



Changes in the IT landscape for External Sector Statistics of the Deutsche Bundesbank

Background

- Since the 70s, rapid increase of self-contained technical applications and data bases which exist side-by-side
- These isolated solutions made an integrated view on the data difficult (e.g. transactions & stocks)
- Furthermore, the multitude of industry standards (like IMS, DB2, MS & Oracle for DBs) complicated the daily work and led to ..
- **Growing technical backlog**, e.g. lack of documentation, maintenance intensive systems, declining number of staff members knowing to work with the old systems etc.



need for replacement and redesign

Strategy for the Bundesbank's "new" External sector (ES) IT- system

- Development of an integrated, modular software system for:
 - Master and Meta Data
 - Analysis
 - Report Processing and
 - Communication

- In order to create a harmonized IT infrastructure that:
 - Allows integrated analyses for transactions & stocks
 - Streamlines statistical work processes and increases automation
 - Reduces Time-to-Publication
 - Leverages emerging technologies by using industry standards

- The new ES IT-system has been developed in various sub-steps

Starting point: Centralized Master and Meta data base

- In 2011, we started with the development of a centralized master and meta data base with following key features:
 - Harmonization of all reporter master data into one single reference data set (golden copy)
 - Keeping master data and meta data in same data base
 - Centralization of data updates (and creation) through a workflow process by dedicated staff
 - Creation of an interface to allow other applications online access to the master data
 - Full data historization
 - Not only keeping track of changes, but being able to analyze which information was valid at each point-in-time.
 - Existing data must not be deleted (also not in case of reporter liquidation) or overwritten (also not in case of reporter mergers & acquisitions), but new rows can be created in the data base for changes of existing data.

Starting point: Centralized Master and Meta data base

Example: Master Data view

Kontakt |

DEUTSCHE BUNDESBANK AWMuS Anwendung - AWDV Meta- und Stammdaten 02.00.0076 :: PRODUKTIONSUMGEBUNG ::

AWMuS

Metadaten Stammdaten - Inländer (ohne privatw. Hh)

Daten

Kombinationen

Wissensstand Check

Stammdaten

Suche Inland

Suche Ausland

Gesamtsuche

Neuanlage

Workflow

Aufträge

Archiv

Infocenter

Metadaten

Stammdaten

Betriebsstatistik

Benutzerdaten

Benutzerdaten anzeigen

System

Stammdatenkonfigurati

TransferCheck AWW-Web

Transfer Salza

Meldenummer: 00777771

Name: TESTKUNDE HV MAINZ

Sitz (juristischer Sitz): Mainz

Branche NACE Rev. 2: 8200 - Erbringung v. ¹ Verweissfeld

Auftragsmodus Gesamtgültigkeit ändern Stammdaten PDF zurück

Allgemein Z4 Z5/5a/5b Z8 Z10 Z11 Z12/13 Z14/15 K3/4 AUSNA Fremdschlüssel Dritteinreicher M&A Meldestellen Kontakte

Postleitzahl *: 55122

Straße: Hegelstr.

Hausnummer: 65

Postfach:

HReg / Ort: Mainz - 55116/55001

HReg / Art:

HReg / Nr.:

Rechtsform *: 3 - Sonstige rechtlich

Branche NACE Rev. 1 *: 7480 - Erbr. sonst.

Bundesland *: 31 - Rheinland-Pfalz

Notizfeld (allgemein): SV von Frankfurt 12/03

Klassifizierung:

Klassifizierung K3:

Klassifizierung K4:

Internet:

Tel. (allgemein): 06131 377-0

Fax (allgemein): 06131 377-0

E-Mail: (allgemein):

AMS: 1 - Ja

AMS-Extranet: 1 - Ja

Land (AMI):

Wirtschaftszweig (AMI):

ZBB-Extranet: - Nein

ZBU-Extranet: - Nein

ehem. Meldenummer:

UCI-Nummer:

Insolvenz/Liquidation: - Nein

Z4 Abgabe an R 14: - Nein

Branchenbeschr. AMS:

AW-Prüfungen:

Aliasname:

Sektor ESA2010 *: S.14 - Private

UCI - Land:

Zweckgesellschaften:

Bilanzierung nach:

SPE:

Jens Walter, Joachim Hösch
6/21/2018
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Approach for Analysis

Previous system ZABDB	New system SALZA
Mainframe based	SAP BI-Server based
No micro data	Aggregated micro data per reporting unit
No GUI (Graphical User Interface)	MS Excel GUI (BEx-Analyzer) and Web Browser GUI (SAP Front End)
Performance limit reached with the changeover to BPM6	Broad OLAP/ BI functionality
No real OLAP/ BI functionality	Real-time data (updates on a daily basis)
	Versioning of data (stand-alone snapshots)
	Broad and flexible methods of analysis
	Drill down capability to the reporter
	Primary and secondary cell suppression (protection of confidentiality)

Old ZABDB

vs.

New SALZA

```

ZA03      Zeit: 10:11:32  Datum: 12/09/17  Anwender: S2504JM
          Anzeigen von Bausteinen und Aggregaten  Blättern: . . . .
TERMIN $ 201201 - 201212 SAPO A IAX0551 LAND . LLL - ... BRANCHE . . . . .
(oder BEREICH . . . . . ERG.ART . . . . . )      BRA2 . . . . .

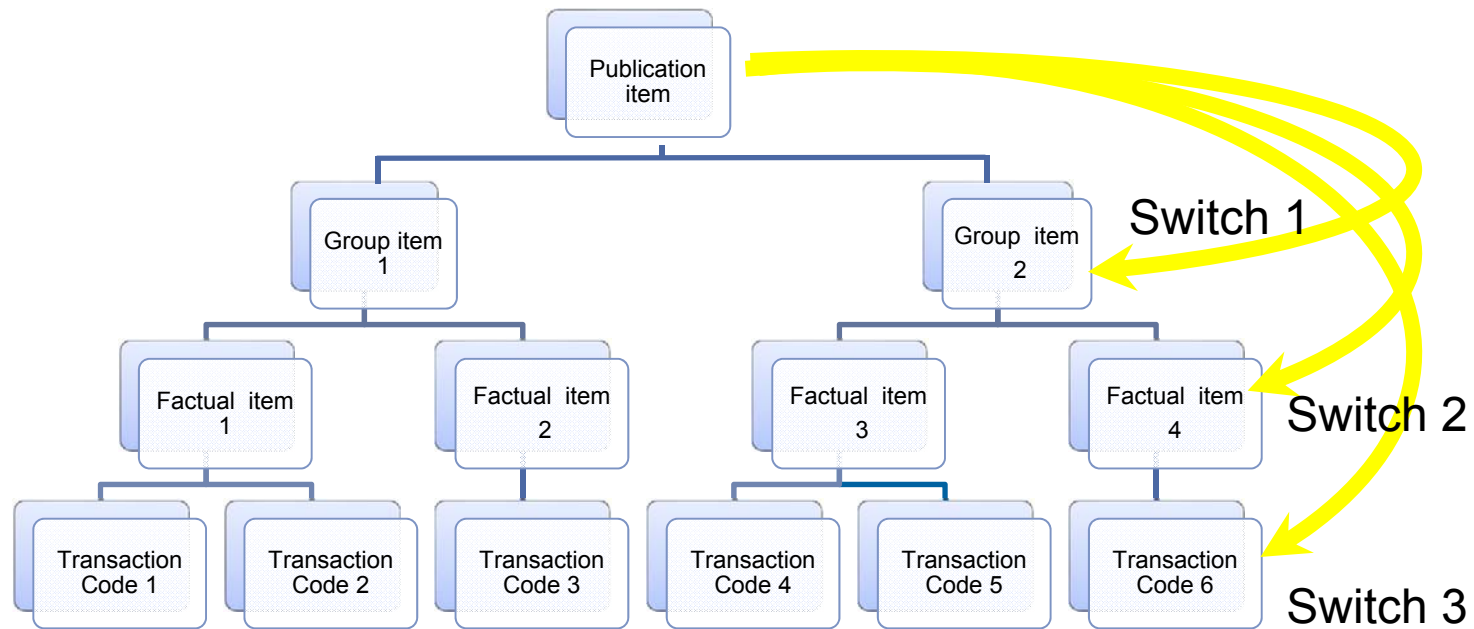
Zeile|  TERMIN |   SAPO |  LAND |  BRA |  BRA2 |  BETRAG in Tsd |
1 | 2012 J | 1301900 | LLL | | | 805.622 EUR |
2 | 2012 J | 1302900 | LLL | | | 2.430.782 EUR |
3 | 2012 J | 3102270 | LLL | | | -1.084.612 EUR |
4 | 2012 J | 3108030 | LLL | | | 808.871 EUR |
5 | 2012 J | 3108070 | LLL | | | 532.032 EUR |
6 | 2012 J | 3108090 | LLL | | | -2.432 EUR |
7 | 2012 J | 3302270 | LLL | | | 3.449.409 EUR |
8 | 2012 J | 8101070 | LLL | | | 1.743.377 EUR |
9 | 2012 J | 8101080 | LLL | | | 131.802 EUR |
10 | 2012 J | 8101081 | LLL | | | 3.600.475 EUR |

11 ZA02 0:  TERMIN: 201212  MASKE: 901 LAN: LLL BRA:  BRA2:  S2504JM1
12 Wichtige Posten der Zahlungsbilanz (fob/fob; Ursprungslandkonzept)
13
14 Land:  Alle Länder  Stand: 12.09.2017
15 Branche:  Zeit:  Dezember 2012
16
17
in Mio Euro          Einnahmen  Ausgaben  Saldo
-----
Leistungsbilanz      123.611   103.203   20.408
Warenhandel (fob/fob)  76.618    64.778   11.840
Außenhandel (fob/cif)  78.217    65.992   12.225
Ergänzungen, Transit, und NWG  - 1.599   - 1.214   - 386
Ergänzungen (ohne Transit, und NWG)  - 3.229   - 1.730   - 1.499
Unsichtbare Leistungstransaktionen  46.993    38.425    8.568
Dienstleistungen     20.944    18.738    2.206
dar. Transportleistungen  3.348     4.181   - 832
dar. Reiseverkehr     2.371     2.694   - 323
dar. Geistiges Eigentum (ab 2013)  1.140     497     643
dar. EDV- und Informationsdienstl.  2.873     1.651   1.223
dar. Sonst. unternehmensb. Dienstl.  1.423     1.112    311
dar. Forschung & Entwicklung  7.491     7.712   - 222
Primäreinkommen      22.116   10.468   11.648
Sekundäreinkommen     3.933     9.219   - 5.286
ZUGRIFF PER AGGREGATS-TABELLE
    
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Table					
	Berichtsjahr	2017			
	Versionsstatus	Veröffentlicht			
	Datenversion	DKAP	DM	ZUP	Ergebnis
		Transaktion DMEUR	Transaktion DMEUR	Transaktion DMEUR	Transaktion DMEUR
Bestandsart	SALZA-KEY	* 1.000.000 EUR	* 1.000.000 EUR	* 1.000.000 EUR	* 1.000.000 EUR
Einnahmen	DL, Ein	ZSGDXUE51	215.035	3.250	54.574
	DL, Fertigungs-DL, an Werkstoffen anderer Eigentümer	ZSGDHUE11	6.224		6.224
	DL, Instandhaltung u Reparatur, Ein	ZSGDXUE11	8.336		8.336
	DL, TrL, Ein	ZSGDXUE41	51.571	3.250	54.821
	DL, Reiseverk, Ein	ZSGDXUE21			35.251
	DL, Bauleist, Ein	ZSGDXUE11	1.829		1.829
	DL, Vers. u Altersvorsorge, Ein	ZSGDXUE21	1.736		8.288
	DL, FinanzDL, Ein	ZSGDFUE21	13.314		7.804
	DL, Gebü.f Nutz.geist.Eigent.	ZSGDXUE11	17.795		17.795
	DL, Telekom, EDV u Inform, Ein	ZSGDXUE31	33.036		33.036
	DL, sonst.unt.bez. DL, Ein	ZSGDXUE31	77.855		77.855
	DL, DL f pers. Zwecke, Kultur u Freizeit, Ein	ZSGDXUE21	2.917		2.917
	DL, Reg.waren u -leist, Ein	ZSGDXUE21	423	3.231	3.654
Ausgaben	DL, Aus	ZSGDXUEA51	181.275	26.956	80.744
	DL, FertigungsDL, an Werkstoffen anderer Eigentümer	ZSGDHUEA11	5.320		5.320
	DL, Instandhaltung, Reparatur, Aus	ZSGDXUEA11	9.074		9.074
	DL, TrL, Au				
	DL, Reise				
	DL, Bauleis				
	DL, Vers. u				
	DL, Finanz				
	DL, Geb. fr				
	DL, Telekom				
	DL, sonst. u				
	DL, DL f pe				
	DL, Reg. we				
Saldo	DL, Saldo				
	DL, Fertigu				
	DL, Instand				
	DL, TrL, Sa				
	DL, Reisev				
	DL, Bauleis				
	DL, Vers. u				
	DL, Finanz				
	DL, Geb. fr				
	DL, Telekom, EDV u Inform, Saldo	ZSGDXUE31	3.654		3.654
	DL, sonst.unt.bez. DL, Saldo	ZSGDXUE31	-1.681		-1.681
	DL, DL f pers. Zwecke, Kultur u Freizeit, Saldo	ZSGDXUE21	1.213		1.213
	DL, Reg.waren u -leist, Saldo	ZSGDXUE21	-1.139	3.231	2.092

Table						
				Einnahmen	Ausgaben	Saldo
				Veröffentlicht	Veröffentlicht	Veröffentlicht
			Versionsstatus			
			Datenversion	* 1.000 EUR	* 1.000	* 1.000
	SALZA-KEY					
	DL, Telekom., EDV- u Inform.-DL, Nachrichten- u Inform	ZSA1105720	DKAP	93.856		
	DL, Telekom., EDV- u Inform.-DL, sonst. EDV-DL, Ein	ZSA1105730	DKAP	16.213.154		
	DL, Telekom., EDV- u Inform.-DL, Speicherung v Inform.	ZSA1105740	DKAP	1.294.500		
	DL, Telekom., EDV- u Inform.-DL, KommunikationsDL, Ein	ZSA1105760	DKAP	3.643.188		
	DL, Telekom., EDV- u Inform.-DL, Nutz. v Computer-SW, Ein	ZSA1106130	DKAP	11.576.845		
	DL, Telekom., EDV- u Inform.-DL, Kauf/Verkauf v	ZSA1106330	DKAP	213.836		
	Gesamtergebnis			33.035.379		

Drill down capability of SALZA



- Switch (1) to previous position
- Switch (2) to the factual item level
- Switch (3) to the reporter level (with transaction codes)

Drill down example in SALZA

41	4.533.796,7	3.856.114,3	3.057.280,5	3.267.510,0	3.269.886,0	2.490.998,0	3.3
90	1.009,0		632,0				
XXX	2.725.969,0	1.374.602,0	1.168.574,0	232.850,0	239.533,0	366.782,0	
11	1,70						
31	1,02			232.850,0	239.533,0	366.782,0	
41	10,77			5.304.097,0	5.417.364,0	5.147.486,0	4,7
90							
XXX	1,03						
11	1,03						
50							
70							
41	-5,29			-1.988.746,0	-2.064.076,0	-1.588.913,0	-1,3
XXX	1,56						
41	4,30			232.850,0	239.533,0	366.782,0	
90				3.057.312,0	3.019.823,0	3.246.740,0	3,1
XXX	2,48						

Einen Navigationsschritt zurück
Zurück zum Anfang
In Formel umwandeln
Eigenschaften...
Query-Eigenschaften...
Kennzahldefinition
Bedingung anlegen
Springen

Dokumente
Query-Dokumente
Meldedaten direkte Vorgänger
Meldedaten alle Vorgänger
Meldedaten Vorgänger SAPO-Ebene
Meldedaten Vorgänger Kennzahl Ebene (ZB_Global Zielberich)
Ableitungsregeln direkte Vorgänger
Ableitungsregeln alle Vorgänger

- Drill down from an highly aggregated data level to related reporters and reporting items

- Other reporting options are likewise available (e.g. branches of the reporters)

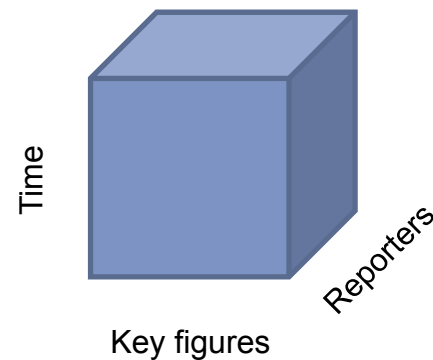
Berichtsmonat	SALZA-KEY	Meldepflichtiger /S	Saldo	Ausgaben	Einnahmen
			* 1.000	* 1.000	* 1.000 EUR
Gesamtergebnis					2.500.835
JAN 2014	ZKA34670	ausländische Emissionszertifikate			170
					40
					1.462
					26.116
					43.360
					37.311
	ZKA35070	inländische Emissionszertifikate			1.625
					24
					63
					20
					727.958
					258.055
					22
					1.090
					31
					67.292
					55.041
	ZKA16170	Nutzung von snst.n Rechten			257
					0
					50
					853
					26

SALZA's achievements

- SALZA creates SDMX time series for national and international publication commitments
- SALZA merges the publication process within a single application
- SALZA makes swift replies to external and internal inquiries possible
- Flexible data analyses
- Standardized reports with MS Excel GUI (first quality check)
- Integrated trend and estimation procedures
- Source and decomposition information for aggregated data
- Slicing and dicing from aggregated data to reporter

Excursus: Slicing and dicing (the OLAP cube and Business Intelligence)

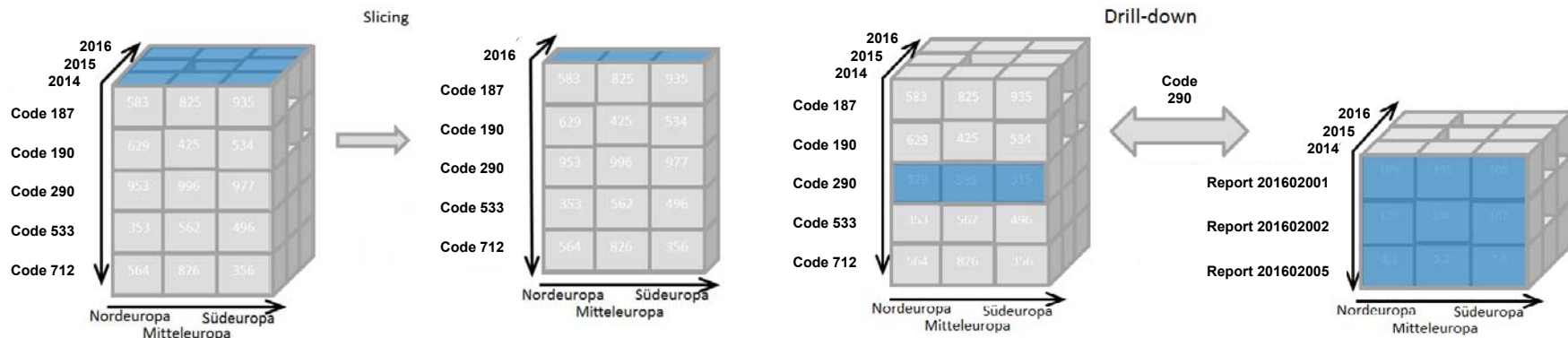
- Online analytical processing (OLAP) enables users to analyze multidimensional data interactively from multiple perspectives
- An OLAP cube refers to an multi-dimensional dataset, not limited to three dimensions technically but often visualized three-dimensional.



- Business intelligence (BI) encompasses a multitude of strategies and technologies for data analysis. OLAP is the technique used for our BI-system

Excursus: The OLAP cube offers three analytical operations

1. Slicing – Creation of a sub cube with one dimension less than before
2. Dicing – Creation of a sub cube with limited values but same dimensions
3. Drill Down and Drill Up – Navigation along the data levels, i.e. from most aggregated (up) to most detailed (down)



New approach for processing survey reports - SIMBA

Current Report Processing	Future Report Processing using the new system SIMBA
In general, manual processing of each reporting line	Focusing on invalid and implausible reports using a dashboard approach
Data validation by staff	Data validation by system (automated plausibility checks)
Various processing programs and data bases per section	Integrated platform and frontend for report processing for all external statistics micro data
Division of labour per reporting form	Focus on all external economic activities of a reporter instead of single reporting forms
	Dynamic crosstab analyses for transactions & stocks
	Plausibility editor to allow power users adding or modifying plausibility checks independent from support of the IT staff
	One face to the reporter – only one Bundesbank employee responsible for one reporting unit

Planned SIMBA dashboard for report processing

SIMBA Dashboard

Anzeigevariante: Klassifizierung:

Zeitraum: 09 / 2016 /

Meldenummer:

Sektor: Plausi: Fehlerkat.:

Branche:

ISIN:

Transaktionen: Bestände Z5: Bestände K3/K4:

Z5a 1 // Pos: 62, 65
Zeitraum: 12/2013 - 12/2014 ✕

Z5a 2 // Pos: 84
Zeitraum: 12/2013 - 12/2014 ✕

Z4 KV // KZA: 262, 289, 789 // BA: 4
Zeitraum: 12/2013 - 12/2014 ✕

K4 // Pos: 37, 38
Zeitraum: 12/2013 ✕

Hinzufügen Speichern Anzeigen

Meldenummer	Meldepflichtiger	Branche	Transaktionen			Z10			Bestände Z5			Bestände K3/K4		
00002382	Süddeutsche Versicherung AG	6510	203 (12)	18 (3)	5	56	6	2	12	3		25	3	
00005468	SIMBA IT-Solutions GmbH	1300	901 (17)	13 (1)	4				3 (1)	1 (1)		3	1	
00007654	Reiser KGaA	1200	112	26	4									
00009811	Mettigel GmbH & Co. KG	1000	516	14	3	2			9	2				
00015463	Cyberdyne Productions SE	2800	119 / 23	11 / 2		7 / 1		1	32 / 4	1	1	16 / 2	2 / 1	1
00018467	Kinvara Sportsinnovation AG	1400	836 / 14	2 / 1	2				42 / 6	3 / 3				
00022239	Bankhaus Sonneborn - Hot Assets KG	6419	967	8		21	2		27	4	2	21	4	
00024687	Seitenscheitel Kosmetik KG	2000	407	7					12		1			
00031871	Bölkstoff Brauerei GmbH	1100	122	3					13					
00052384	Fiedel Instrumentenbau GmbH	1600	28	1					6					
00063125	Weingut Schluckspecht KG	0100	79											
00084665	Kaventsmann Schifffahrts GmbH	5000	132	3		8			54	6				
00099123	Scharf Optik GmbH & Co. KG	2675	101			13	3	1						
00146233	Hartenberger Verkehrs GmbH	8480	56	4										
00198883	Einrad & Sturz KGaA	3090	12		4									
00245682	Kaiserwetter Technologie AG	2700	241	11		17			16	2				
00315489	Charlie-Bravo International SE	3030	1.184	15					51			36		
00373323	Salto Mortale e.V.	9310	16			16								
00442468	Gemeinnützige Wohnungsbau GmbH	6801	5											

Jens Walter, Joachim Hösch

6/21/2018

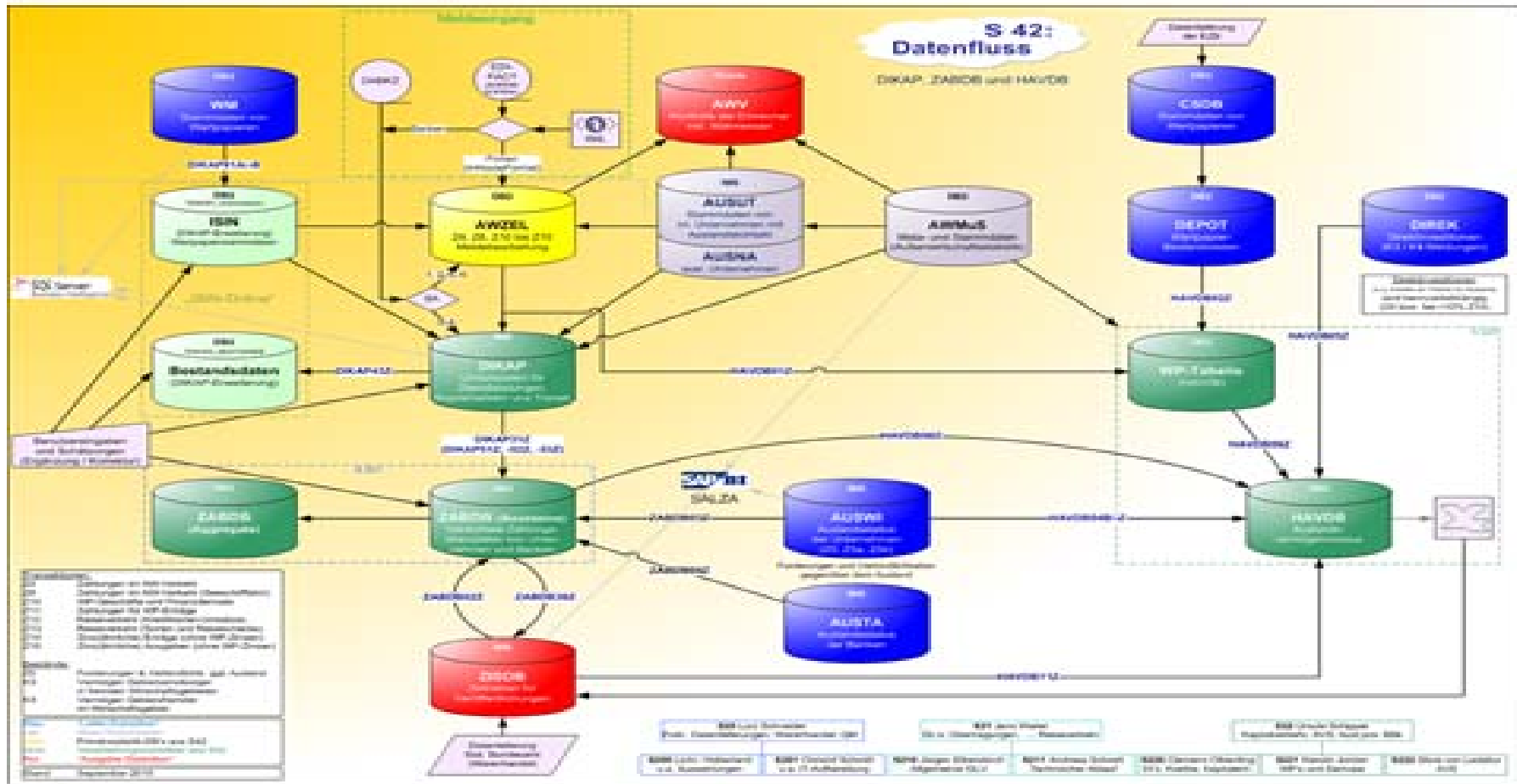
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SIMBA approach and objectives

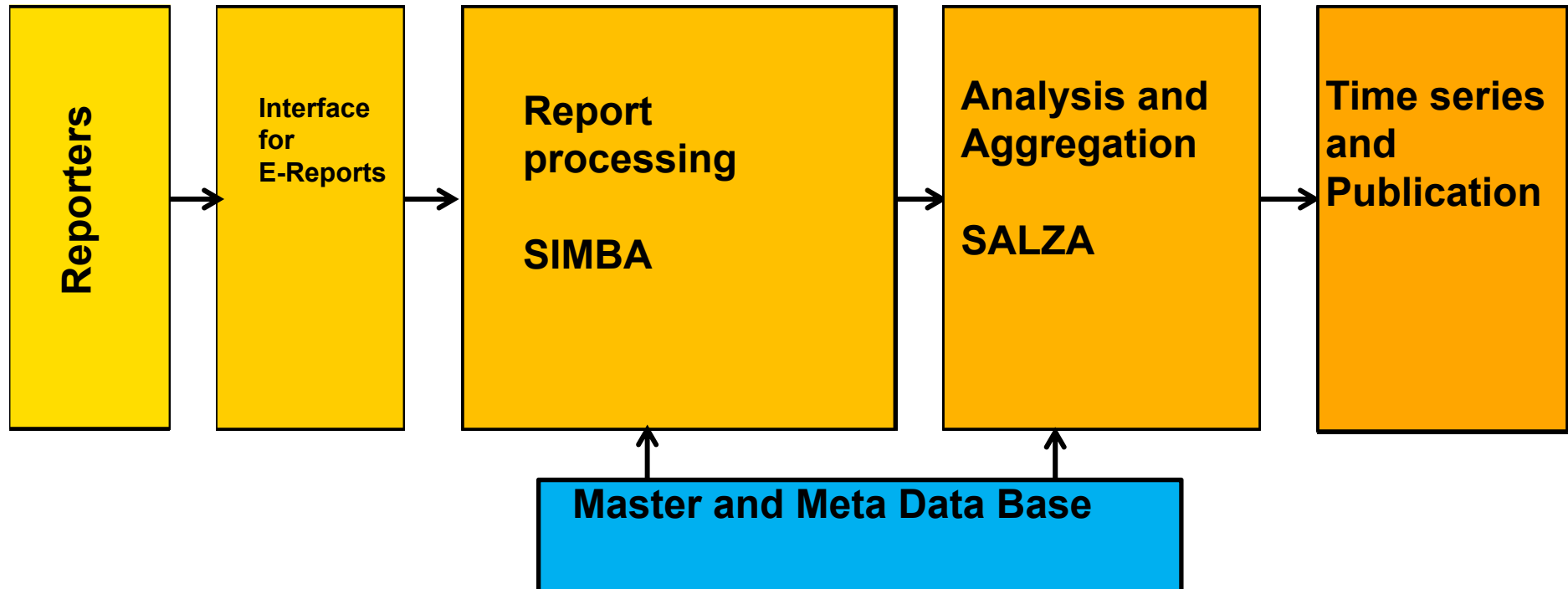
- Integrated platform and frontend for all BOP micro data
- Improve data consistency and therefore quality by a holistic view of a reporting unit
- Crosstab checks and analyses for transactions & stocks
- Process automation
 - System-supported plausibility checks
 - At a future stage, auto-correction functionality ideally with machine learned data
- Not only a new IT system, but process improvement by implementing traffic lights:
 - Intuitive status visualisation of a report
 - Automated work-in-process (WIP) overviews
 - Automatic processing of flawless and plausible reports
- Future extension of the base system to allow secure communication with reporters and a reminder mechanism for missing reports



Summary: Where we came from ...



Summary: ... and where we want to be.



.. a fully digitized process for the automated processing, integration and analysis of quality-assured primary and secondary statistical data. Online publication of the data supply with the users' option for customized data requests.



Thank you for your attention!

jens.walter@bundesbank.de



Jens Walter, Joachim Hösch

6/21/2018

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