SBN "Økonomisjefens dag":
Reporting capabilities and Roadmap in SAP HANA / S4 HANA

Hydro, Vækerø, 10.05.2017 – Peter Jacobsen, Skye Consulting
Peter Jacobsen

- ~20 years experience in SAP Consulting
- Advisor, Solution Architect and Project Manager related to S/4 HANA and Analytics
- 6 HANA projects:
  - BW on HANA w/VDM
  - Embedded BW on SoH (ECC 6.0)
  - SAP HANA Business Case / HANA DB Migration
  - S/4 HANA Finance / Simple Finance migration
  - S/4 HANA Finance implementation w/VDM
  - S/4 HANA Roadmap / Business Case
- 10+ years experience in BI/BW and Analytics
- Certified SAP FI/CO consultant
Short introduction Skye

- Scandinavian consultant company, owned by the employees
- Founded in 2010
- More than 100 experienced consultants supporting our customers every day with SAP, UX, IoT, Blockchain, digitalization etc.
- SAP Partner: Service, Build and Sell
- Other partnerships: IBM, Kofax, Basis Consulting, Attensi ++
- HQ in Kolbotn, Offices in Stord, Gothenburg and Stockholm
Agenda

• Introduction to reporting capabilities in SAP HANA (the big picture)
• S/4 HANA Analytics, use cases and technology
  – Recommendations, when and how?
• BW & BW/4HANA – use cases and technology
  – Recommendations, when and how?
• Q&A
Evolution in reporting

From sense and respond to predict and act to optimize and be the best

User Engagement vs. Maturity of Analytics Capabilities

- Raw Data
- Cleaned Data
- Standard Reports & OLAP
- Ad Hoc Reports
- Agile Visualization
- Self Service BI
- Predictive Analysis
- Predictive Modeling

What happened?
What will happen?
What is the best that could happen?

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Introduction SAP HANA reporting – the big picture

SAP Public Cloud Products
- Fieldglass
- Concur
- Ariba
- SuccessFactors

Business Objects (LaunchPad)
- Fiori
- Lumira / DS
- WebI ++

SAP GUI

ERP

SAP Cloud Platform
- Extension
- (Modification)
- Integration

3rd party cloud

SAP BW (BW 4/HANA)

SAP BW (S/4 HANA)

HANA Platform

HANA Views

Core Data Serv. (CDS)

BPC

Embell. BW

HANA "Native"

HANA Views

WebIDE, IOT, HCI, Portal ++

HANA DB

SAP GUI

SAP GW (Fiori)

Business Objects (LaunchPad)

Hana Views

"Big Data"

Hadoop

Vora

Ariba

WebI++

SAP GUI

SAP BW (S/4 HANA)

HANA Platform

HANA Views

"Big Data"

Hadoop

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Ariba

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SAP BW (S/4 HANA)

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Ariba

WebI++
Is SAP BW dead?

- SAP Business Warehouse is the **strategic solution for Enterprise Data Warehousing**, now expanded with native SAP HANA EDW
- SAP’s VDMs such as **SAP S/4HANA embedded analytics are targeting real-time operational reporting** in the context of the underlying S/4HANA system
SAP S/4HANA embedded analytics + SAP BW on SAP HANA or SAP BW/4HANA

SAP BW on SAP HANA or SAP BW/4HANA

- Strategic and tactical
- Integration, harmonization, crossystem consistency
- Consumption
- Planning Platform
- Multi-sourced data
- Preconfigured content
- Data lifecycle
- Data governance
- Complete analytical suite

SAP S/4HANA embedded analytics

- Operational data
- Real-time
- Lightweight modeling and consumption
- Extensible
- Uniform
- Basis for multiple embedded use cases
- Model reuse in analytical applications
- Lightweight planning solutions

All analytics requirements fulfilled with one unified solution

Data Integration Scenarios are possible in multiple hybrid system setups
S/4HANA Embedded Analytics

Procurement: Material order entry (an example)

Start transaction

- Enter material order
- Check budget overview
- Check average supplier delivery performance
- Review detail report
- Choose best supplier and complete material order entry

Analyze and predict

Complete transaction

All on one screen
Analytics with SAP S/4HANA

SAP Cloud for Analytics, SAP BusinessObjects BI, SAP Lumira

**Embedded Analytics**

**BUSINESS USERS**

- SMART BUSINESS COCKPITS
- MULTI-DIMENSIONAL REPORTS
- VIEW BROWSER
- ANALYTICAL Fiori APPS
- QUERY DESIGNER
- SAP Fiori KPI MODELER

**POWER USERS**

- ABAP FOR ECLIPSE

**DEVELOPERS**

- ABAP FOR ECLIPSE

**FRONT END**

- Spend of contract
- Incoming Sales Order
- PO Avg. Delivery Time
- Non-managed purchasing spend
- ...

**BACK END**

SAP S/4HANA Virtual Data Models

*CDS: Core Data Service*
SAP S/4HANA Embedded Analytics
Analytical SAP Fiori apps

Operational Processing
- Maintain Exchange Rates
- Clear Open Items Automatically
- Display G/L Account Line Items
- Display G/L Account Balances
- Post General Journal Entries

Reset Cleared Items
- Clear Open Items Automatically With Currency
- Clear Open Items Automatically For Ledger Group
- Transfer Postings for Cross-Company Code Transactions
- Verify Date Flow

Display Journal Entries
- Reverse Journal Entries Cross-Company Code
- Clear G/L Accounts For Ledger Group
- Post with Clearing Cross-Company Code
- Post with Clearing For Ledger Group
SAP S/4HANA Embedded Analytics
Multidimensional Reporting

Incoming Sales Orders

Navigation Panel

Dimensions

Columns

Available Fields

Data Analysis

Graphical Display

Query Information

Standard

* Exchange Rate Type

* Display Currency

Rows

Sales Organization

Yrs/No. of Creation

Account AssignmentID

ADT Value Days

Batch

Bill to Party

Bill date order

Billing Block

Billing Block Status

Billing price

Billing plan number

Billing Status

Business Area

C/C IKE to be billed

C/CC of Chck No

Chck No

Net Amount

Yrs/No. of Creation


Sales Organization

Yrs/No. of Creation


¥10

Dom. Sales Org DE

$ 875,51

¥10

Dom. Sales Org US

$ 17,605,01

Overall

Overall Result

$ 18,680,90

$ 49,832.71

$ 276,922.16

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KPI Modeling Apps

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SAP S/4HANA Embedded Analytics

View Browser (1610)

All CDS views
@Viewtype #CONSUMPTION, #BASIC, #COMPOSITE
S/4HANA Architecture
Accessing CDS Views in BI Tools

SAP BW Data Acquisition Connector

Select an SAP Business Warehouse data source

View: InfoAreas

2CZCFIARKSEGMO1

10.79.26.61:S4H:S4H_DEMO:00:100:EN

Market Segments with Site [2CZCFIAR]

Data Access using Embedded BW Transient Provider:
SAP BusinessObjects Analysis
SAP BusinessObjects Design Studio

New Application

Application Name
Z SAMPLE DEMO

Basic Analysis Layout

Template

Standard
Blank
Basic Analysis Layout

Select Data Source

Search for: 2CZCFIMARKSEGMQ1

2CZCFIMARKSEGMQ1 - Market Segments with Site

1 results found (1 milliseconds)

OK Cancel

Analytic Components (10)
Chart
Crosstab
Dimension Filter
Basic Components (16)
Button
Chart Type Picker
Checkbox
Container Components (6)
Grid Layout
Pagebook
Panel
Outline

type filter text

Body Details
Body Navigation
Navigation Panel
Body Details Cont
### Changes in table structures and technology

<table>
<thead>
<tr>
<th></th>
<th>ECC 6.0 on any DB</th>
<th>ECC 6.0 on HANA (SoH)</th>
<th>S/4 HANA Finance Add-on</th>
<th>S/4 HANA “Core” Enterprise Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Data Services (CDS)</td>
<td>Not supported</td>
<td>Not supported</td>
<td>Partly (1605)</td>
<td>Supported (core func)</td>
</tr>
<tr>
<td>HANA (“Live”) Calc. views</td>
<td>Not supported</td>
<td>Supported</td>
<td>Supported</td>
<td>Supported (not used)</td>
</tr>
<tr>
<td>Finance Data model</td>
<td>Classic</td>
<td>Classic</td>
<td>New</td>
<td>New</td>
</tr>
<tr>
<td>Logistics Data model</td>
<td>Classic</td>
<td>Classic</td>
<td>Classic</td>
<td>New</td>
</tr>
<tr>
<td>Future proof to invest in reporting development?</td>
<td><strong>NO</strong>* (change in technology &amp; Data Model)</td>
<td><strong>NO</strong>* (change in technology &amp; Data Model)</td>
<td><strong>NO</strong>* (change in technology &amp; Data Model)</td>
<td><strong>YES</strong>* (*still areas in remaining in compability mode)</td>
</tr>
</tbody>
</table>
SAP S/4HANA Database & Table Structures
Prepare your data structures for new real-time requirements, big data and high throughput

Sales
Document
Header incl. Status
Item incl. Status
Indices
Material Values
Valuation in MM or Valuation in ML

Finance
Document
Header Item
Totals
Indices

Material Quantities
Aggregates
History

Hybrid: Master Data with Valuated Stock
Valuation in MM
Valuation in ML

Hybrid: Master Data with Stock Aggregates
Inventory movements

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SAP S/4HANA Database & Table Structures

Prepare your data structures for new real-time requirements, big data and high throughput

Sales

Document

- Header incl. Status
  - VBAK
  - LIKP
  - VBRK

- Item incl. Status
  - VBAP
  - KIPS
  - VBRP

Finance

Document

- Header
  - BKPF
  - BSEG

- Item
  - ACDSCA
  - PAAT_DOC_1
  - PAAT_YOCA

Material Values

On the fly aggregation and compatibility views for indices and obsolete tables

Material Quantities

Used for Master Data only
- MBEW
- EBEW
- GBEW
- OBEW

ML Valuation
- CKMLCR
- CKMLPP

Material Document
- MATDOC
- MATDOC_EXTRACT

Used for Master Data only
- MCHB
- MARC
- MARD
- MSKU
- MSKA
- MKOL
- MSPR
- MSLB
SAP S/4HANA embedded analytics + SAP BW on SAP HANA or SAP BW/4HANA

SAP BW on SAP HANA or SAP BW/4HANA
- Strategic and tactical
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Data Integration Scenarios are possible in multiple hybrid system setups
Classic BW Example

• EDW architecture with a staging/Write optimized layer
• Several levels with transformations and business logic
• Reporting layer.
SAP BW/4HANA...
- a new (innovation) code line
- not part of and does not depend on a NetWeaver delivery
- based on the ABAP application server and SAP HANA
- runs on premise or in the cloud
- not the legal successor of SAP BW powered by SAP HANA
- the “logical successor” of SAP BW powered by SAP HANA
Simplified and flexible modelling

- Virtual Data Marts
- Data Marts
- Integrated DWH
- Raw DWH
- Staging
- Source

Mandatory layer

- Virtual Data Marts
- Data Marts
- Integrated DWH
- Raw DWH
- Staging
- Source

Optional layers depended on required business and service level

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New modelling objects in BW/4HANA

- Number of Modelling object types reduced from 10 to 4
- No complex data structures (extended star schema)
- Field or InfoObject based Modelling
- Greater control of data persistency and virtualization
- Support for external, structured and unstructured data
<table>
<thead>
<tr>
<th>New BI Front-end tools</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Data Discovery &amp; Analysis</strong></td>
</tr>
<tr>
<td><strong>Dashboards &amp; Applications</strong></td>
</tr>
<tr>
<td><strong>Office Integration</strong></td>
</tr>
<tr>
<td><strong>Reporting</strong></td>
</tr>
</tbody>
</table>
SAP HANA DW – SQL based DWH

SAP HANA DW

- Web IDE (DevX)
- Power Designer

EIM Services
- SDI
- SDQ
- ESS

XS Advanced
- HDI

HALM*

DWF
- DDO
- DLM

MTA

GitHub

(.hdbcds / .hdbcalculationview / .hdbvirtualtable ...)

Deploy

Calculation Views (.hdbcalcview)

Data Mart Layer

DWH Layer

Virtual Access

Replicate
- ETL
- Streaming

ETL
- IBM DB2
- ORACLE
- MYSQL

ETL / SOA Load

Virtual Access

DB Cockpit

Consume / Access

FlowGraph (.hdbflowgraph)

Persisted Table (.hdbcds)

Raw Data Layer

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SAP HANA DW – Strategy

Planning and definition
2015

Execution and delivery
2016 - 2018

Vision

Analytics
(SAP BI Suite, Predictive, Planning)

SAP HANA DW

SAP Power Designer
SAP BW
SAP EIM
SAP HANA Plattform
SAP HANA Vora

SAP HANA Plattform

Market presence in data warehousing with a clear roadmap

Strong and simplified offering with tight integration

Convergence into one technology stack addressing BW and SQL-based DW needs

Analytics
(SAP BI Suite, Predictive, Planning)

Analytics
(SAP BI Suite, Predictive, Planning)

Analytics
(SAP BI Suite, Predictive, Planning)

SAP HANA DW

SAP Power Designer
SAP BW
SAP EIM
SAP HANA Plattform
SAP HANA Vora

DW Modeling
DW ETL & DM
Mixed Scenarios

Create Synergies between SAP BW and SQL based DWs
- Combine both approaches on one platform
- Simplification – reduce data movement
- Consistency – minimize data redundancy

Modern, flexible Data Warehousing
- Strong virtualization capabilities of SAP HANA
- Mature data management capabilities of SAP BW on HANA
- Create flexible data models that can adapt to changing requirements

Openness
- Connect any frontend solution to SAP BW
- Directly connect SQL Tools to SAP BW
- Simplify consumption of external data in SAP BW

SAP HANA

Mixed Architecture

BI Clients

Sources

HANA Modeling

BW Modeling
Key Take Away

- S/4HANA Embedded Analytics = Transactions + Operational Reporting.
- Explore & understand the S/4HANA VDM. Extend public CDS views or build new ones. Check Query performance as you build the models.
- BusinessObjects tools (on-premise and cloud) can access S/4HANA VDM to create sophisticated visualization.
- BW is not dead! BW/4HANA is recommended for Enterprise Data Warehouse solution.
Additional Resources

- SAP Best Practices for analytics with SAP S/4HANA
  - https://rapid.sap.com/bp/BP_S4H_ANA
- S/4 HANA Analytics Learning Plan (eLearning)
  - https://jam4.sapjam.com/wiki/show/A9GZcn67ol0BXZMf9F2jGy?_lightbox=true
  - SAP Training S4H410: Modelling with CDS Views
- SAP HANA Academy: S/4HANA Core Data Services
  - https://www.youtube.com/watch?v=1wS7u-8h-0&list=PLkzo92owKnVxO-jWmOWugBy_9WQiq8wLc
- CDS Reference Guide
- Introducing SAP S/4HANA Embedded Analytics from SAP PRESS.