SAP Enterprise Information Management Overview and Roadmap

Paul Medaille
March, 2016

SAP Analytics – Overview Webinars

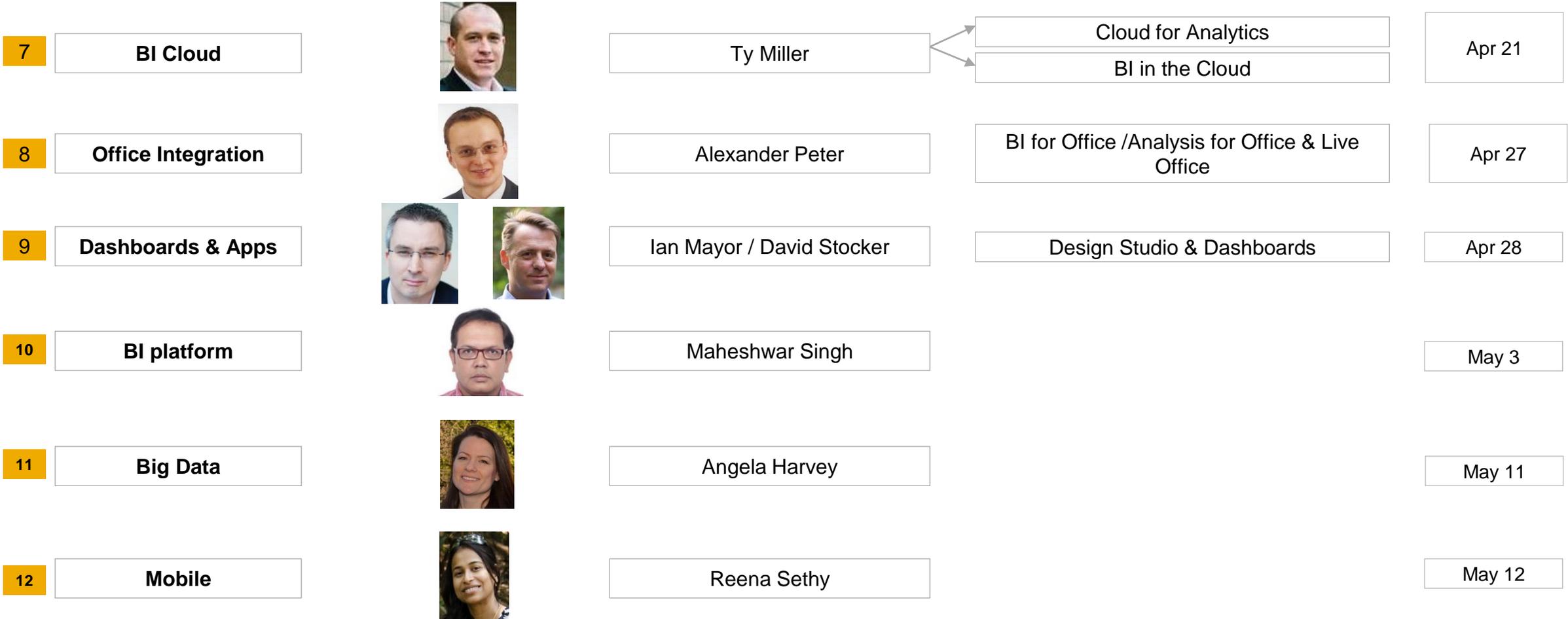|			
SAP Analytics – Overview		Jayne Landry	Mar 16
SAP BI – Overview & Roadmap		Olivier Duvelleroy / Saurabh Abhyankar	Mar 23
SAP EPM – Overview & Roadmap		Kirk Anderson	Mar 24
SAP EIM – Overview & Roadmap		**Paul Medaille**	**Mar 30**
SAP Predictive Analytics – Overview & Roadmap		Sven Bauszus	Mar 31
SAP GRC – Overview & Roadmap		Kevin McCollom	Apr 13

SAP Analytics Portfolio - BI Solutions 1/2

1	**Reporting**	Intro by Merlijn Ekkel	Crystal Reports; Nina Bao / Donald Guo	Mar 29
			Web Intelligence Gregory Botticchio	
2	**Adopting BI 4.1 /4.2**	Merlijn Ekkel		Apr 5
3	**What's new in BI 4.2**	Merlijn Ekkel		Apr 7
4	**Analytics Services Portfolio**	Markus Schunter		Apr 12
5	**Self Service BI**	Ina Felsheim		Apr 14
6	**Discovery & Analysis**	Intro by Saurabh Abhyankar	Lumira; Francois Imberton	Apr 20
			Pred. Analytics, Pierpaolo Vezzosi	

SAP Analytics Portfolio - BI Solutions 2/2

7	**BI Cloud**		Ty Miller	Cloud for Analytics / BI in the Cloud	Apr 21
8	**Office Integration**		Alexander Peter	BI for Office /Analysis for Office & Live Office	Apr 27
9	**Dashboards & Apps**		Ian Mayor / David Stocker	Design Studio & Dashboards	Apr 28
10	**BI platform**		Maheshwar Singh		May 3
11	**Big Data**		Angela Harvey		May 11
12	**Mobile**		Reena Sethy		May 12

SAP Analytics Portfolio – Predictive Analytics deep dives

SAP Predictive Analytics An automated process, a technological breakthrough to produce predictive results in operational IT environments	Laurent Tessier	Date tbd
SAP Predictive Analytics Why massive modeling is important?	Hervé Kauffmann	Date tbd
SAP Predictive Analytics - Roadmap session What's new & what's next	Ashish Morzaria	Date tbd
Predictive Data Preparation	Abdel Dadouche	Date tbd
SAP Predictive Analytics How to become a data scientist in no time	Ashish Morzaria	Date tbd

Webinars, Recordings & Presentations

available @

http:sap.com/k4u

© 2016 SAP SE or an SAP affiliate company. All rights reserved.

Introduction to EIM

MISSION

"Ensure trusted information is ready at the point of impact to run and innovate the business."

Companies that can unlock value of information from data are winning

Mobile

Big Data and Internet of Things

1010
01011
01011
001   01001

Information Ready for Action

Social

Cloud

SAP solutions for enterprise information management
Information ready for action

Analytics

Business Processes

Big Data & IoT

Compliance

CLEANSE & MONITOR

INTEGRATE

MANAGE

UNDERSTAND & ARCHITECT

ASSOCIATE

ARCHIVE

GOVERN

Before   After

Data Quality

Data Integration

A

D   B

C

Master Data Management

Data Discovery

Content Management

Information Lifecycle Management

1010
01011
001   01011
01001

EIM for Analytics

SAP PowerDesigner

Capture

Define current environment
Document Existing Systems

Describe the interaction
Model business & technical artifacts with related metadata

Design
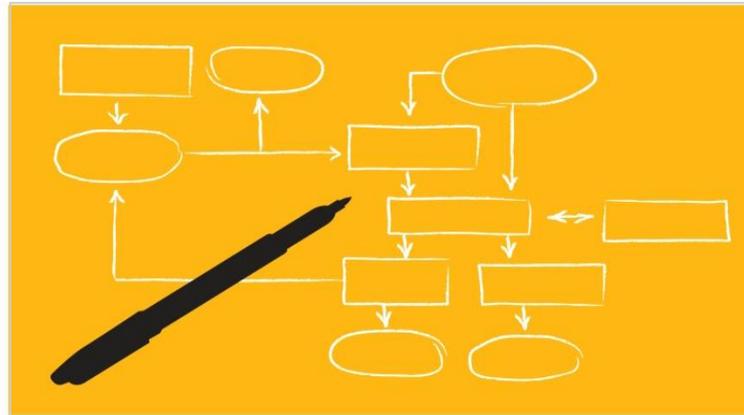
Design & plan for future
"As-is" and "to-be" modeling

Streamline implementation
Generate Change

Integrate all aspects
Tie business & technical viewpoints across the enterprise

Communicate

Realize impact of change
Graphical, bi-directional understanding from architecture to execution

Collaborate
Central repository to communicate, report and share

Integrated Information, Business and Technology Architecture

Glossary for Unified Business Language

Fully Integrated Business and Technology Models

Enterprise Modeling
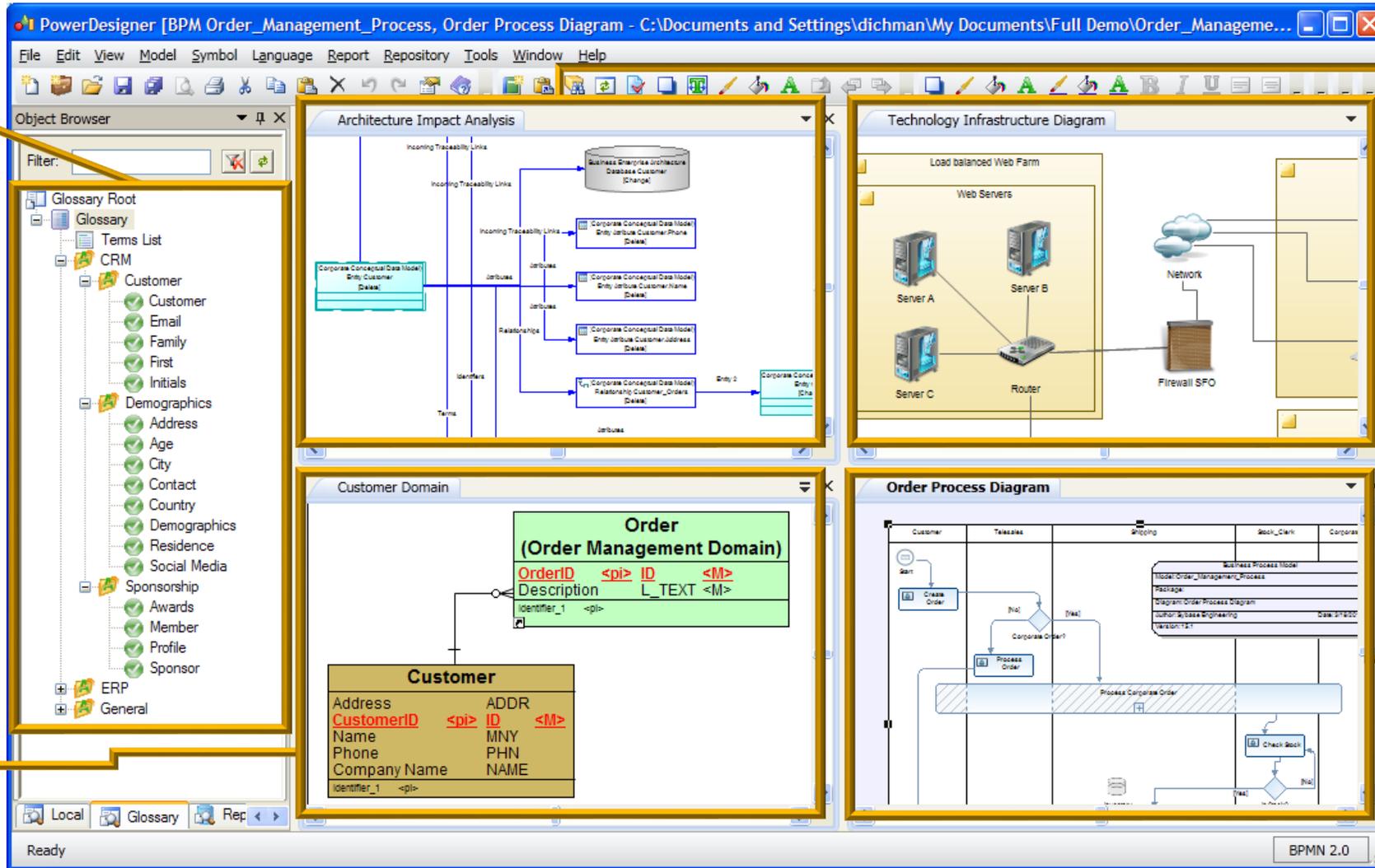
Architecture Impact Analysis

Application & Technology Modeling

Aligned Business & Technical Modeling

Data Services and Information Steward For Data Warehousing and Business Analytics

Data Warehousing and Business Intelligence

Profiling

Extract, Cleanse, De-duplicate

Data Quality Monitoring

Application / Data Sources

DW / DM / HANA

BI Platform

- Ensure right data into the DW for trusted BI
- EIM Solutions to integrate and harmonize data quickly, easily and accurately

SAP Data Services

Data Integration, Data Quality, Data Profiling and Text Analytics

SAP BW

SAP Business Suite

Oracle apps

SAP HANA

Databases

Files / Unstructured text documents

Web Services, JMS, XML

batch / real time

SAP Data Services

One consistent UI

Unified Metadata

One Runtime Architecture & Services

ETL

Data Quality

Profiling

Text Analytics

One Administration Environment
(Scheduling, Security, User Management)

batch / real time

SAP BW

SAP Business Suite

Oracle apps

SAP HANA

Databases

Files

Web Services, JMS, XML

Sources

Profiling / Integration / Data Quality / Entity Extraction

Targets

1 Access and Extract structured and unstructured data, SAP and non-SAP, in batch or real-time

2 Transform, cleanse, match and consolidate data

3 Scale from single to multiple servers for all volumes of data

4 Support wide variety of SAP and non-SAP targets

SAP Data Services: Broadens Enterprise Data Access
Long history of providing connectivity to different sources

Databases

- HANA
  - tables
  - views
- Oracle
- DB2
- Sybase ASE / IQ
- SQL Server
- Informix
- MySQL
- Teradata
- JDBC/ODBC
- Netezza
- HP Neoview
- MongoDB
- Google Big Query
- HADOOP Hive

Applications

- SAP Bus Suite
  - Extractors
  - ABAP
  - BAPI
  - Idoc
  - RFC Direct read
- SAP NW BW
- SAP Rep Server
- SAP LT Rep Srvr
- SuccessFactors
- JD Edwards
- Oracle Apps
- PeopleSoft
- Siebel
- Salesforce.com

Files/Transport

- Text (delimited /fixed width)
- EBCDIC
- XML
- Cobol
- Odata
- Excel
- HTTP/HTTPS
- FTP/sFTP/SCP
- JMS
- Web Services
  - WSDL, WADL
  - SOAP, REST, JSON
  - oData
- HADOOP - HDFS
- VCF*
- ESRI Shapefile

Unstructured Content

- Extracts context from any text or binary file types (docs, pdfs, ppts…)
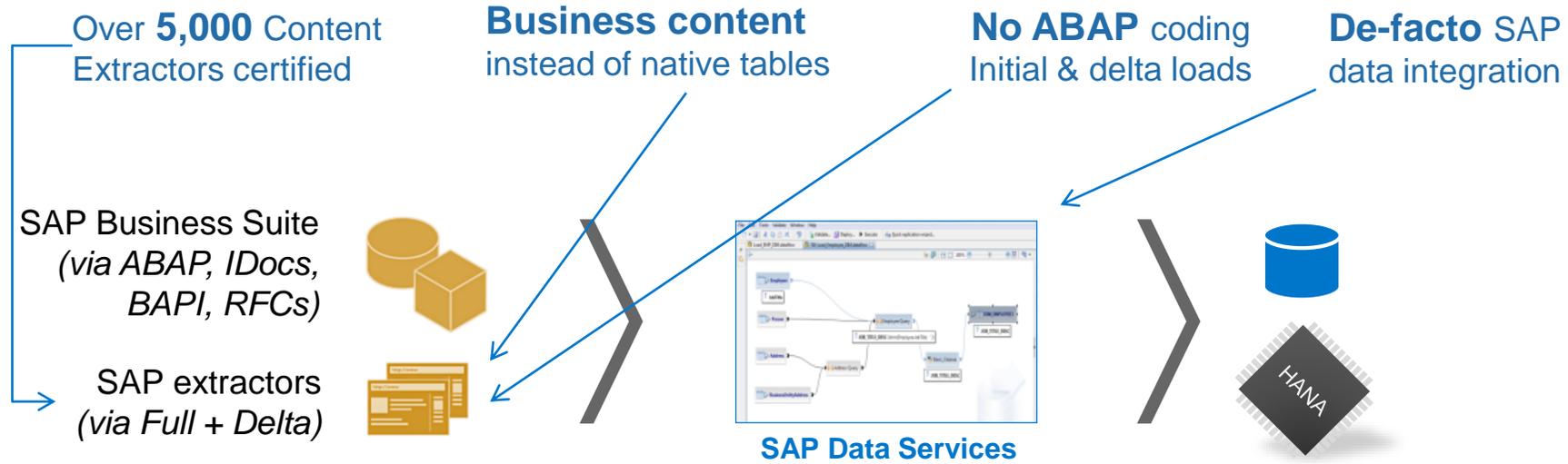- Understands context in 31 languages

Mainframe (with Partner)

- ADABAS
- ISAM
- VSAM
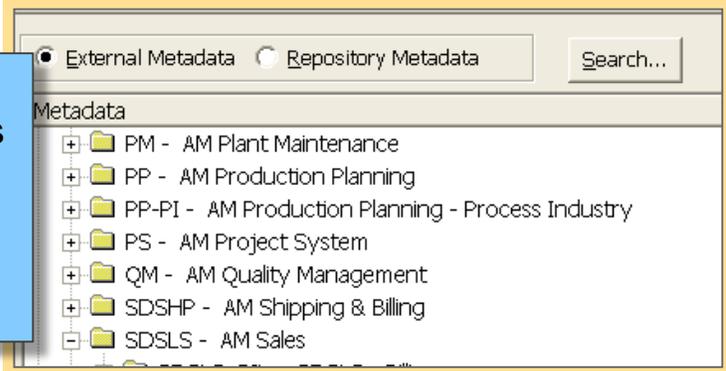- Enscribe
- IMS/DB
- RMS
- Both direct and changed data

SAP Data Services Adapter Kit (SDK) simplifies building connectivity to any applications and Big Data sources

*Variant Call Format for storing gene sequence variations

Please refer to https://service.sap.com/sap/support/pam

Best Native Access to SAP Business Suite Applications

Over **5,000** Content Extractors certified

Business content instead of native tables

No ABAP coding Initial & delta loads

De-facto SAP data integration

SAP Business Suite *(via ABAP, IDocs, BAPI, RFCs)*

SAP extractors *(via Full + Delta)*

SAP Data Services

HANA

•Fully understands SAP application model and metadata

External Metadata   Repository Metadata   Search...

Metadata
- PM - AM Plant Maintenance
- PP - AM Production Planning
- PP-PI - AM Production Planning - Process Industry
- PS - AM Project System
- QM - AM Quality Management
- SDSHP - AM Shipping & Billing
- SDSLS - AM Sales

Local Object Library

Repository: DS_Repo_Local

Datastore	Usage	De
DS_Data		
SAP_DS		
SAP_Extractor		
Extractors		
"0CO_OM_CCA_1_d050767"(SAP_Extr...	0	
"0CO_OM_CCA_40_d050767"(SAP_Ext...	0	
"0CO_OM_CCA_9_d050767"(SAP_Extr...	1	
"0COSTELMNT_ATTR_d050767"(SAP E...	0	Co

•Fully able to leverage pre-built SAP Extractors
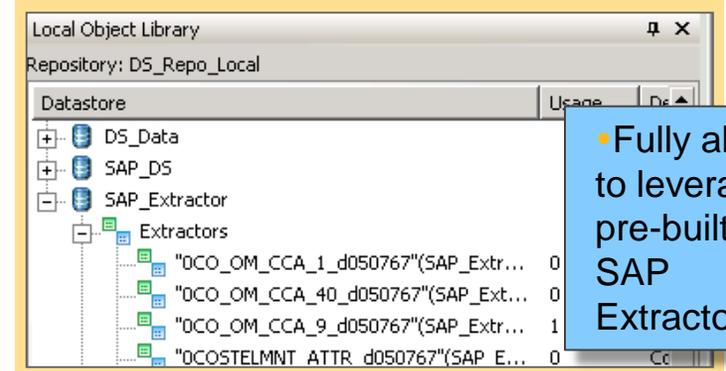
Solution **deployed within days** instead of months by large CPG and Hi-tech customers

Native Extraction and Understanding of Unstructured Text
Automatically identify the entities, facts, and feelings hidden within

2012 Toyota Highlander, 1G1JF27W8GJ178227. Policy

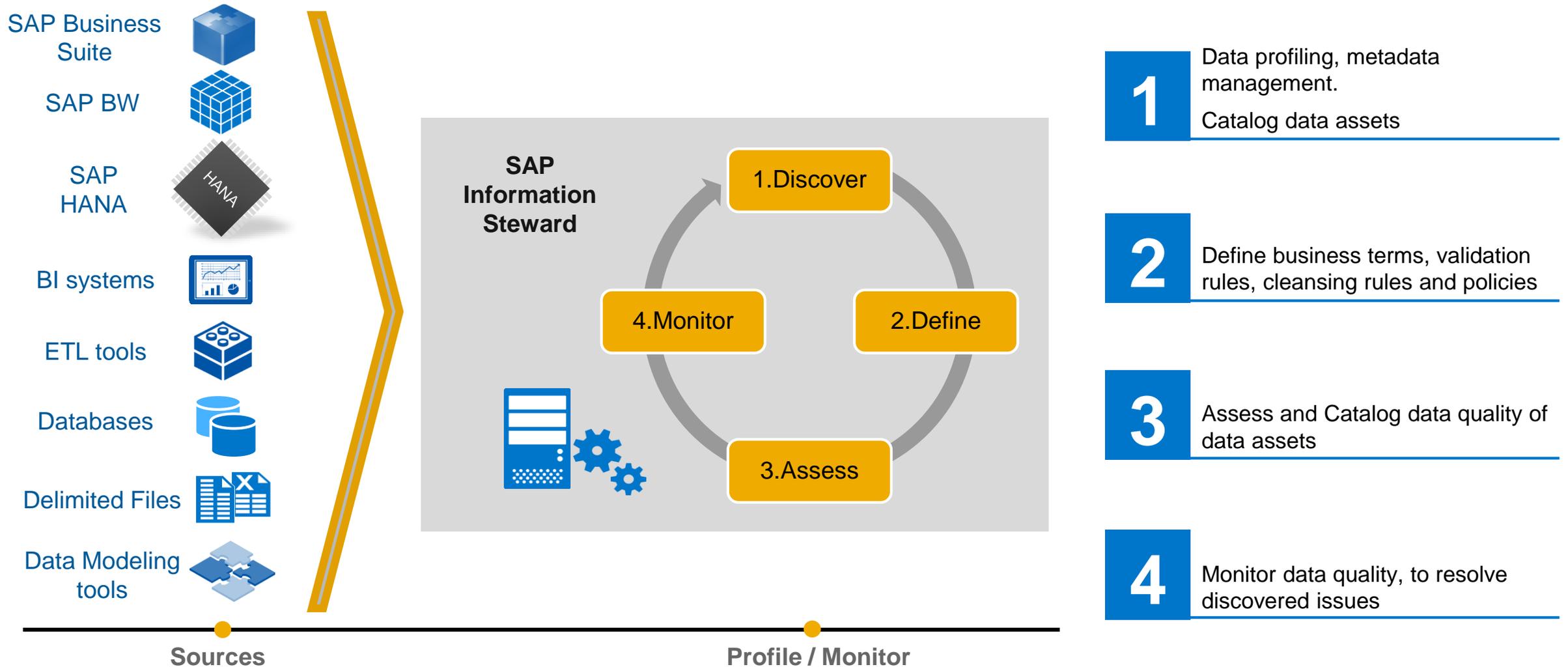#456-788-99. $500 deductible. Insured are William Thomas Snow

and Christine W. Snow. On 1/09/13, received via text message "In

accident! Need tow truck." and "Corner of Winter & Cross Rd". Dr.

Snow slid through a stop on the snowy road and hit the stop sign.

Significant damage to front of the car. He was unhappy at tow truck

response time. Contact wtsnow@medicalcenter.com or

651.772.1234. Advance Appraisals Inc. to come out at 8:30am

Monday to make further assessment.

Legend:
- DATE
- VEHICLE/LAND
- VEHICLE/VIN
- POLICY NUMBER (CUSTOM)
- CURRENCY
- ORGANIZATION/ COMMERCIAL
- TIME
- DAY
- NOUN_GROUP
- FACILITY/PATH
- SENTIMENT
- WEAK NEGATIVE SENTIMENT
- MAJOR PROBLEM
- PERSON
- REQUEST
- URL/EMAIL
- PHONE

Who, What, Where, When, How much, as well as Feelings

SAP Information Steward
Profile, Assess, Monitor, and Manage Data Quality Across the Enterprise

SAP Business Suite

SAP BW

SAP HANA

BI systems

ETL tools

Databases

Delimited Files

Data Modeling tools

Sources

Profile / Monitor

SAP Information Steward

1.Discover

4.Monitor

2.Define

3.Assess

1 Data profiling, metadata management.

Catalog data assets

2 Define business terms, validation rules, cleansing rules and policies

3 Assess and Catalog data quality of data assets

4 Monitor data quality, to resolve discovered issues

Profiling

Point-and-click data assessment with zero coding

• With full drill-down to record level

Validation Rules for Business Users

•One-click rule creation – business user friendly (no coding)

Visualization of Data Quality with Dashboard and Scorecards
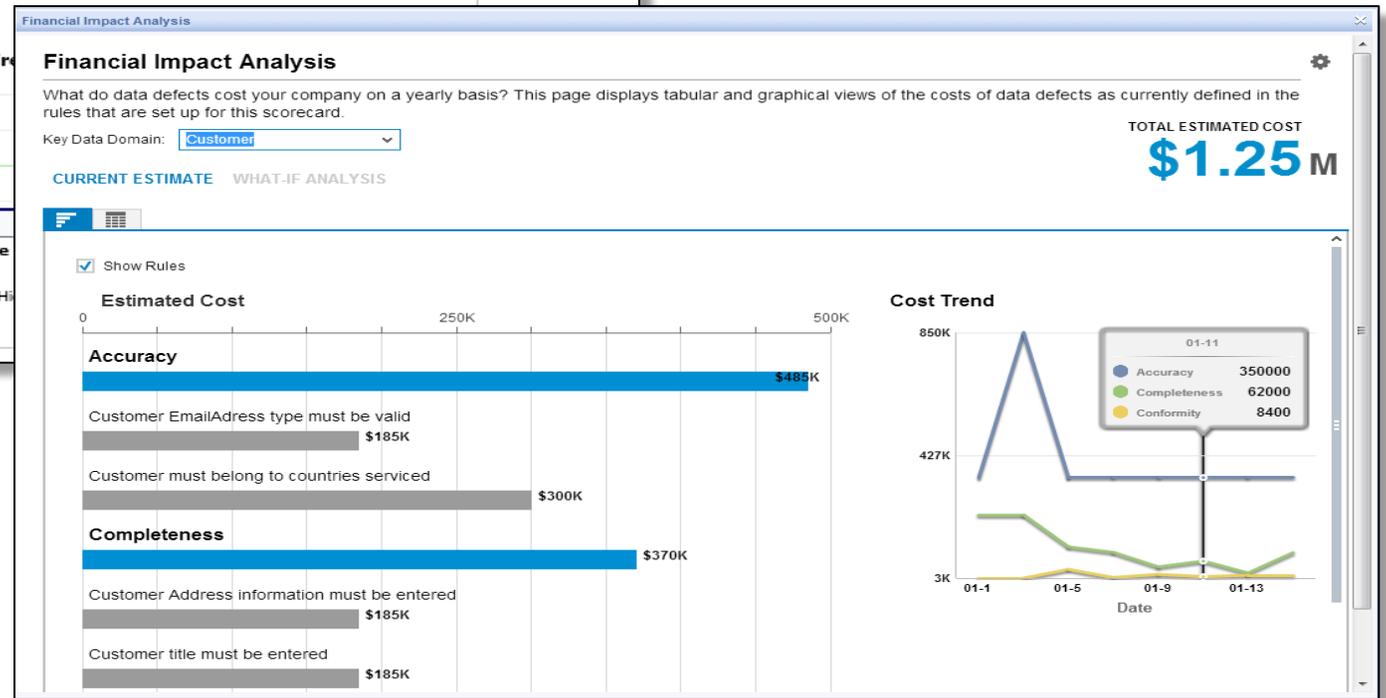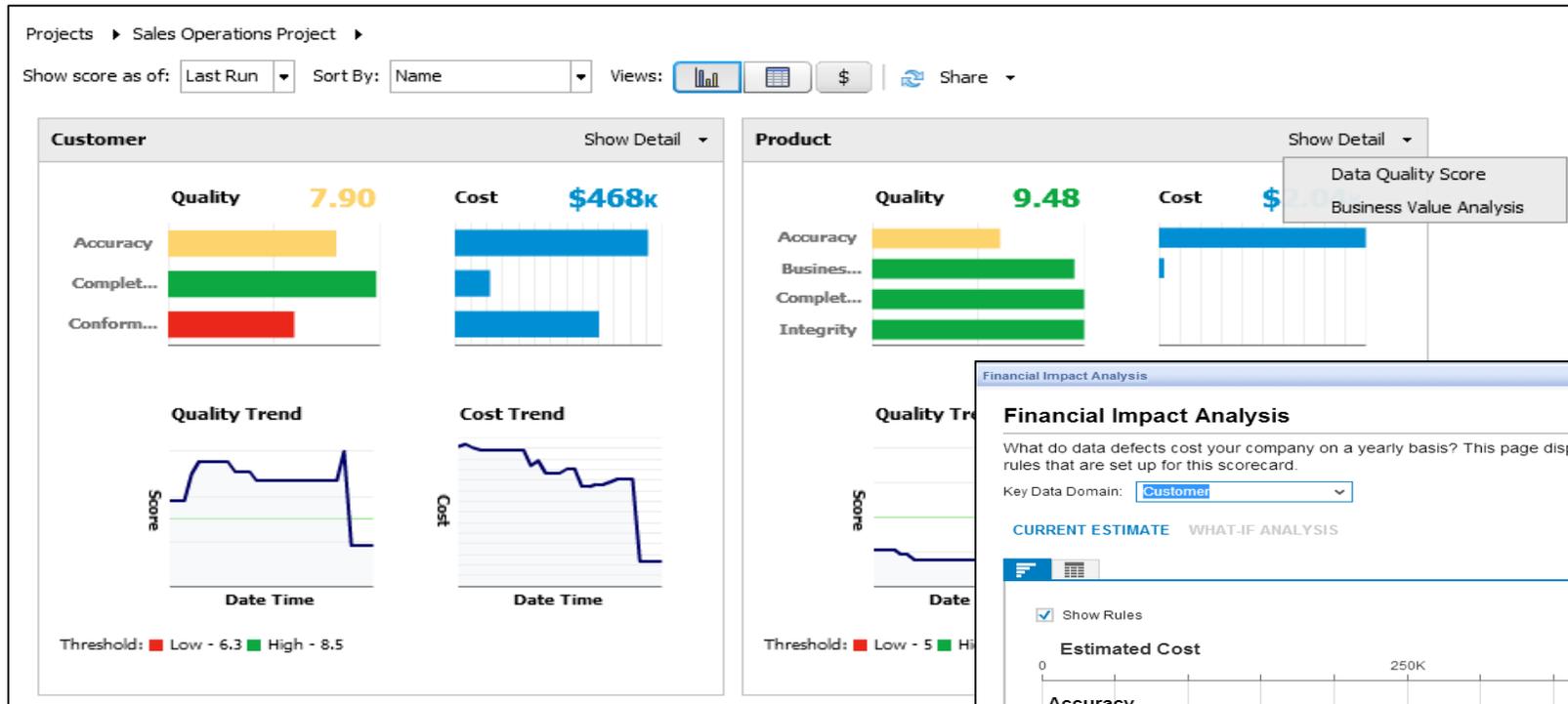
Data Lineage / Impact Analysis
Insights into data origins and data impact

Impact Analysis for data impact

Revenue Amt Func (Universe_Object)

< >   SAME AS   RELATED TO   **IMPACT**   LINEAGE   USER DEFINED

- BOERepo
  - Revenue Amt Func
    - InvoiceSummary
    - Revenue

- Users and Groups
  - 1 Users, 1 Groups

Puchase Order: Reconciliation (Report)

< >   SAME AS   RELATED TO   IMPACT   **LINEAGE**   USER DEFINED

purch   Zoom: - 90% +

- ORS RDS BI
  - .[Purchasing org. - Key]
  - Purchase Amount in PO Currency
  - Purchase Amount in PO Currency
  - Purchase Amount in PO Currency
  - Purchase Amount in PO Currency
  - Purchase Quantity in PO Unit
  - Puchase Order: Reconciliation
  - 0PURCH_ORG

- ORS RDS BW
  - Purchasing org.

BW_INFO_OBJECT

0PURCH_ORG

SAP BW System: vmw4895.wdf.sap.corp
Client: 200
System Number: 00
System: ORS RDS BI

Data Lineage for data origins

Typical Complex Data Landscape

Traditional IT Landscapes compartmentalize data and require too many moving parts

Transactions

Redundant ETL!

ETL

OperationalSystems

Multiple Data Sources

ETL

Aggregate

ETL

Streams

Staging DB

Is Data Accurate? Fresh? Reliable?
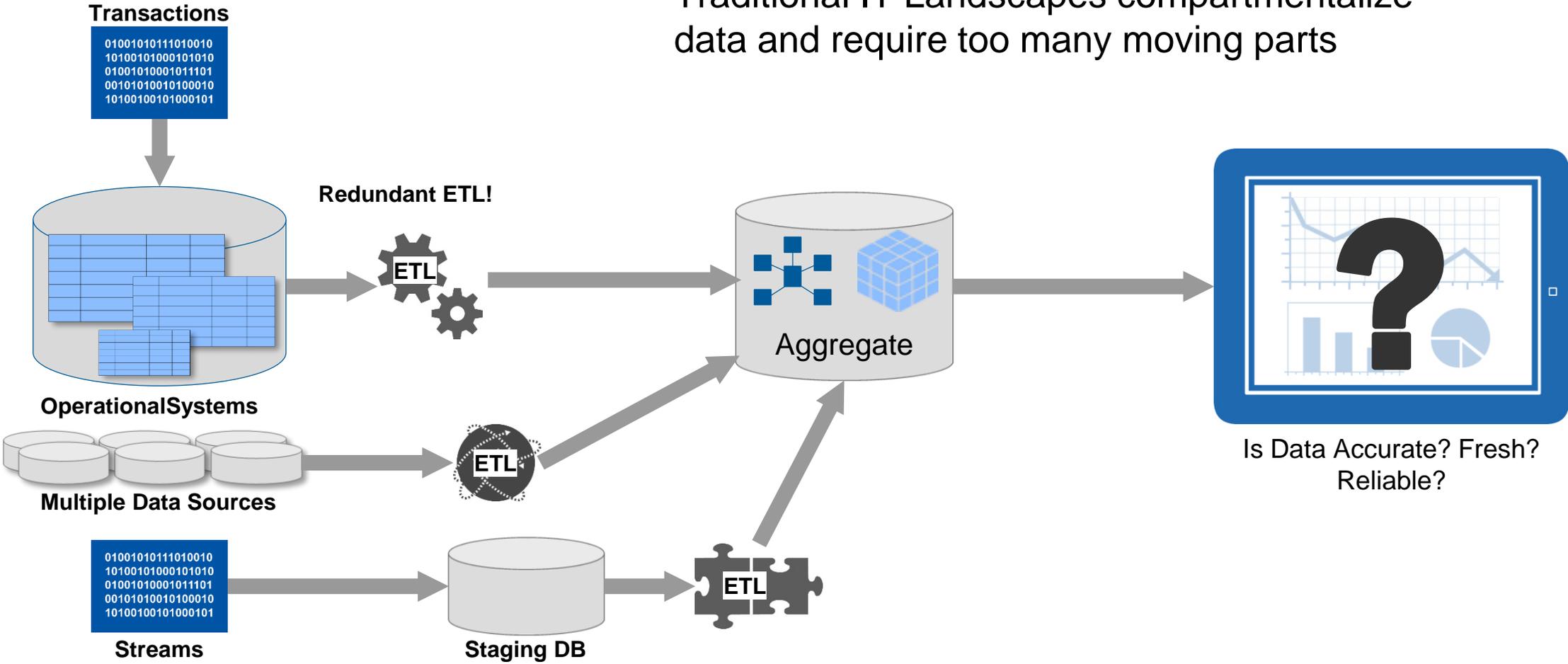
Simplified Landscape with SAP HANA

SAP HANA Enterprise Information Management simplifies your data handling

- Simplified landscapes, fewer moving parts
- Data management services built in to the platform – consumable by partner and customer applications
- One common modeling environment for provisioning and consuming data
- Open and extensible
  - Supports any shape, size, style of data integration
  - Open framework for new data sources
- Accelerated in-memory performance
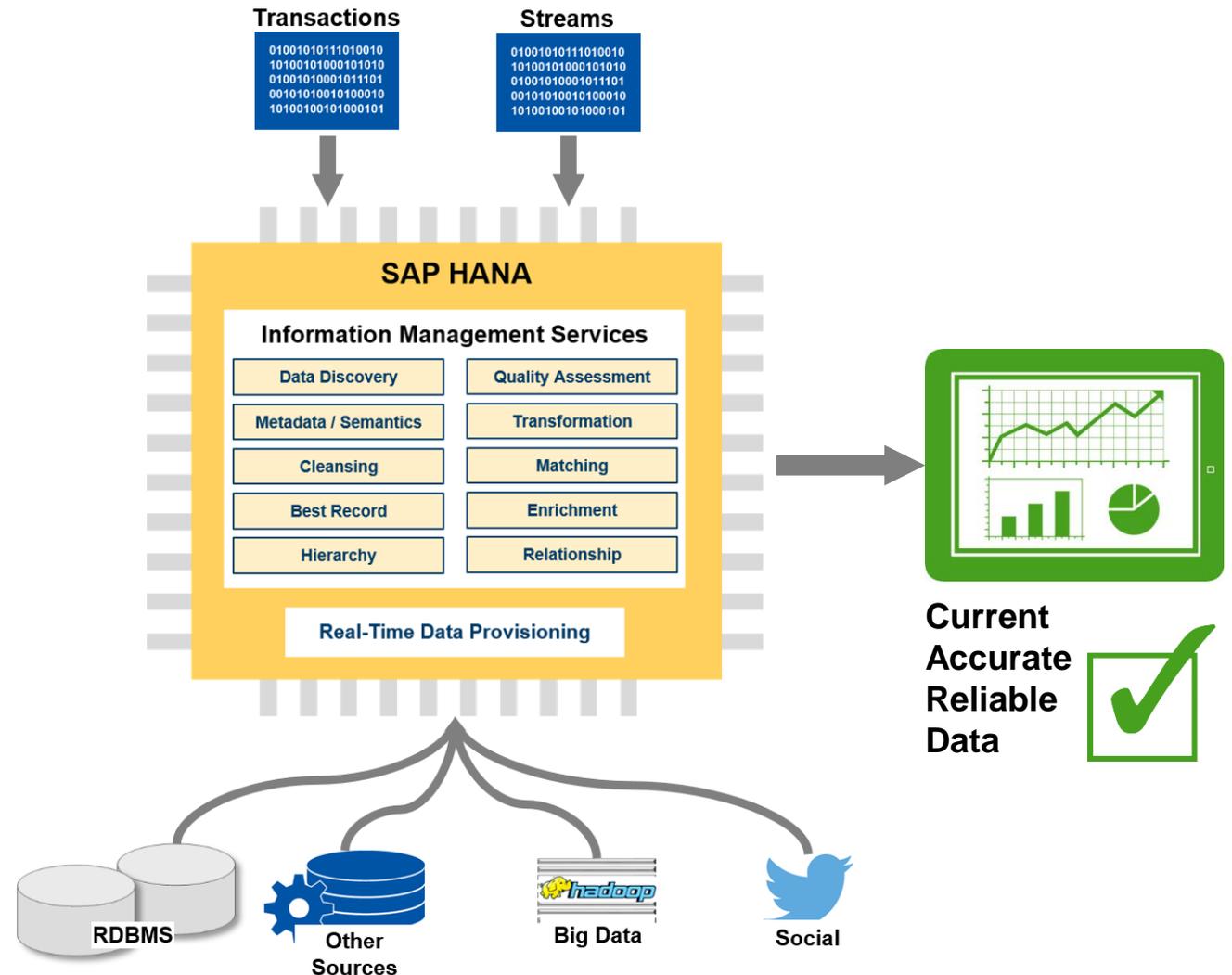
Information Management powered by SAP HANA

Agile Data Preparation

SAP HANA

Information Management Services

Data Discovery	DQ Assessment
Metadata & Semantics	Data Transformation
Cleansing	Matching
Best Record	3rd Party Enrichment
Hierarchy	Relationship

Real-time Data Provisioning

**On Premise and Cloud sources of data
Relational, semi-structured, and unstructured**

SAP HANA IM: Simplified landscape, lower TCO, in-memory speed, common metadata repository, integrated modeling environment, simple UI, for cloud or on premise.

SAP Agile Data Preparation: Self-service data preparation with a consumer-grade UX, IT oversight, and full data stewardship.

SAP HANA smart data quality: Address information management requirements (cleanse, match, best record, metadata and semantics, enrichment, etc.) with in-built HANA services; put the power to manage data within the platform and made accessible to the application.

SAP HANA smart data integration: Supports real-time replication, physical bulk/batch data movement, and federation in a unified framework. Support for both on-premise and cloud sources, with built-in adapters for common sources and an open and easily extensible SDK for ecosystem to offer custom adapters.

Sold together as **SAP HANA Information Management Option**

Data Preparation is Challenging and Time-Consuming

Today:

Data Preparation	Analysis	Publish /Share

Business analysts and data scientists spend most of their time on data preparation activities:

- Discovery
- Data Profiling
- Annotating

- Transformation
- Modeling
- Curation

- De-duplication
- Cleansing
- Enrichment

This has created the need for end-user oriented tools that can shorten the overall time for data preparation and improve the productivity of data scientists and business analysts

With Self-service Data Preparation

Data Preparation	Analysis	Publish /Share

Adapted from "Self-Service Data Preparation: The Next Big Market Disruption," Rita Sallam, Gartner, March 2015

SAP Agile Data Preparation
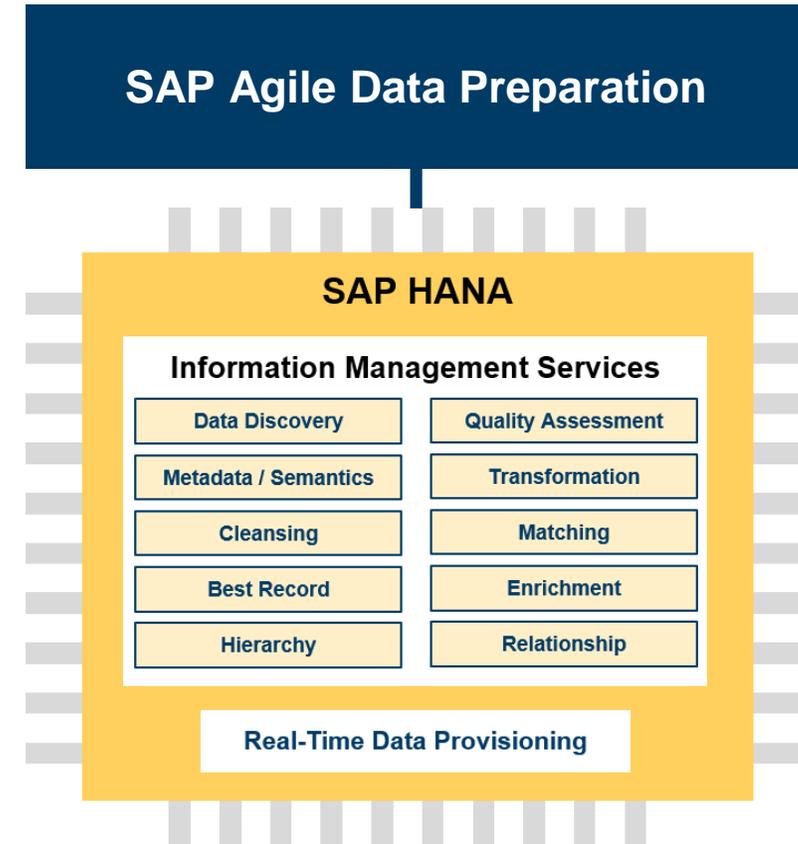*Powered by Smart Data Integration/Smart Data Quality*

Agile Data Preparation:

Consumer grade application that allows users to import, profile, merge, cleanse, de-duplicate and enrich any type of data to prepare for analysis in BI tools (Lumira, Tableau, Qlik, etc.). Gartner estimates that data analysts spend up to 80% of their time on data preparation.

Available on premise, and (soon) in the cloud; enables groups from teams to enterprises to take control of their data assets without IT bottleneck.
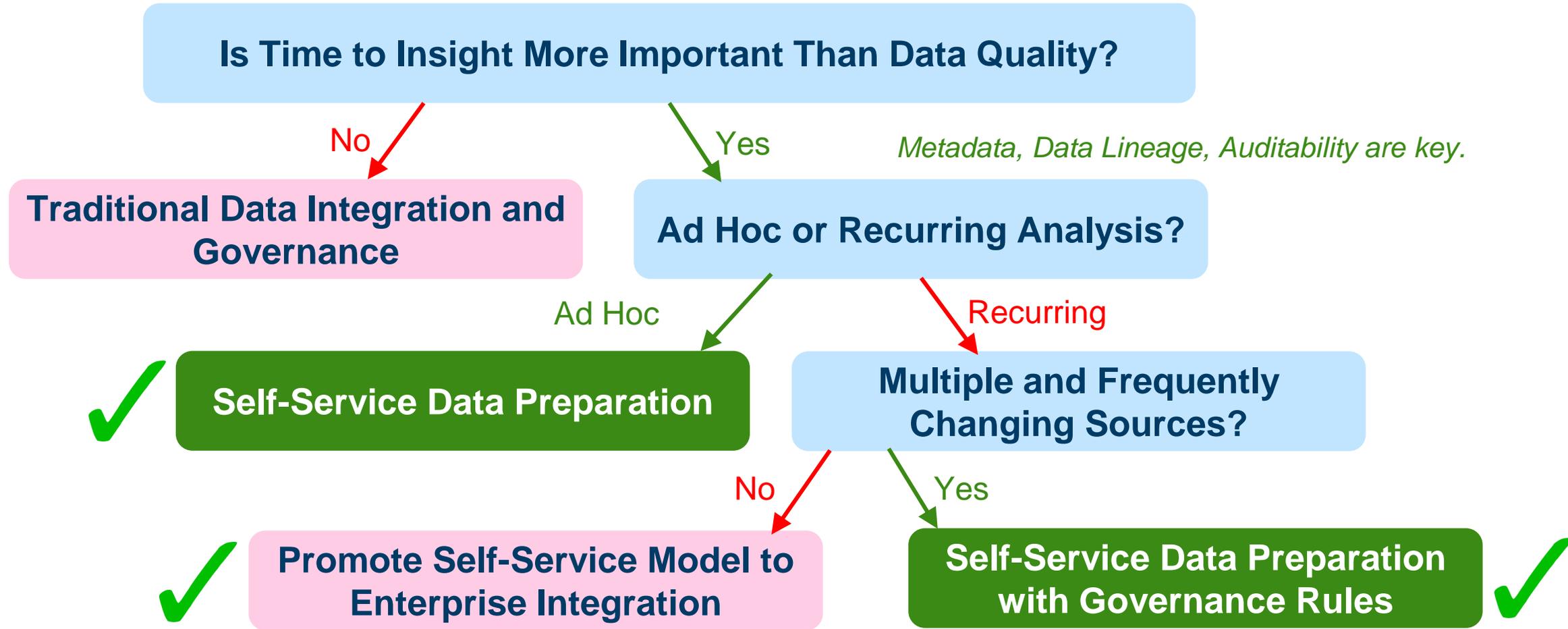
See a video demo at:

5 minute demo of SAP Agile Data Preparation

SAP Agile Data Preparation

SAP HANA

Information Management Services

Data Discovery	Quality Assessment
Metadata / Semantics	Transformation
Cleansing	Matching
Best Record	Enrichment
Hierarchy	Relationship

Real-Time Data Provisioning

Available on premise and in the cloud!

Harvest Content Generated by Business Users - Promote to Enterprise Integration and Governance

Is Time to Insight More Important Than Data Quality?

No → **Traditional Data Integration and Governance**

Yes → *Metadata, Data Lineage, Auditability are key.*

Ad Hoc or Recurring Analysis?

Ad Hoc → ✓ **Self-Service Data Preparation**

Recurring → **Multiple and Frequently Changing Sources?**

No → ✓ **Promote Self-Service Model to Enterprise Integration**

Yes → ✓ **Self-Service Data Preparation with Governance Rules** ✓

Adapted from "Self-Service Data Preparation: The Next Big Market Disruption," Rita Sallam, Gartner, March 2015

✓ = ADP Capability/Use case

EIM Roadmap

Legal disclaimer

The information in this presentation is confidential and proprietary to SAP and may not be disclosed without the permission of SAP. This presentation is not subject to your license agreement or any other service or subscription agreement with SAP. SAP has no obligation to pursue any course of business outlined in this document or any related presentation, or to develop or release any functionality mentioned therein. This document, or any related presentation and SAP's strategy and possible future developments, products and or platforms directions and functionality are all subject to change and may be changed by SAP at any time for any reason without notice. The information in this document is not a commitment, promise or legal obligation to deliver any material, code or functionality. This document is provided without a warranty of any kind, either express or implied, including but not limited to, the implied warranties of merchantability, fitness for a particular purpose, or non-infringement. This document is for informational purposes and may not be incorporated into a contract. SAP assumes no responsibility for errors or omissions in this document, except if such damages were caused by SAP´s willful misconduct or gross negligence.

All forward-looking statements are subject to various risks and uncertainties that could cause actual results to differ materially from expectations. Readers are cautioned not to place undue reliance on these forward-looking statements, which speak only as of their dates, and they should not be relied upon in making purchasing decisions.

SAP EIM roadmap themes
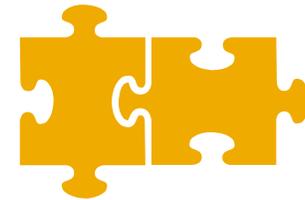Dynamic governance, simplify, self-service and streamline EIM

Simple
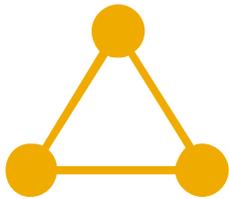
Easy User Experience

Compact Technology Stack

Complete Integration

Self-Service

Empower Users

Business Ownership

Personalized Reports

Dynamic Governance

Configurable – Adaptable

Policy Management

LOB-centric

SMART

Agile | Quick | Sharp | Effective

Simplify

- Expanded use of Fiori UI technology allowing for more flexible and mobile enabled consumption

- Expanded and automated hierarchy management capabilities

- Tight integration across all EIM capabilities – e.g. ETL; DQ; consolidation and governance; publishing; archiving

- On premise and cloud integration and support across your landscape
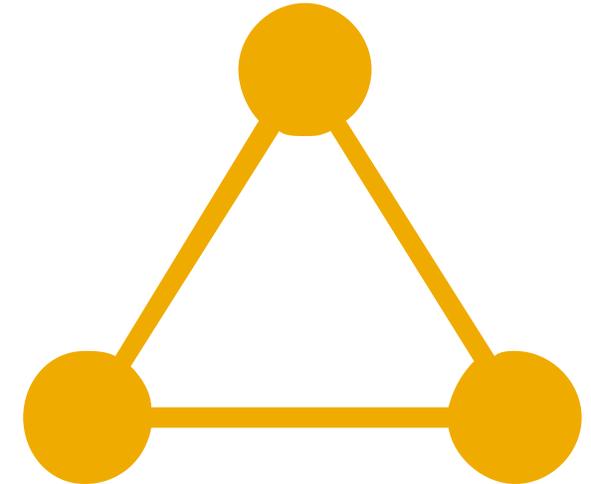
Self-service

- Enable self-service data preparation for the business

- Enable data stewards to collaborate, assess, define, monitor, remediate and improve DQ

- Expanded SAP Smart Business analytical capabilities

- Flexibility to drill in and filter on Information Steward scorecards

- DQ dashboards based on SAP HANA rules framework – easier rules management
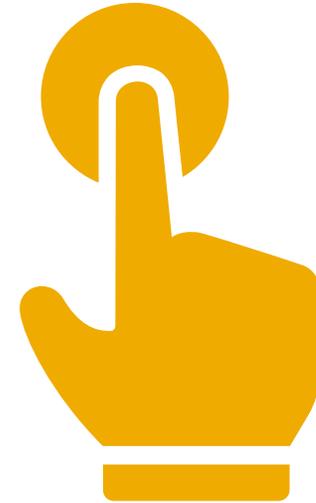
Dynamic governance

- Governance and consolidation capabilities integrated on one SAP Master Data Governance platform

- Project to enterprise and enterprise to project policy management
  - Information policy management
  - Business user driven configuration of master data consolidation

- Expanded industry content and scenario enablement, e.g. Enterprise Asset Management
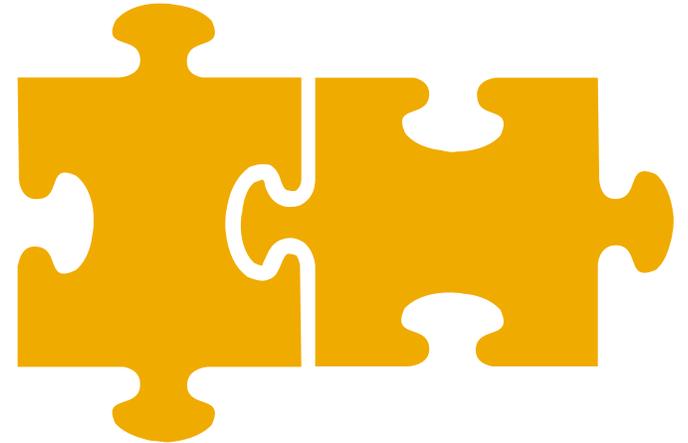
SAP EIM Roadmap

Existing EIM solutions

- SAP intends to continue offering existing EIM solutions to protect your investment
- SAP intends to continue enhancing existing EIM solutions to meet market needs
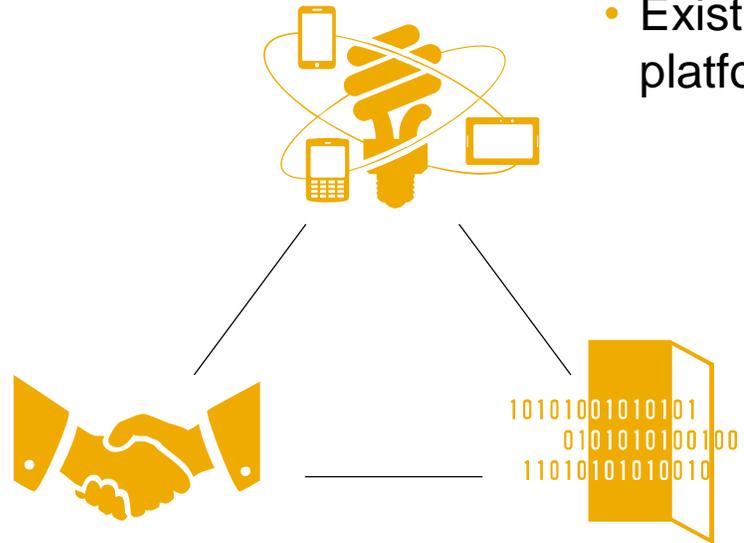
SAP HANA EIM solutions

- SAP provides a modern, in-memory platform for information management capabilities
- SAP intends to continue to enhance and add new capabilities driven by customer needs
- SAP intends to offer new applications (e.g. SAP Agile Data Preparation) for the cloud and on-premise based on the HANA EIM capabilities

EIM roadmap summary

Innovation without disruption

- SAP will bring you to the future at your pace for both HANA and Cloud
- Existing products enhanced alongside new platform development

Better value to the business

- Simplicity and tight integration with industry and application offerings
- Built on our deep understanding of business processes

Comprehensive EIM Solutions for on premise and Cloud

- Data in any style, shape, and delivery mode
- Information governance end-to-end

Thank You!

Contact information:

Paul Médaille
Director, EIM Solutions GTM
paul.medaille@sap.com
Twitter: @PaulMedaille

Appendix: Product Roadmaps

For complete product roadmaps please see https://service.sap.com/roadmaps

SAP PowerDesigner

Today	Planned Innovations	Future Direction

Today

PowerDesigner

Web Editors
- BPMN refinement
- Process Map language

Collaboration & Governance
- Multi-language Portal UI (EN, FR, DE, SP, RU, CH)
- Portal custom attributes
- Portal reporting
- Portal single sign-on support
- Portal model comparison (simple)

SAP Modeling Tool of Choice
- HANA SP08 support
- Portal administration features
- SAP Data Services integration

Planned Innovations

PowerDesigner

Web Editors
- Requirements model
- Enterprise Architecture model

Collaboration & Governance
- Portal enhanced search
- Portal impact & lineage analysis
- Portal multi-language content support
- Portal customizable report
- Portal model check-in management

SAP Modeling Tool of Choice
- Content collaboration with industry solutions
- SAP HANA updates and calculation view support
- SAP Solution Manager 7.1 improvements

HANA + Enterprise Architecture
- Data modeling
- Enterprise Architecture modeling
- Requirements modeling
- Impact & lineage analysis

Future Direction

Web Editors
- Glossary
- Continued improvements of the Portal UI

Big Data
- Support for unstructured data

Strategy & Planning
- Portal dashboard improvements
- Project lifecycle management collaboration
- Governance, risk & compliance collaboration
- Additional EA notation support

Collaboration & Governance
- Portal model comparison improvements
- Portal publishing
- Notifications & subscriptions

SAP modeling tool of choice
- Content collaboration with industry solutions
- SAP Solution Manager 7.2 support
- SAP HANA Cloud Platform support

SAP Data Services

Today	Planned Innovations	Future Direction

Today

Simple

- Improve Substitution Parameters management
- Add preview and select capability for importing objects

Big Data

- Support Hadoop on Windows platform
- Enhance existing connectivity (source/target) – bi-directional support for Google BigQuery and MongoDB
- Data Access and Authentication – Kerberos, LDAP, SSL
- Extended spatial data loading for MS SQL

Enterprise Support

- Runtime statistics integration with SAP Solution Manager
- Native integration with SAP NetWeaver CTS+
- Data Quality Statistics

Planned Innovations

Simple

- Landscape Management
- Replication wizard in Data Services Designer

Big Data

- Expand on premise connectivity– HP Vertica
- Expand cloud-based connectivity – AWS S3, Redshift; Google Cloud Storage; Microsoft Azure (Blob Storage, SQL Server – PaaS, IaaS)
- Advancing Enterprise Hadoop support with Apache Spark, YARN, Ranger, and Camel integration
- Support Outlook .PST container file as Source

Enterprise Support

- Enhancements in Text Data Processing engine
- Output linguistics Stem and POS tags
- Data Quality global expansion in Asia Pacific
- As-you-type suggestion for address search

Future Direction

Simple

- Display graphical execution plan
- Self-Guiding user interfaces
- Intelligent Smart Module

Big Data

- Expand connectivity driven by market
- Data Model advisor for SAP HANA database
- Performance optimization

Enterprise support

- Self diagnostics and health monitoring utility
- Data Services 'datastore' as a service

SAP Information Steward

Today	Planned Innovations	Future Direction
Discover • Support virtual view on union operation • Enhance metadata collection for SAP ASE and SAP IQ • Metapedia OnDemand category loading • New SAP Business Suite metadata integrator • SAP PowerDesigner integration	**Discover** • Enhance Hadoop profiling and metadata integrator • Enhance SAP Business Suite metadata integrator • Support collection of SAP HANA's SDI and SDQ objects including transformation, source and targets • Metapedia desktop widget	Simple, smart and collaborative user experience Complete metadata management – from definition to operational metadata Continued information policy management build out
Define • Information policy management • Enhancement of custom attributes • Improved validation rule definition and approval • New data quality advisor	**Define** • Simplified rule editing • Metapedia layout customization • Grouping custom attributes	Big data support for profiling and metadata management
Monitor & improve • Improved email notification of failures • Enhance analytics for data quality • Improved match review user experience • Six sigma calculation for rule score • DQ business value analysis	**Monitor & improve** • Calculate information policy scores • Information policy management compliance dashboard • Enhanced email notification to monitor score changes on scorecard level • Export failed data for scorecard • Subscription based change notification • Enhance validation rules usage reporting	Anonymize and mask sensitive information (e.g. PII) while preserving data relationships and relevant when viewing data
Platform • Integrator level security for metadata management • Support for external scheduler	**Platform** • Enhance metapedia lifecycle management • Clean up / maintain failed data tables	

SAP SDI & SDQ

Today

SAP HANA smart data integration
- Workload Management Integration
- New Adapters
- Just-In-Time data preview
- New Data Sources
- Hierarchical Transform
- Change Data Capture
- Virtual Table Parameters
- Auto Arrange
- Enhanced Monitoring and Operations
- New Adapter Capabilities

SAP HANA smart data quality
- Enhanced Match Transform
- Enhanced Geocode Transform

Enterprise Semantic Services (ESS)
- Scheduling of publication and data profiling jobs
- Monitoring of active requests
- Publish remote source metadata

Planned Innovations

SAP HANA smart data integration
- SAP Business Suite and SAP S/4HANA integration
- Disaster Recovery
- Transportable EIM repository content
- Data Masking Transform
- Hierarchy Flattening Transform
- Workflow
- REST API
- HDFS as a source & target

SAP HANA smart data quality
- New transform for SAP HANA rules framework (HRF) integration
- Best Record Transform

Enterprise Semantic Services (ESS)
- REST API to enrich Entity Grid with new properties
- Content type identification of new business types
- Support new types of remote sources with user level security

Future Direction

SAP HANA smart data integration
- Additional sources, transforms & targets
- Support for spatial data as a source
- Enhanced operational capabilities
- Enhanced usability
- Support for PGP, SFTP & SSO
- SAP HANA smart data streaming integration
- Apache Spark integration

SAP HANA smart data quality
- Custom cleansing rules
- Data enrichment
- Additional domains for cleansing
- REST API for on-premise deployments

Enterprise Semantic Services (ESS)
- Crawl, store and manage lineage and semantic relationships between datasets
- Suggest how to complement a user-given dataset with other related datasets
- ESS as a Service in the SAP HANA Cloud Platform

SAP Agile Data *

Today	Planned Innovations	Future Direction
• Interactively discover, search, manipulate, profile, cleanse and share datasets • Monitoring capabilities for data lineage • Job scheduling of projects • Operationalization by IT (exchange to Web IDE)	• Stewardship capabilities (rules management, DQ scorecards) • Distribution of the validated data • Filter management, Aggregations • Metadata Management, Data Protection Support • Data Enrichment, Best records • Workflow Support • Excel amenities like multicolumn sorting, formatting, pivoting…	• Additional domains for cleansing • Additional stewardship capabilities (approval workflows, DQ reporting) • Hadoop/Spark support