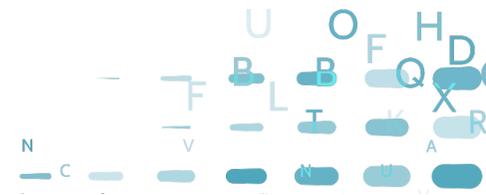


Data Delivery Rating - Quality from 1 to 5 star

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

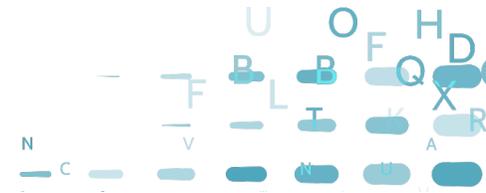
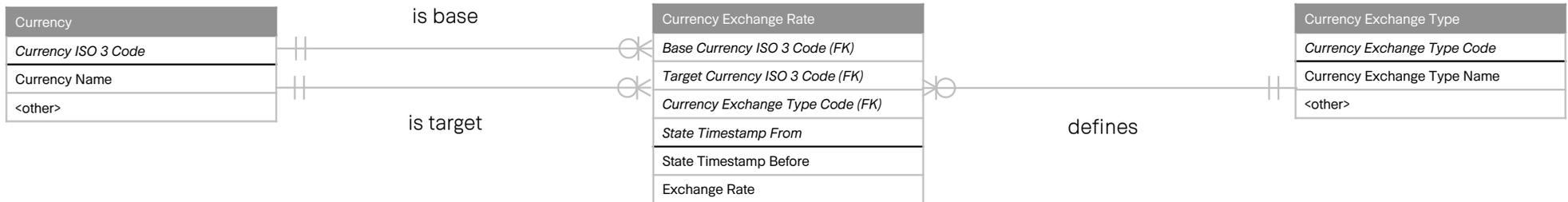
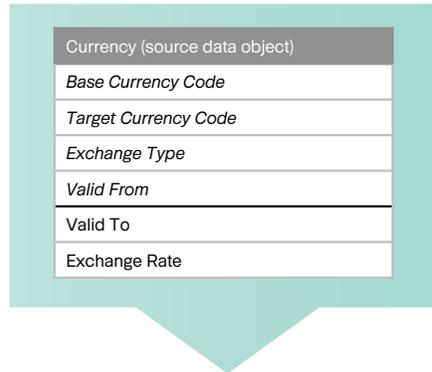


The **fewer** stars in the rating,  
the **more** effort in the implementation!

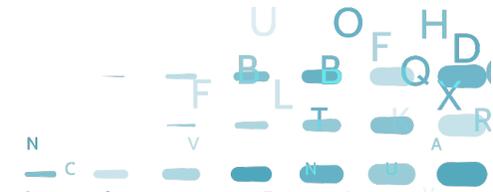
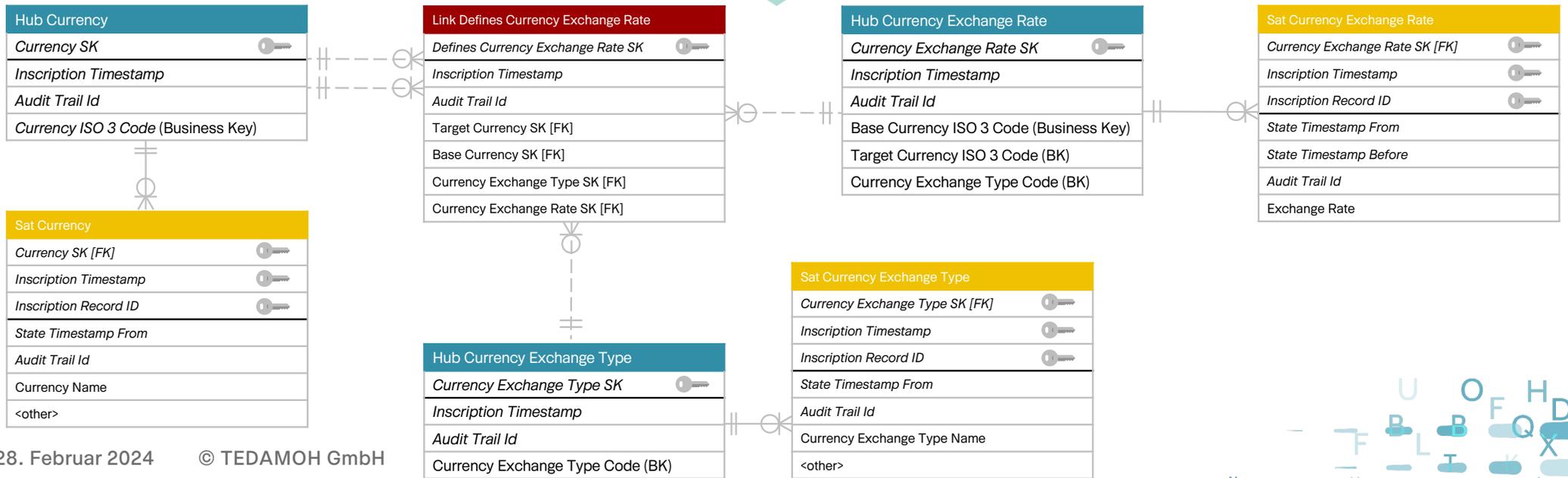
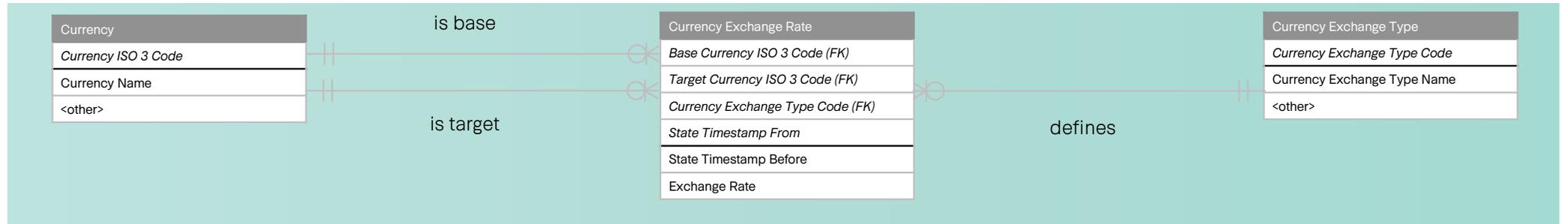




# BUSINESS DATA MODEL



# DATA VAULT | FROM BUSINESS DATA MODEL



# DATA VAULT | FROM BUSINESS DATA MODEL



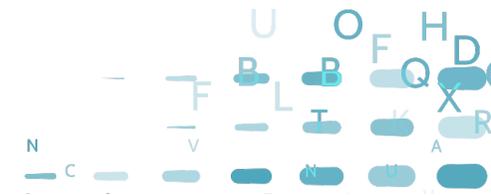
Satellite on Links, yes or no? – The ‘Diego guide’

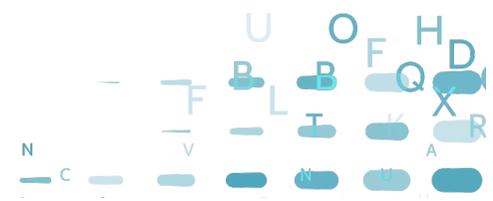
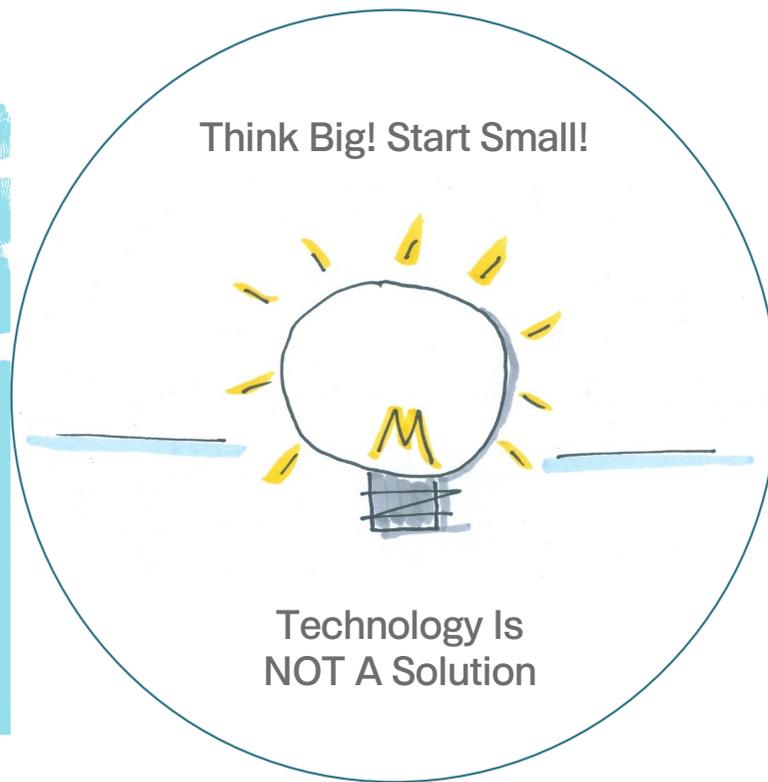
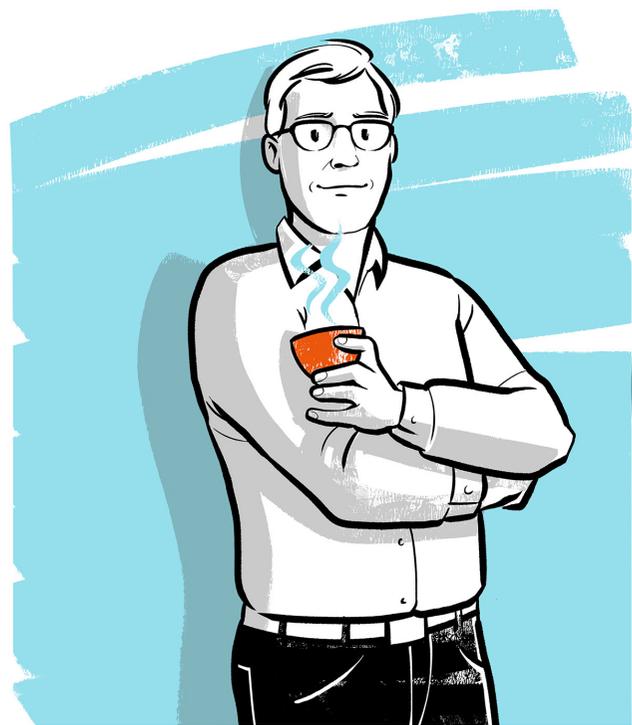
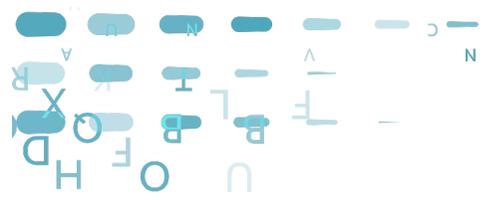


English Blogpost



German Blogpost





# ACADEMY

OPEN TRAINING | INHOUSE | WORLDWIDE



Seminar & Certification

**DATA MODELING  
CERTIFICATION**



Temporal Data Training

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



Data Modeling Training

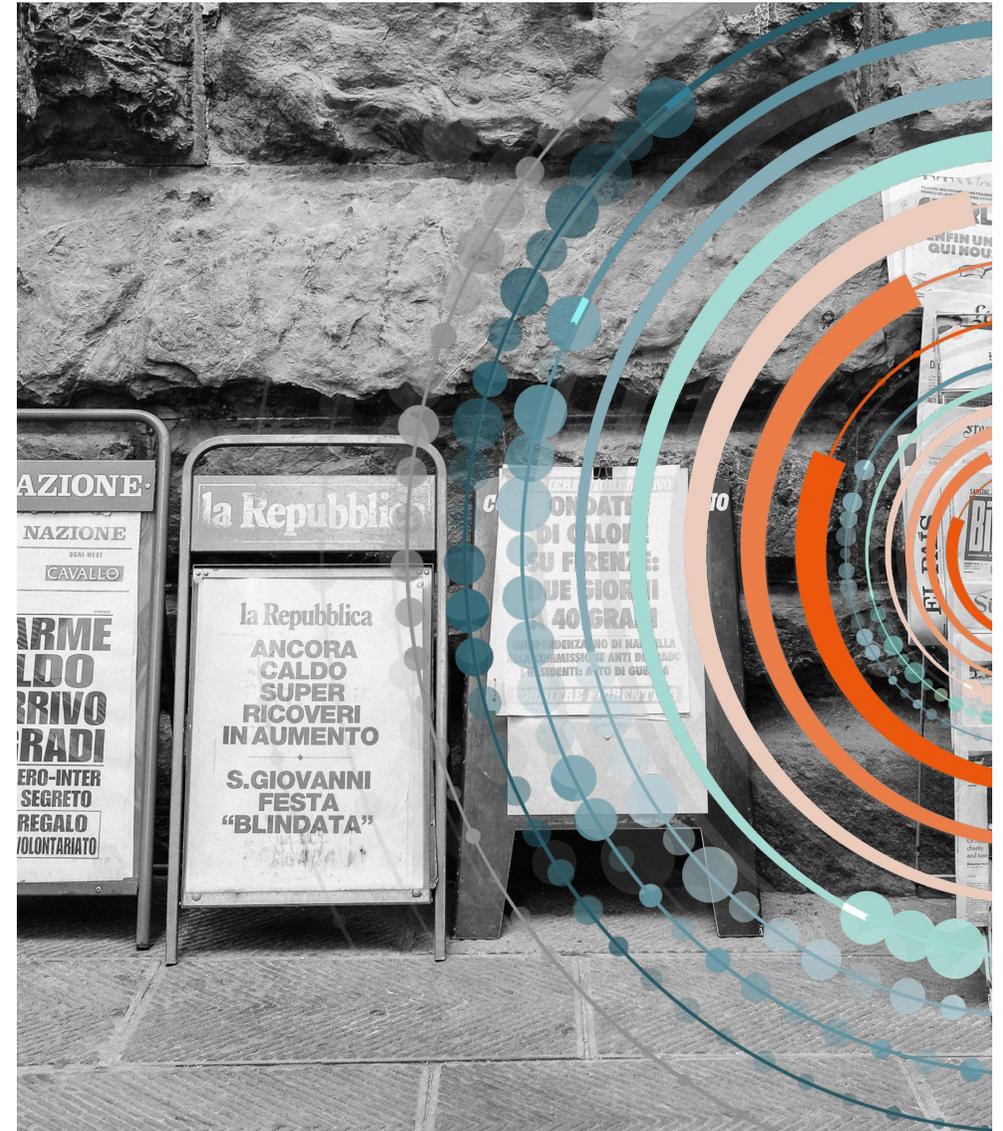
**DATA MODELING  
MASTERCLASS**



## GET UPDATES

BETTER THINKING.  
BETTER DATA MODELING.  
BETTER PERFORMANCE.

One new article  
every month.  
No spam ever.



# CONTACT



DIRK LERNER  
FOUNDER

DIRK.LERNER@TEDAMOH.COM  
+49 151 149 55 227

WWW.TEDAMOH.COM

