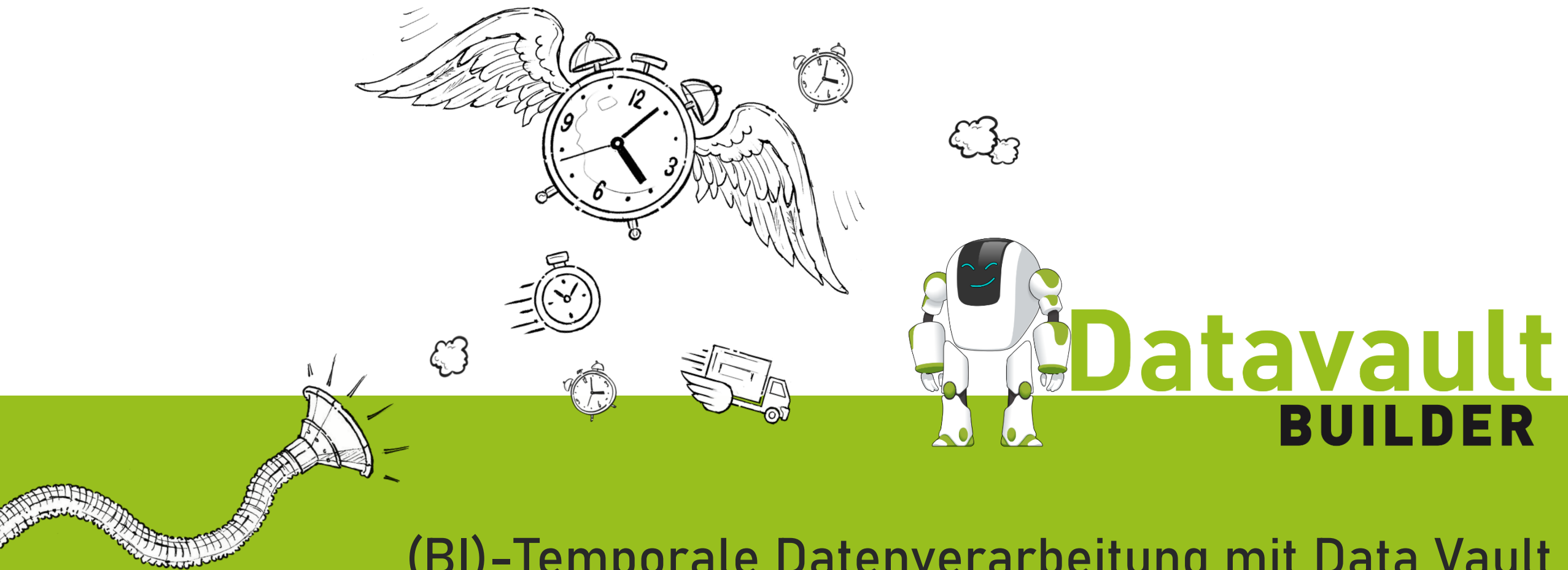




(BI)-Temporale Datenverarbeitung mit Data Vault
Umsetzung in einem Automatisierungstool

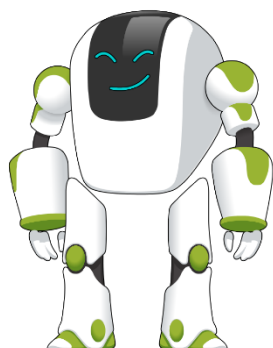
YOUR HOST



Beat Bannwart

Product Manager

beat.bannwart@datavault-builder.com



Datavault BUILDER



Data Warehouse Automation



50+ Implementation Partners



250+ Installations worldwide

Headquarters in Zurich, Switzerland
Customers and Partners on 4 continents

Zurich Switzerland

+41 32 511 27 89

New York USA

+1 929 999 12 30

Sydney Australia

+61 286 07 71 89

contact@datavault-builder.com



DATA INTEGRATION WITH ONE STANDARDIZED AND AUTOMATED SOLUTION



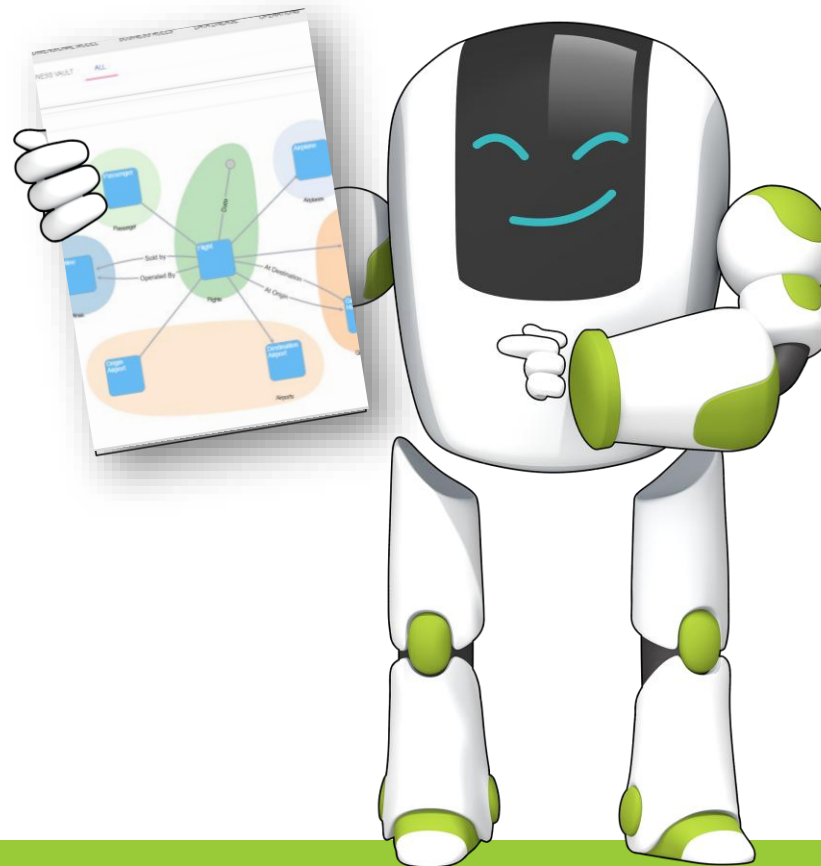
Replacing up to 9 separate tools!

Better Data Quality

by enforcing and automating an industry standard process improving every aspect of data quality

Lower Costs and Risk

by using a standardized and maintained approach running on hundreds of instances leading to a very low TCO in the beginning but also in the long-term leading to time and cost reduction up to 90%.¹



Faster time-to-insights being built for agile development, DataOps and cloud deployment allow first insights within days instead of months.



¹For repetitive technical tasks within the DWH development process

SELECTED CUSTOMERS

C&A

 ProSiebenSat.1
Media SE

 M
.CH Messe Basel

 Ministry for the
Environment
Manatū Mō Te Taiao

Frankfurter
Bankgesellschaft
PRIVATBANK | Zürich | Frankfurt

BioMed®

Melitta®

totally^{plc}

 Harry
Bäcker seit 1688

 Securitas

 HELM

 esa

eGYM

 Goldhofer

 ToaRe Europe

 DB

STOBAG

EPFL

BASEL
LANDSCHAFT
BAU- UND UMWELTSCHUTZDIREKTION
HOCHBAUAMT

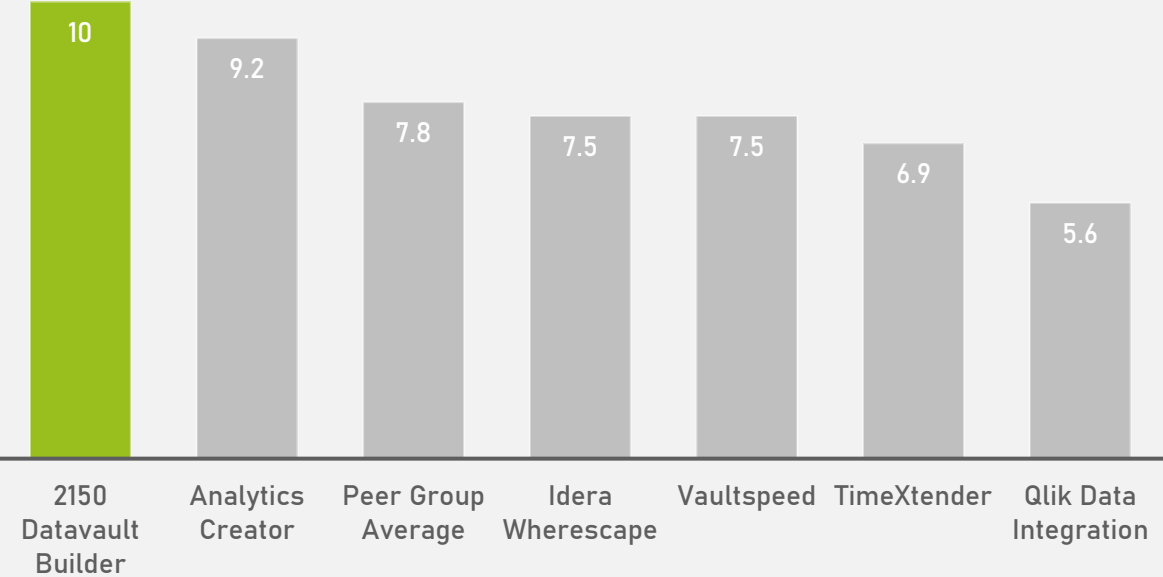
RWJBarnabas
HEALTH

PROJECT SUCCESS

This KPI is based on how quickly the product is implemented.

Project Length – Top Ranked

Peer Group : Data Warehouse Automation



94%

Projects with 2150 Datavault Builder were implemented in less than 6 months

BARC

Project Length

Top-ranked

The Data Product
Engineering Tools Survey 25
Data Warehouse Automation

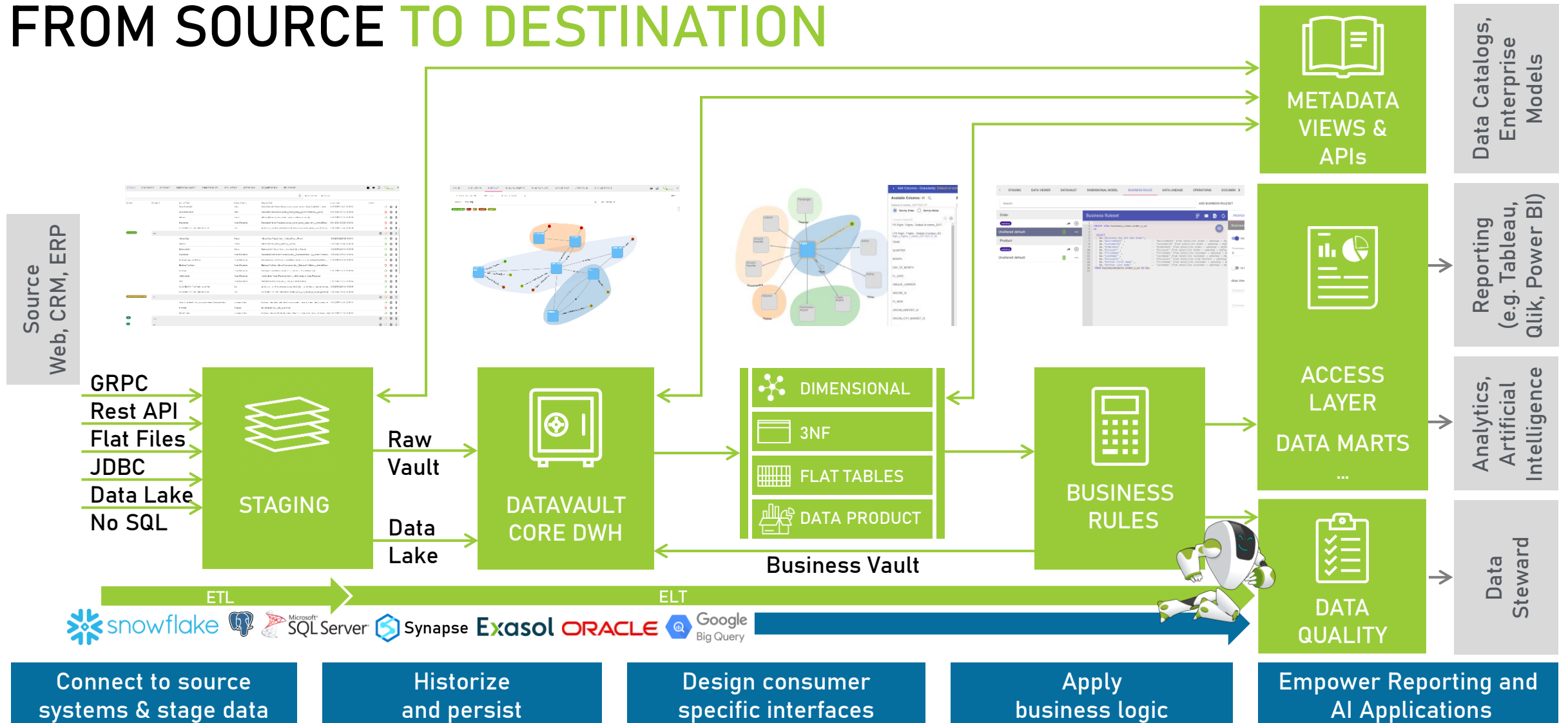
BARC Comment

Automation from connecting source systems to deploying the required data vault, relational or multidimensional models is highly beneficial. The last implementation times reflect the efficiency of automation, indicating that solutions can be deployed smoothly and without significant issues

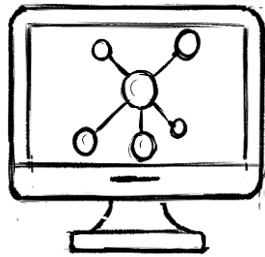


* Download the Highlights of the BARC Data Management Survey 25:
<https://datavault-builder.com/barc-survey/>

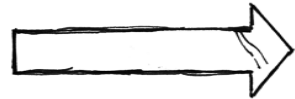
FROM SOURCE TO DESTINATION



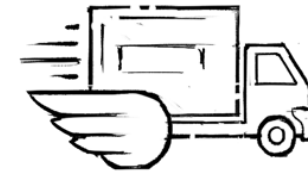
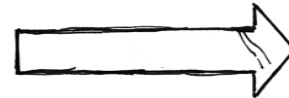
CLASSIC AUTOMATION APPROACH



Modeling Tool



Repository



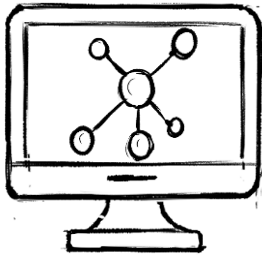
Implementation

creates delays

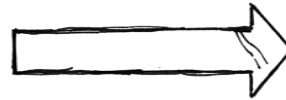
disconnect between model
and implementation

high risk of failure in the
medium and long-run

DATAVULT BUILDER **AUTOMATION APPROACH**

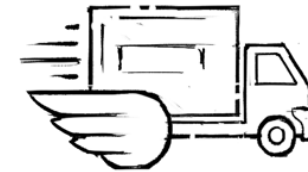


Modeling Tool



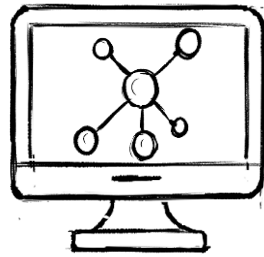
Real Time

fast development
short feedback cycles
early business value

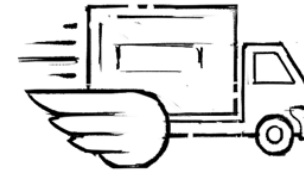
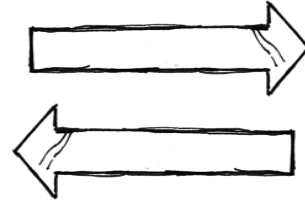


Implementation

DATAVAULT BUILDER **AUTOMATION APPROACH**



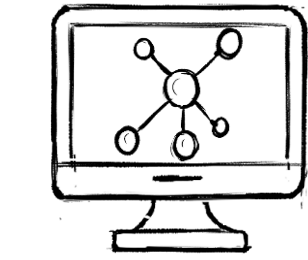
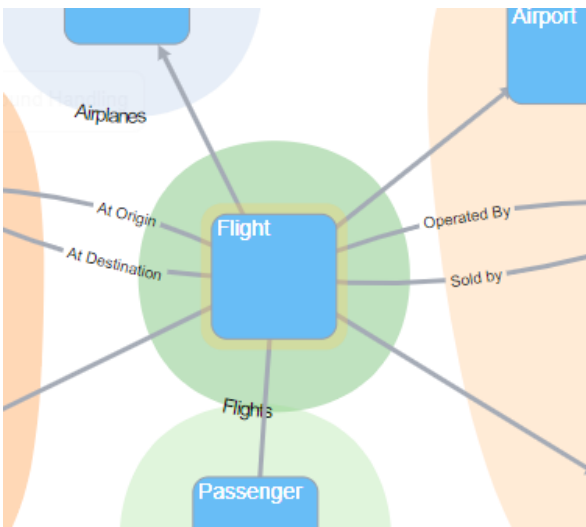
Modeling Tool



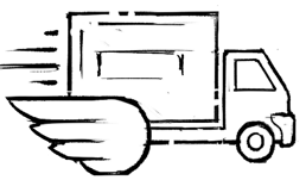
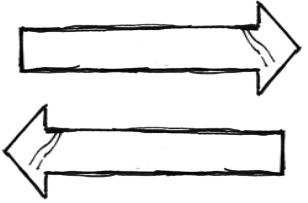
Implementation

ensures consistency
ensures long-term
success

DATAVAULT BUILDER **AUTOMATION APPROACH**



Modeling Tool



Implementation

real-time link on development or sandbox

ITIL compliant deployment module with code versioning

BARC
Project Success

Leader

The Data Product Engineering Tools Survey 25
Data Product Engineering

Table Name:

Tablespace:

☐ Has Oids ☐ Partitions

Partition by:

Comment:

	Column Name	#
Columns	flight_h	1
Constraints	ABC flight_bk	2
Foreign Keys	flight_It	3
Indexes	123 flight_s	4
Dependencies		

Willibald

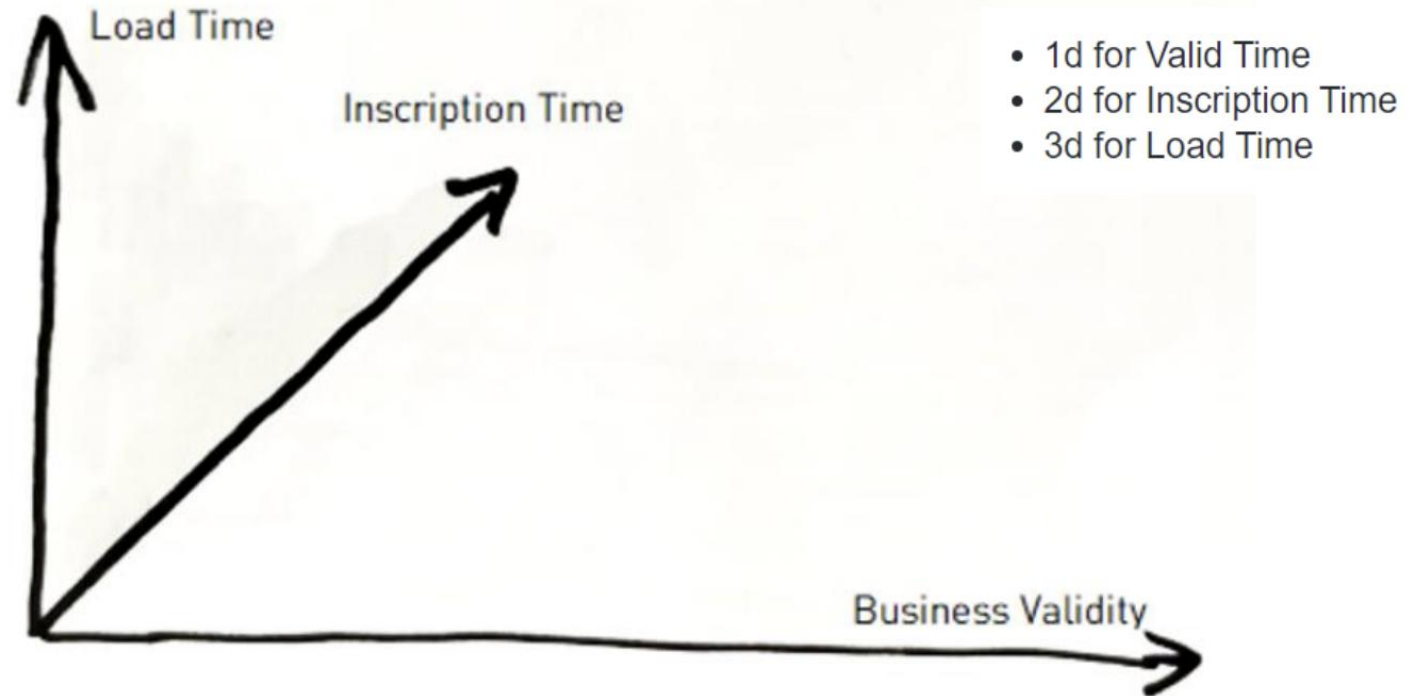
WILLIBALD ANFORDERUNGEN VEREINPARTNERSTATUS

- Komplexität
 - Fachliche Gültigkeit “von”
 - Kann nachträglich korrigiert werden durch neuen Datensatz
 - Überschreibung einer “anderen” Zeitschiene durch einen neueren Datensatz ohne direkte Korrektur der Zeitschiene
- Bspw.
 - Lieferung 1 (1.1.): Status “Silber” gültig von 1.1.
 - Lieferung 2 (15.1.): Status “Gold” gültig von 15.1.
 - Lieferung 3 (1.2.): Status “Bronze” gültig von 10.1.

WILLIBALD ANFORDERUNGEN **PRODUKTKATEGORIE**

- Komplexität
 - Fachliche Gültigkeit “von” - wie bei Partnerstatus:
 - Kann nachträglich korrigiert werden durch neuen Datensatz
 - Überschreibung einer “anderen” Zeitschiene durch einen neueren Datensatz ohne direkte Korrektur der Zeitschiene
 - **Zusätzlich**
 - **“Festlegung” (fachlich)**
 - **“gültig bis” (fachlich)**
 - Bspw.
 - Lieferung 1 (1.1.): Rabatt “3%” gültig von 1.1. bis unendlich – Festlegung 2.1
 - Lieferung 2 (15.1.): Rabatt “2%” gültig von 1.2. bis 1.3 – Festlegung 15.1
 - Lieferung 3 (1.2.): Rabatt “4%” gültig von 1.1 bis unendlich – Festlegung 1.2

ZEITEN IM DATA VAULT **MEINE TERMINOLOGIE**



Begriffe für Zeitlinien: Christian Kaul "O tempora, o mores":

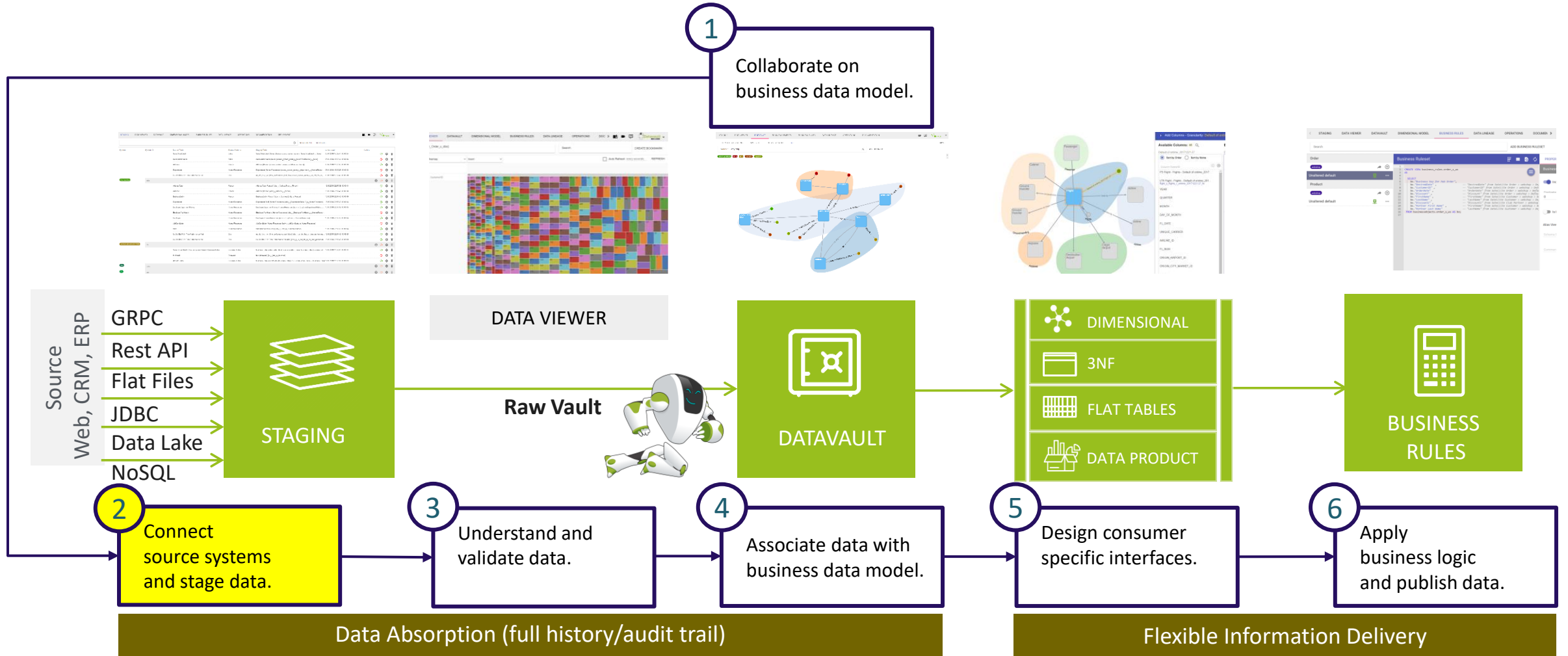
<https://datavaultusergroup.de/wp-content/uploads/DDVUG-%E2%80%93-Christian-Kaul-%E2%80%93-O-tempora-o-mores.pdf>

UNSERE **ANSPRÜCHE**

- **Auditfähigkeit**
Data Warehouse Sicht
- **Korrekturfähigkeit**
(nachträgliche) Veränderungen
- **Perspektiven**
unterschiedliche (zeitliche) Betrachtungen

SPRINT 1
2.5 HOURS FROM
NEW REQUIREMENTS TO 1ST VERSION

BUSINESS-DRIVEN WORKFLOW



ADDED NEW DATASOURCE

STAGING

DATA VIEWER

DATAVAULT

DIMENSIONAL MODEL

BUSINESS RULES

DATA LINEAGE

OPERATIONS

DOCUMENTATION

Search

Source Table

Source Schema

Webshop WS

Kategorie

Kunde

LieferDienst

Lieferadresse

Lieferung

Position

Produkt

VereinsPartner

Wohnort

Webshop Temporal WST

Kunden Abc

Edit Source: Webshop Temporal

BASE

CONNECTION

DATA CATALOG

REVIEW

CSV Files

Source Type Parameters

Directory Path

/willibald_delivery3

Path to the directory containing the files, <directorypath>

File Extension

csv

Extension of delimited files, <extension>

Delimiter

;

Delimiter between fields (for tab use \t), <delimiter>

☒ Has Header Row

Url

jdbc:relique:csv:/willibald_delivery3?suppressHeaders=false&separator=%3B&charset=UTF-8&ignoreNonParseableLines=false&fileExtens

jdbc:relique:csv:<directorypath>?suppressHeaders=<noheader>&separator=<delimiter>&charset=

<charset>&ignoreNonParseableLines=<ignorenonparseablelines>&fileExtension=.<extension>&indexedFiles=

<indexedfiles>&fileTailPattern=<filetailpattern>&fileTailParts=<filetailparts>&fileTailPrepend=<filetailprepend>

TEST CONNECTION

ADDED NEW SOURCE FILES & MARKED INSCRIPTION TIME

Edit Table: **Kunden Abc**

BASE

COLUMNS

DETAILS

DATA CATALOG

REVIEW

Source Schema

Default Schema [default_schema]

Available columns: 0

ID	Name	Comment	Source Data Type	Staging Data Type

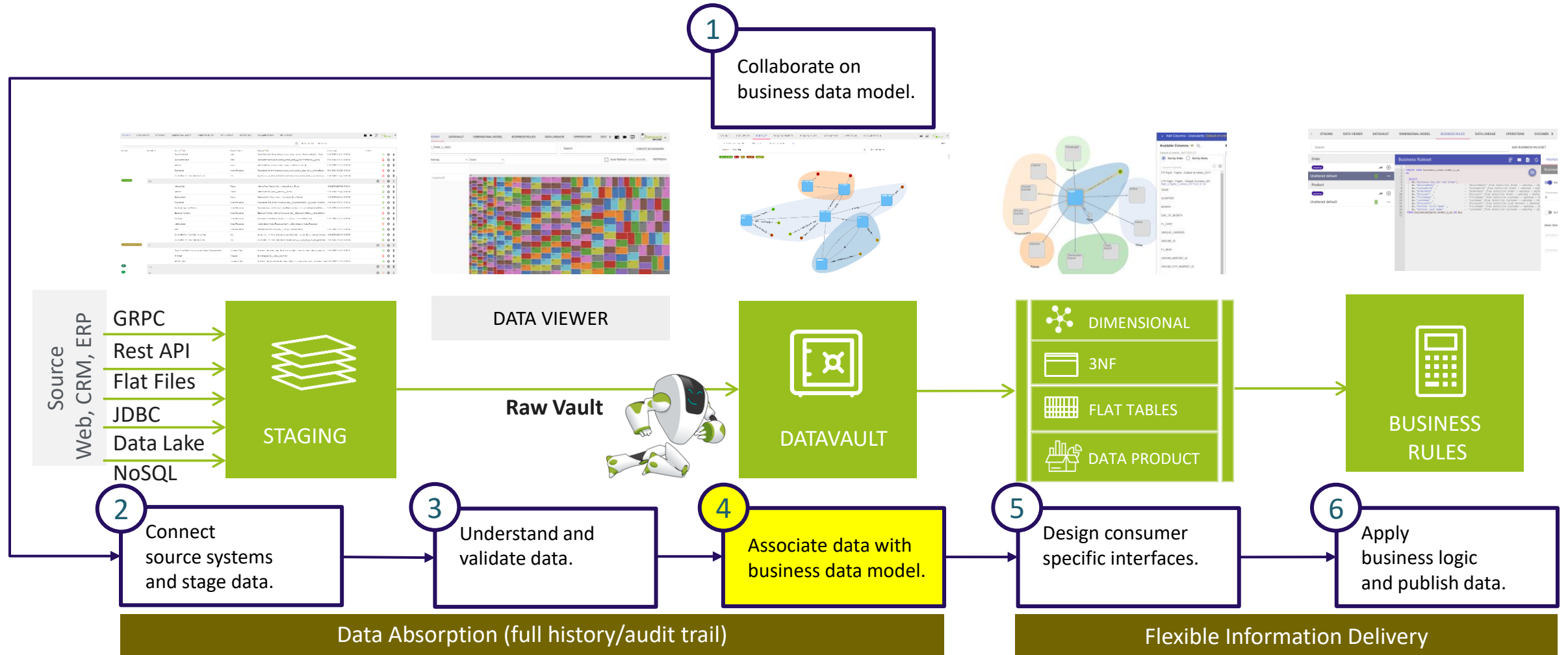
Source Table

Kunden Abc [kunden_abc]

Selected Columns: 6

ID	Name	Comment	Source Data Type	Staging Data Type
CustomerID	CustomerID		String	TEXT
ExternalID	ExternalID		String	TEXT
CustomerStatus	CustomerStatus		String	TEXT
CustomerDiscount	CustomerDiscount		String	TEXT
ValidFrom	ValidFrom		String	TEXT
DeliveryDate	CDC_INSCRIPTI...		String	TEXT

BUSINESS-DRIVEN WORKFLOW



NEW HUB CLUB PARTNER DISCOUNTS

<

STAGING

DATA VIEWER

DATAVAULT

DIMENSIONAL MODEL

BUSINESS RULES

DATA LINEAGE

PERSISTENT STAGING

RAW VAULT

BUSINESS VAULT

ALL

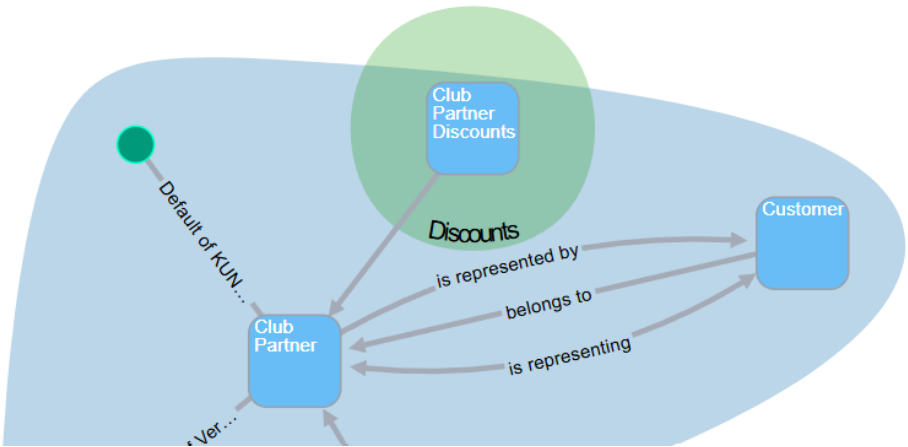
Hub: Club Partner [H_CLUB_PARTNER]

Roadshow

Roadshow Business Vault

Webshop

Webshop Temporal



MAPPED TIMELINES

LOAD TIME

DELIVERY TIME

BUSINESS TIME

=>

Satellite

Satellite

Hub

From now on we do have all the information, and we can change the interpretation of the different timelines later

SATELLITE

Default of KUNDEN_ABC

Systems

Webshop Temporal

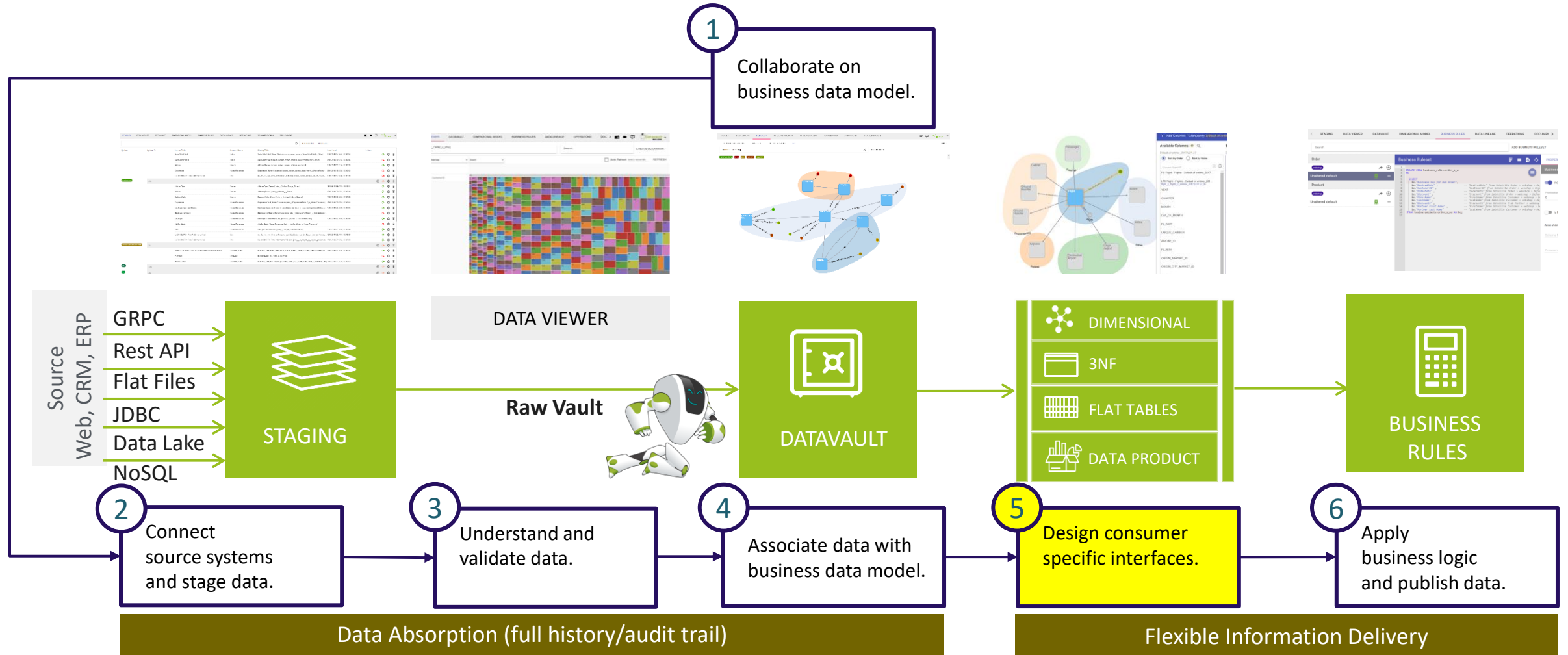
Base

Hub Name	Satellite ID	Functional Suffix Name	Functional Suffix ID	Subject Area	Comment	
Club Partner Discounts	S_CLUB_PARTNER_DISCOUNTS_S_WST_R_KU	Default of KUNDEN_ABC		Discounts		

Load

Source System	Source Table	Business Key	Actions
Webshop Temporal	STAGING.WST_R_KUNDEN_ABC	CustomerID, ValidFrom	

BUSINESS-DRIVEN WORKFLOW



DELIVERY: ATTRIBUTES

+ BK CLUB PARTNER & PROD CATTEGORY

STAGING

DATA VIEWER

DATAVAULT

DIMENSIONAL MODEL

BUSINESS RULES

DATA LINEAGE

OPERATIONS

DOCUMENTATION

Delivery [DELIVERY_S_WS]

Webshop

CREATE BUSINESS OBJECT

ADD RELATED BUSINESS OBJECT

Menu

Product Type

Roadshow

Roadshow Business Vault

Termintrue

Termintrue Business Vault

Webshop

Webshop Temporal

to

Customer

is representing

has ordered

Club Partner

Order

general delivery

Delivery Address

Default of Bestell...

Credit Card

Order Line

special delivery

Delivery Address

Default of Position...

Punctuality

Product

► Add Columns - Granularity: Default of Lieferung_U_dbo Satellite of Hub Delivery (Webshop)

Available Columns: 6

Search

Sort by ☒ Order ☐ Name

Column Name/ID

PS Delivery - Webshop - Default of Lieferu...

LTS Delivery - Webshop - Default of Liefer...
DELIVERY_S_WS_R_Lieferung_U_dbo_LTC

BestellungID

PosID

LieferAdrID

LieferDienstID

Datavault

Output

Sort by ☒ Order ☐ Name ☐ Source Object

Default

Name

ID

Column Name/ID

Business Key for Hub Delivery
DELIVERY_BK

Business Key for Hub Product Category
PRODUCT_CATEGORY_BK

Business Key for Hub Club Partner
CLUB_PARTNER_BK

LieferDatum

Menge

Preis

Bezeichnung

Rabatt

KundeID

Vorname

Business Key for Hub Delivery

Business Key for Hub Product Categ...

Business Key for Hub Club Partner

LieferDatum

Menge

Preis

Bezeichnung

Rabatt Bestellung

KundeID

Vorname

HISTORY OF CLUB PARTNER DISCOUNTS

STAGING

DATA VIEWER

DATAVAULT

DIMENSIONAL MODEL

BUSINESS RULES

DATA LINEAGE

OPERATIONS

DOCUMENTATION

Club Partner - As Was [CLUB_PARTNER_S_WST_C_AS_WAS_H]

Webshop Temporal 2

CREATE BUSINESS OBJECT

ADD RELATED BUSINESS OBJECT

Menu

Roadshow

Roadshow Business Vault

Webshop

Webshop Temporal

Customers

Club Partner

Customers

is represented by

Default of KUN...

Default of Verei...

is representing

Default of KUNDEN_ABC

Sort by

Order

Name

Column Name/ID

+

CustomerID

ExternalID

LTS Club Partner - Webshop Temporal - D...

CLUB_PARTNER_S_WST_R_KUNDEN_ABC_LTH

ITS Club Partner - Webshop Temporal - De...

CLUB_PARTNER_S_WST_R_KUNDEN_ABC_ITH

Datavault

Sort by

Order

Name

Source Object

Column Name/ID

Business Key for Hub Club Partner

CLUB_PARTNER_BK

CLUB_PARTNER_S_WST_C_AS_WAS_H LT

CLUB_PARTNER_S_WST_C_AS_WAS_H LT

CLUB_PARTNER_S_WST_C_AS_WAS_H LT

CLUB_PARTNER_S_WST_C_AS_WAS_H LT

CLUB_PARTNER_S_WST_C_AS_WAS_H BKLT

CLUB_PARTNER_S_WST_C_AS_WAS_H BKLT

CustomerStatus

CustomerDiscount

ValidFrom

Output

Default

Name

ID

Column Name/ID

Business Key for Hub Club Partner

CLUB_PARTNER_S_WST_C_AS_WAS_H...

CLUB_PARTNER_S_WST_C_AS_WAS_H...

CLUB_PARTNER_S_WST_C_AS_WAS_H...

CLUB_PARTNER_S_WST_C_AS_WAS_H...

CLUB_PARTNER_S_WST_C_AS_WAS_H...

CustomerStatus

CustomerDiscount

ValidFrom

Choose:

- As of now
- As of then
- PIT tables created automatically

SELECT MATERIALIZATION

STAGING

DATA VIEWER

DATAVAULT

DIMENSIONAL MODEL

BUSINESS RULES

DATA LINEAGE

OPERATIONS

DOCUMENTATION

Search

ADD BUSINESS RULESET

Webshop

Unaltered default

Customer - Dummy

Hub

Altered default

Delivery

Webshop

Category Discount

Discount with Bitemporal Logic

Materializing Joins

Only if new Discount is bigger

Delivery Adress

Hub

Unaltered default

Order

Hub

Altered default

Business Ruleset

```
1 CREATE VIEW BUSINESS_RULES.DELIVERY_S_WS
2 AS
3 SELECT
4   bo."Business Key for Hub Delivery",
5   bo."Business Key for Hub Product Category", -- (Business Key for Hub Product Category)
6   bo."Business Key for Hub Club Partner", -- (Business Key for Hub Club Partner)
7   /* DATEADD(
8     DAV,
9     1848, bo."LieferDatum") as*/ "LieferDatum", -- added
10  bo."Menge", -- "Menge" from Satellite Order Line > Webshop > Default
11  bo."Preis", -- "Preis" from Satellite Product > Webshop > Default
12  bo."Bezeichnung", -- "Bezeichnung" from Satellite Product > Webshop > Default
13  to_number(bo."Rabatt Bestellung", 6, 2) as "Rabatt Bestellung",
14  to_number(bo."Rabatt Bestellung", 6, 2) as "Final Discount", -- only final if not overwritten by other
15  -- "Rabatt" from Satellite Order > Webshop > Default of Bestellung_U_dbo
16  bo."KundeID", -- "KundeID" from Satellite Customer > Webshop > Default
17  bo."Vorname", -- "Vorname" from Satellite Customer > Webshop > Default
18  bo."Name", -- "Name" from Satellite Customer > Webshop > Default
19 FROM BUSINESSOBJECTS.DELIVERY_S_WS AS bo
```

PROPERTIES

QUICK INSERT

Business Ruleset Properties

Include in Accesslayer

Prioritization in the Accesslayer

2 - high

Is Error-Ruleset

Alias View

Schema Name

View Name

Comment

Materialization

Is materialized

Latest Load 25.06.25 14:38:20

Duration 00:00:05

Start Load 25.06.25 14:38:14

Result OK

For performance reasons the denormalization can be materialized

RESULTS SO FAR

Done without one Line of Code:

Full Auditable Data Loading and Persisting

ETLs are ready and waiting to accept correction loads as well

BI-Temporal loads into Vault are ready

Data Model documents relations

Extract APIs from the Vault are created and documented

PIT tables were created where necessary

Data Lineage & Documentation is done

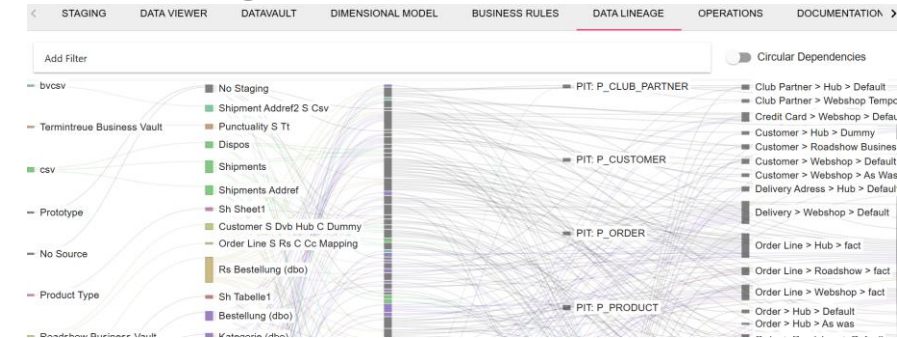
Jobs to run all the loads in the right order are created

All changes can be checked in directly to GIT

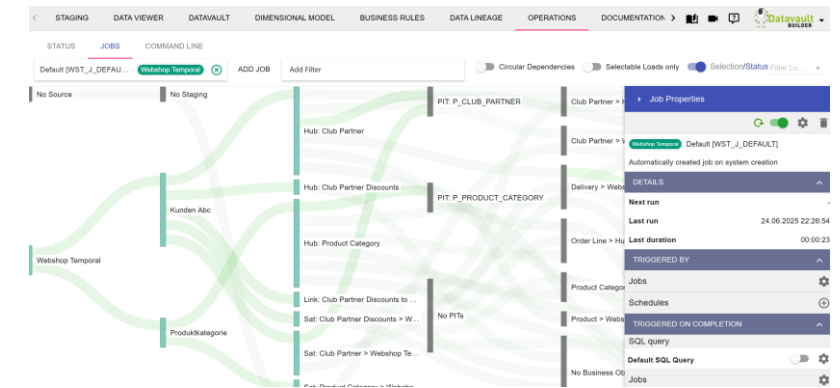
What is missing:

Evaluate the business rule which discounts shall be applied with which logic

Data Lineage



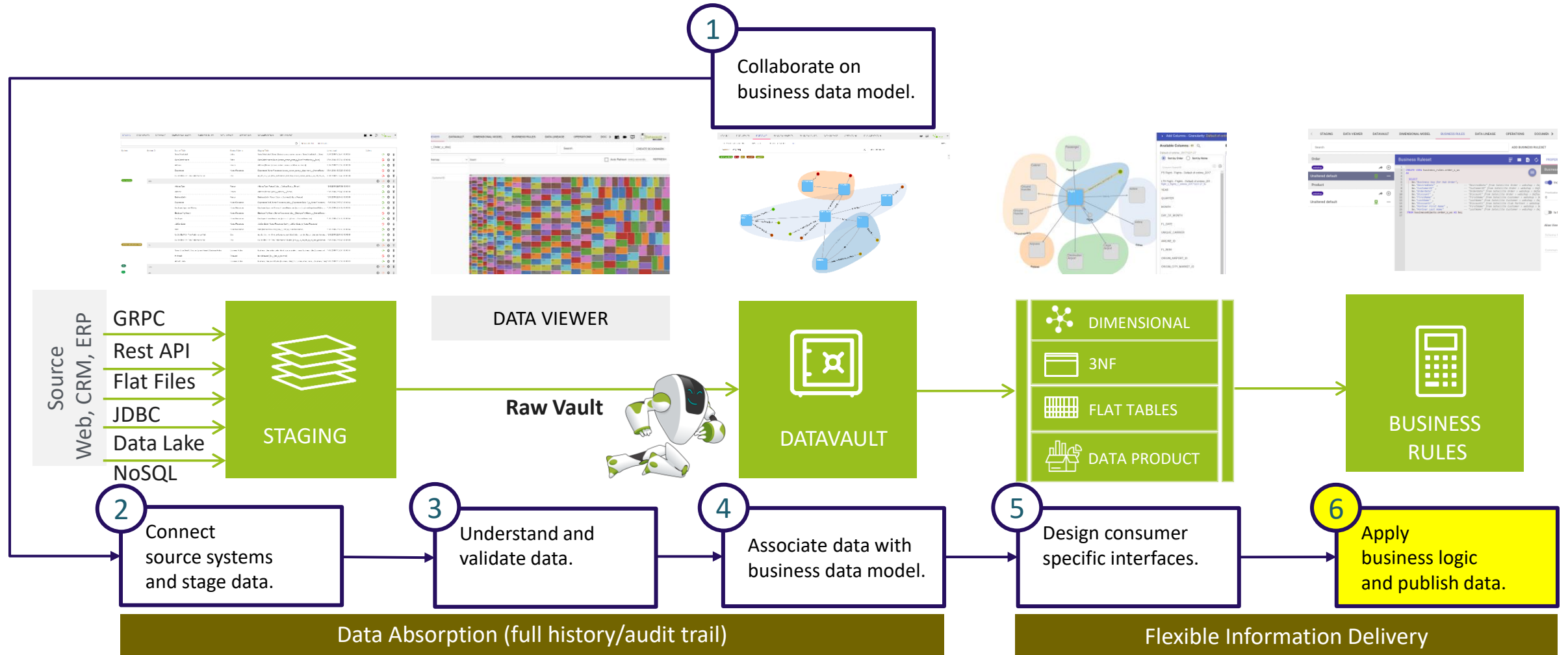
Job & Schedule



GIT Check-In

Name	Object Type	Object Name	Object ID	Comments	Type	Subject Area	Operation	Deploy
Default	Hub Load		H CLUB_PARTNER_S_RS_RS_Bestellung_U_dbo		All	All	Create	
Default	Hub Load		H CLUB_PARTNER_S_WST_R_KUNDE_ABC		All	All	Create	
Default	Hub Load		H CLUB_PARTNER_S_WST_R_Kunde_U_dbo		All	All	Create	
Default	Hub Load		H CLUB_PARTNER_S_WST_R_VertriebsPartner_U_dbo		All	All	Create	
Default	Satellite	Default of KUNDE_ABC	S CLUB_PARTNER_S_WST_R_KUNDE_ABC		One	One	Create	
Default	Satellite	Default of VertriebsPartner_U_dbo	S CLUB_PARTNER_S_WST_R_VertriebsPartner_U_dbo		One	One	Create	
Default	Hub	Club Partner Discounts	H CLUB_PARTNER_DISCOUNTS		Discounts	Discounts	Create	
Default	Hub Load		H CLUB_PARTNER_DISCOUNTS_S_WST_R_KUNDE		All	All	Create	

BUSINESS-DRIVEN WORKFLOW



GENERATED TEST DATA – WILL BE REPLACED

VIEWER

DATAVULT

DIMENSIONAL MODEL

BUSINESS RULES

DATA LINEAGE

OPERATIONS

DOCUMENTATION

DEPLOYMENT

Search

ADD BUSINESS RULESET

Customer - As Was

Webshop

Unaltered default

Customer - Dummy

Hub

Altered default

Delivery

Webshop

Added 1040 days to all delivery dates

Discount with Bitemporal Logic

Only if new Discount is bigger

Delivery Address

Hub

Unaltered default

Order

Hub

Altered default

Business Ruleset

```
1 CREATE VIEW BUSINESS_RULES.DELIVERY_S_WS
2 AS
3 SELECT
4   bo."Business Key for Hub Delivery",
5   bo."Business Key for Hub Product Category", -- (Business Key for Hub Product Category)
6   bo."Business Key for Hub Club Partner", -- (Business Key for Hub Club Partner)
7   DATEADD(
8     DAY,
9     1040, bo."LieferDatum") as "LieferDatum", -- added
10  bo."Menge", -- "Menge" from Satellite Order line > Webshop > Default
11  bo."Preis", -- "Preis" from Satellite Product > Webshop > Default of
12  bo."Bezeichnung", -- "Bezeichnung" from Satellite Product > Webshop > Default
13  to_number(bo."Rabatt Bestellung", 6, 2) as "Rabatt", -- "Rabatt" from
14  bo."KundeID", -- "KundeID" from Satellite Customer > Webshop > Default
15  bo."Vorname", -- "Vorname" from Satellite Customer > Webshop > Default
16  bo."Name" -- "Name" from Satellite Customer > Webshop > Default
17 FROM BUSINESSOBJECTS.DELIVERY_S_WS AS bo
```

Bezeichnung	Business Key for Hub Delivery	Business Key for Hub Product Category	Business Key for Hub Club Partner	KundeID	LieferDatum	Menge	Name	Preis	Rabatt	Vorname
Salat, Ro...	GlückAuf	1150*...	GMIߝSALAT	146	2025-01-18	3	Wurster	3.00	0	Albert
Bohne, B...	Wochene...	1244*...	GSCߝBOHNE	177	2025-01-17	3	Steudel	4.50	3	Nik
Tomate, ...		1010*...	GSITOMA...	100	2025-01-17	3	Jimenez	8.00	0	Friedlieb
Radiesch...		1221*...	GScߝRADI...	169	2025-01-17	3	Grundmann	8.00	3	Withold
Radiesch...		1415*...	GScߝRADI...	249	2025-01-24	6	Korff	8.00	3	Wolfhard

Business Ruleset Properties

Include in Accesslayer

Prioritization in the Accesslayer

Prioritization

Is Error-Ruleset

Alias View

Schema Name

View Name

Comment

Materialization

Is materialized

Latest Load 25.06.25 12:06:47

Duration 00:00:06

Start Load 25.06.25 12:06:40

CREATED BUSINESS HISTORY EVALUATION FOR CLUB PARTNER DISCOUNTS – WILL CHANGE BASED ON FEEDBACK

Club Partner

Hub

Unaltered default

Club Partner - As Was

Webshop Temporal

Unaltered default

Business History

Credit Card

Webshop

Unaltered default

Customer

Roadshow Business Vault

Unaltered default

Webshop

Unaltered default

Customer - As Was

Business Ruleset

1 CREATE OR REPLACE VIEW BUSINESS_RULES.CLUB_PARTNER_S_WST_C_AS_WAS_B_BUSINESS_HISTORY

2 AS

3

4 SELECT

5 bo."Business Key for Hub Club Partner",

6 bo.CLUB_PARTNER_S_WST_C_AS_WAS_H_LT , --

7 bo.CLUB_PARTNER_S_WST_C_AS_WAS_H_LT_END , --

8 bo.CLUB_PARTNER_S_WST_C_AS_WAS_H_BKLT , --

9 bo."CustomerStatus" , -- "CustomerStatus" from Satellite Club Partner > Webshop

10 to_number(COALESCE(

11 NULLIF(bo."CustomerDiscount", ''), -- turn '' → NULL

12 '0' -- then NULL → '0'

13),6,2) as "CustomerDiscount" , -- "CustomerDiscount" from Satellite Club Partner > Webshop

14 bo."ValidFrom" , -- "ValidFrom" from Satellite Club Partner > Webshop Temporal

15 CAST(COALESCE(

16 DATEADD(

17 DAY,

18 -1,

19 LEAD(bo."ValidFrom")

20 OVER (

21 PARTITION BY bo."Business Key for Hub Club Partner"

22 ORDER BY bo.CLUB_PARTNER_S_WST_C_AS_WAS_H_LT

23)

24),

25 /* use a proper DATE literal instead of arithmetic */

26 DATE '9999-12-31'

27) as DATE) AS "ValidTo" -- in theory we would need to calculate the to date for every specific load OR on

28 FROM BUSINESSOBJECTS.CLUB_PARTNER_S_WST_C_AS_WAS_H AS bo

PROPERTIES

QUICK INSERT

Business Ruleset Properties

☐ Include in Accesslayer ⓘ

Prioritization in the Accesslayer ⓘ

Prioritization

☐ Is Error-Ruleset ⓘ

Alias View ⓘ

Schema Name View Name

Comment

Materialization ⓘ

☐ Is materialized

APPLY TEMPORAL LOGIC TO DETERMINE VALID DISCOUNT

STAGING

DATA VIEWER

DATAVAULT

DIMENSIONAL MODEL

BUSINESS RULES

DATA LINEAGE

OPERATIONS

DOCUMENTATION

Search

Customer - As Was

Webshop

Unaltered default

Customer - Dummy

Hub

Altered default

Delivery

Webshop

Added 1040 days to all delivery dates

Discount with Bitemporal Logic

Only if new Discount is bigger

Delivery Address

Hub

Unaltered default

Order

Business Ruleset

1 CREATE OR REPLACE VIEW BUSINESS_RULES.DELIVERY_S_WS_B_DISCOUNT_WITH_BITEMPORAL_LOGIC

2 AS

3

4 SELECT

5 bo."Business Key for Hub Delivery",

6 bo."Business Key for Hub Club Partner", -- (Business Key for Hub Club Partner)

7 bo."LieferDatum", -- "LieferDatum" from Satellite Delivery > Webshop > Default of t

8 bo."Menge", -- "Menge" from Satellite Order Line > Webshop > Default of t

9 bo."Preis", -- "Preis" from Satellite Product > Webshop > Default of t

10 bo."Rabatt Bestellung", -- "Rabatt" from Satellite Order > Webshop > Default of t

11 cp.CLUB_PARTNER_S_WST_C_AS_WAS_H_LT, --

12 cp.CLUB_PARTNER_S_WST_C_AS_WAS_H_LT_END, --

13 cp."CustomerStatus", -- "CustomerStatus" from Satellite Club Partner > Webshop

14 CASE WHEN cp."CustomerStatus" = 'Gold'

15 THEN 'Wachsendes Geschenk'

16 WHEN cp."CustomerStatus" = 'Bronze'

17 THEN 'Kleines wachsendes Geschenk'

18 ELSE '' END as "Geschenk",

19

20 cp."CustomerDiscount", -- "CustomerDiscount" from Satellite Club Partner > Websh

21 cp."ValidFrom", -- "ValidFrom" from Satellite Club Partner > Webshop Temp

22 cp."ValidTo", -- "ValidFrom" from Satellite Club Partner > Webshop Temp

23

24 FROM BUSINESS_RULES.DELIVERY_S_WS AS bo

25 LEFT JOIN

26 BUSINESS_RULES.CLUB_PARTNER_S_WST_C_AS_WAS_B_BUSINESS_HISTORY cp ON

27 (

28 bo."Business Key for Hub Club Partner" = cp."Business Key for Hub Club Partner"

29 AND

30 bo."LieferDatum" between cp."ValidFrom" and cp."ValidTo" -- business validity was given

31 AND

32 bo."LieferDatum" > cp.CLUB_PARTNER_S_WST_C_AS_WAS_H_LT -- i.e. we need to know about the discount at point

33)

34 WHERE cp."Business Key for Hub Club Partner" is not null -- we want to check here only rows which get a d

35

PROPERTIES

QUICK INSERT

Business Ruleset Properties

Include in Accesslayer

Prioritization in the Accesslayer

Prioritization

Is Error-Ruleset

Alias View

Schema Name

View Name

Comment

Materialization

Is materialized

GOLDEN RECORD RULE: APPLY PARTNER DISCOUNT ONLY IF HIGHER THAN ORDER DISCOUNT

STAGING

DATA VIEWER

DATAVAULT

DIMENSIONAL MODEL

BUSINESS RULES

DATA LINEAGE

OPERATIONS

DOCUMENTATION

ADD BUSINESS RULESET

Business Ruleset

1 CREATE OR REPLACE VIEW BUSINESS_RULES.DELIVERY_S_WS_B_ONLY_IF_NEW_DISCOUNT_IS_BIGGER

2 AS

3

4 SELECT

5 bo."Business Key for Hub Delivery",

6 "CustomerDiscount" as "Final Discount",

7 "CustomerDiscount"

8 FROM BUSINESS_RULES.DELIVERY_S_WS_B_DISCOUNT_WITH_BITEMPORAL_LOGIC AS bo

9 WHERE "CustomerDiscount" >= "Rabatt Bestellung"

Properties

Business Ruleset Properties

Include in Accesslayer

Prioritization in the Accesslayer

1 - highest

Is Error-Ruleset

Alias View

Schema Name View Name

Comment

Materialization

Is materialized

Customer - As Was

Webshop

Unaltered default

Customer - Dummy

Hub

Altered default

Delivery

Webshop

Added 1040 days to all delivery dates

Discount with Bitemporal Logic

Only if new Discount is bigger

Delivery Address

Hub

Unaltered default

RESULTS

Even our understanding of the Business Logic is not yet perfect we have implemented the loads in a way that we don't need to change them.

After every step we are production ready.

After every step we can check the data.

Using the virtual layer to apply Business Logic in a first step we can develop with fast feedback cycles.

In general: Divide and Conquer, Automate and Standardize.

Search

Count

Final Discount

		Final Discount ←	0.00	0.50	1.00	1.50	2.00	2.50	3.00	Totals
Rabatt Bestellung ↑	CustomerDiscount ↓									
0.00	null		120							120
	1.00				33					33
	0.00		12							12
0.50	null			12						12
1.00	null				21					21
	1.00				1					1
1.50	null					87				87
2.00	null						27			27
2.50	null							58		58
3.00	null								414	414
		Totals	132	12	55	87	27	58	414	785

SPRINT 2
LOADED DATA INTO MSSQL
REMOVED DELIVER DATE DAYADD
TESTED WITH NEW DATA
1H

RESULTS

The new data make sense
We see the higher of both
discounts is applied.

Access Layer: Delivery [ACCESSLAYER.DELIVERY]

Search

Heatmap

Count

Final Discount

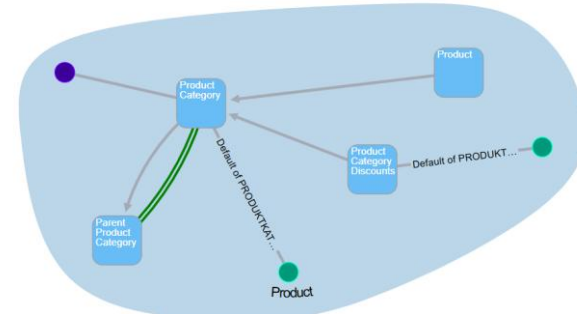
zeichnung	Rabatt Bestellung	Final Discount ←									
		Rabatt Bestellung ↑	CustomerDiscount ↑	0.00	0.50	1.00	1.50	2.00	2.50	3.00	Totals
usiness Key for Hub Club Partner	CustomerDiscount	0.00	0.00	25							25
usiness Key for Hub Delivery			1.00			65					65
usiness Key for Hub Product Cate			2.00				6				6
			null	1,454							1,454
undeID		0.50	1.00			56					56
eferDatum			2.00				6				6
lenge			null		778						778
ame		1.00	1.00			69					69
			2.00				3				3
reis			null			786					786
orname		1.50	2.00					11			11
			null				1,019				1,019
			2.00					4			4
		2.00	null					775			775
			2.50						1,066		1,066
			3.00							2,978	2,978
Totals				1,479	778	976	1,019	805	1,066	2,978	9,101

SPRINT 3

START ADDING LOGIC FOR PRODUCT CATEGORY

FROM SOURCE TO DESTINATION IN 5 MINUTES

Webshop Temporal WST		
Kunden Abc	Default Schema	Kunden Abc [WST_R_KUNDEN_ABC]
Produktkategorie	Default Schema	Produktkategorie [WST_R_PRODUKTKATEGORIE]



Product Category Discounts [PRODUCT_CATEGORY_DISCOUNTS_S_WST_H] Webshop Temporal 2 CREATE BUSINESS OBJECT

Webshop Webshop Temporal



► Add Columns - Granularity: **Default of PRODUKTKATEGORIE** **Hub Product Category**

Available Columns: 2    **Business Objects Columns: 9** 

Default of PRODUKTKATEGORIE

Sort by	Order	Name
Column Name/ID		
+		
LTS Product Category Discounts - Websh...		
PRODUCT_CATEGORY_DISCOUNTS_S_WST...		
ITS Product Category Discounts - Websh...		
PRODUCT_CATEGORY_DISCOUNTS_S_WST...		

Defaultaut

Sort by	Order	Name	Source Obj
Column Name/ID			
Business Key for Hub Product Category Discou...			
PRODUCT_CATEGORY_DISCOUNTS_BK			
PRODUCT CATEGORY DISCOUNTS S WS...			
PRODUCT_CATEGORY_DISCOUNTS_S_WST_H_ITL...			
PRODUCT CATEGORY DISCOUNTS S WS...			
PRODUCT_CATEGORY_DISCOUNTS_S_WST_H_ITL...			
PRODUCT CATEGORY DISCOUNTS S WS...			
PRODUCT_CATEGORY_DISCOUNTS_S_WST_H_BKLT			
KatID			
Rabatt			
Von			
Bis			
Festlegung			

Bis	Business Key	Festlegung	KatID	PRODUCT	PRODUCT	PRODUCT	Rabatt	Von
	2025-03-01*	2025-02-20	GMIAPRIKA	2025-03-01*	2025-02-01 ...	2999-12-31 ...	10.00	2025-03-01
	2025-01-01*	2025-02-01	GSISELLERIE	2025-01-01*	2025-02-01 ...	2999-12-31 ...	4.0	2025-01-01
2025-03-01	2025-01-15*	2025-02-01	GMIFENCHEL	2025-01-15*	2025-02-01 ...	2999-12-31 ...	6.0	2025-01-15
	2025-01-08*	2025-02-01	GSIBLUMEN	2025-01-08*	2025-02-01 ...	2999-12-31 ...	0.0	2025-01-08
	2025-01-01*	2025-03-01	KSCBASILIK	2025-01-01*	2025-02-01 ...	2999-12-31 ...	2.0	2025-01-01
	2025-01-31*	2025-02-01	GMIRETTICH	2025-01-31*	2025-02-01 ...	2999-12-31 ...	0.0	2025-01-31

WHATS NEXT

NEW RULE TO CALCULATE CATEGORY DISCOUNT PER DELIVERY

We need to check why no discounts fall into the results: potentially data type conversion problems for dates

MORE DETAILS? VISIT OUR BLOG

[Use Cases ▼](#)[Features ▼](#)[References ▼](#)[Pricing](#)[Partners ▼](#)[How To ▼](#)[Data Vault Blog](#)[Demo / Contact ▼](#)

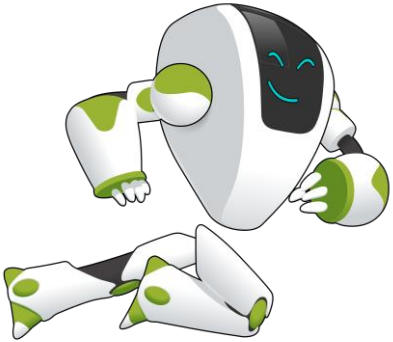
Temporality in the Data Warehouse Part 1 of 4: Definition of the challenge

In the past years, I was confronted with the demand to create a reporting with SCD type 2 dimensions. But since there are usually 3 or more time lines in the data warehouse, I had to clarify again and again what the business requirement actually is. Here I try to sort my thoughts and give you a guideline for such discussions. The article is divided into three parts: – Definition of the different timelines – [Creation of easy to use reports by reducing the timelines included in the DWH output](#) – [Which use cases makes it necessary to output the different timelines](#) – Technical solutions for the requirement to output entire time surfaces. What is a time slice. What is SCD Type 2. What is the relationship to as-is, as-was, as-of In a simple world there is only this here and now: The present. If I want to record the development over time I need a timeline.

Which is a time dimension (time line). What is a time slice? What is SCD Type 2?
What is the relationship to as-is, as-was, as-of

In a simple world there is only this here and now: The present. If I want to record the development over time I need a time line

QUESTIONS? **CONTACT US!**



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