



Rapid Application Development and IoT with HANA

Greg Sprowles
EPI-USE America

RAPID APPLICATION DEVELOPMENT & IoT WITH HANA

Outline

- A. Background & Introduction**
- B. Challenges & Trends in Today's Digital Transformation
- C. Agile Development as a Solution
- D. SAP Solutions for Agile Application Development
- E. Agile Application Scenarios with HANA
- F. Summary

BACKGROUND

About the Speaker

Greg Sprowles | Senior Manager | EPI-USE America, Inc.

IT Leader with over 20 years experience working for Fortune 500 companies including healthcare and insurance industries. His most recent experience was as an architect designing data models along with implementing reporting solutions via BI dashboards and mobile BI reporting. Throughout his career, Greg has worked through several large BI-related system conversions along with SAP data integration projects related to various mergers and acquisitions.

Experience

- + Extensive experience with SAP BW on HANA and Business Objects reporting tools
- + Strong data modeling skills and SAP data integration knowledge
- + Broad understanding of data warehousing and information management best practices
- + Experience with system conversions and legacy data conversions
- + SCRUM Master Certified and experience in delivering solutions using “Agile” development
- + SAP BW, HANA, SAP HR, SAP Payroll, SAP FIGL, SAP Profitcenter Accounting (PCA)



Global software product and service provider for large complex implementations and solutions
HR | Payroll | Talent | Analytics | Finance

WHAT WE DO



PRODUCTIVITY SOLUTIONS

- SAP Landscape Optimization
- HANA Re-Platform Services
- Reporting Products
- Cloud Migrations
- Integration Solutions
- Data Management

41 SAP Payroll Country Versions
(for regions where SAP does not offer a standard solution)



CONSULTING SERVICES

- SAP HCM & Payroll
- SuccessFactors Employee Central & Payroll
- SuccessFactors Full Suite Talent Management
- WorkForce Management – Time & Attendance
- SAP Analytics & Reporting
- Mobile Solutions
- Mendix Solutions
- SAP NetWeaver, Mobility & Technology Services
- SAP Finance & Logistics & S/4 HANA
- SAP Security & GRC
- Custom Development



SUPPORT SERVICES

- Global Application Management Services
- SAP ERP & HCM AMS Support
- Nutrio – Innovative Support for SFSF SaaS
Managed Services
(System Maintenance & Monitoring)
- SAP SFSF Managed Payroll
- Business Process Outsourcing – US & Global

Automotive
Aviation
Banking
Chemical
Consumer
Products
Entertainment
Financial
Services
Healthcare
Higher Education
Hospitality
Industrials
Mining
Oil and Gas
Pharmaceuticals
Public Sector
Retail
Technology
Utilities



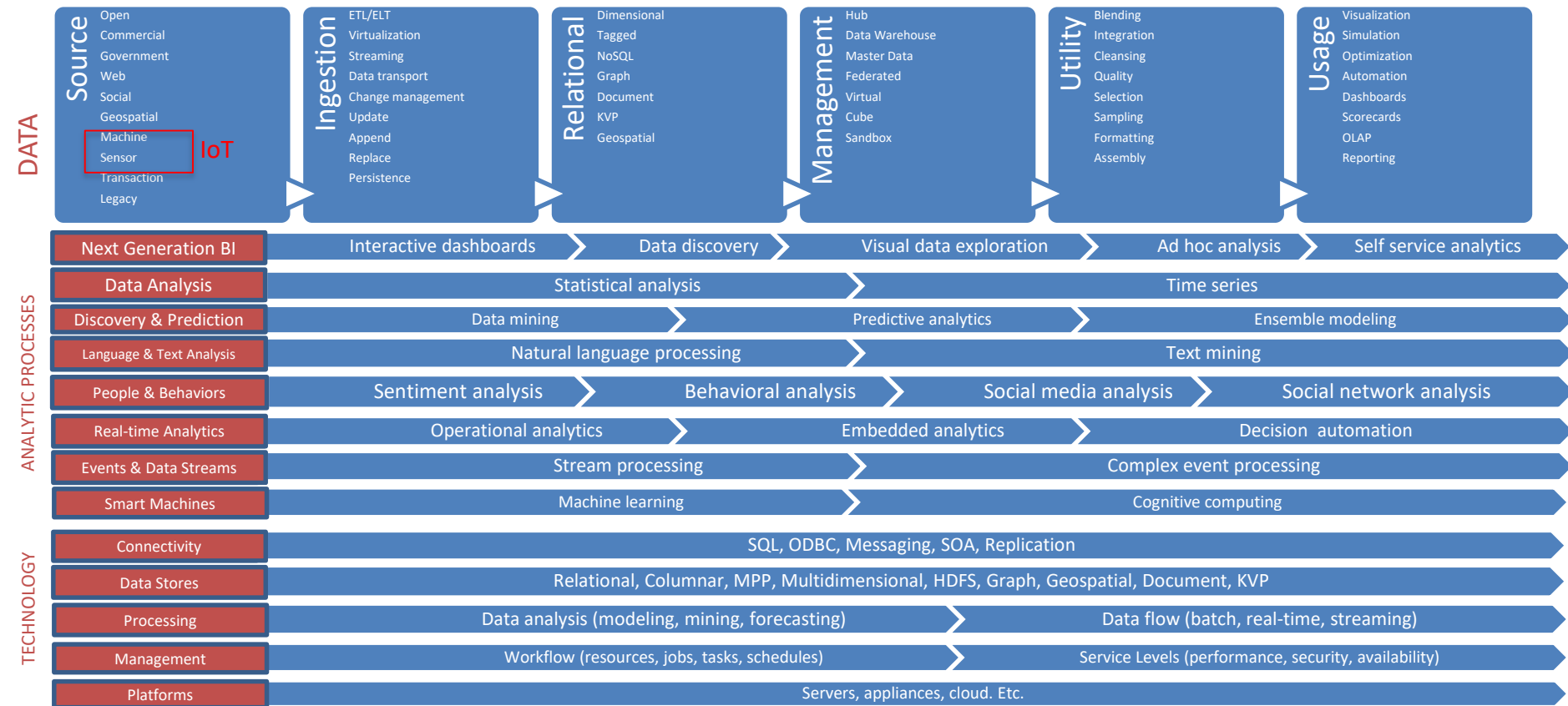
RAPID APPLICATION DEVELOPMENT & IoT WITH HANA

Outline

- A. Background & Introduction
- B. Challenges & Trends in Today's Digital Transformation**
- C. Agile Development as a Solution
- D. SAP Solutions for Agile Application Development
- E. Agile Application Scenarios with HANA
- F. Summary



TODAY'S DIGITAL TRANSFORMATION



SOURCE: TDWI – Analytics Architecture

TRADITIONAL SYSTEMS AND PROJECT MANAGEMENT

Perception is reality - The perception by business users is that despite IT's new tools and approaches to digital transformation into actionable information, the result is the same with older platforms and methodologies:

“True or False”

- ❑ **“IT projects take too long”** - Long development lead times still exist for new applications, dashboards, and reports.
- ❑ **“Systems are still inflexible”** - Once an application is designed , the lead times are still long and don't shift as rapidly as the business needs.
- ❑ **“Legacy development platforms aren’t suited for AGILE projects”** - “Waterfall” development approaches may work when most of the requirements are known but fall short for rapidly changing business scenarios.
- ❑ **“HANA was too expensive when we bought it and is now too difficult to develop applications and get any value”** - ABAP skills and Fiori experts are hard to find.

ALL ARE TRUE!

TRENDS

Rapid application development

Agile software development is still growing - 98% of respondents said that their organization has realized success from Agile projects.
www.scrumalliance.org

Rapid & Agile BI

Data discovery visualization, self-service BI, and agile BI development are at the top of importance for most companies.
www.bi-survey.com

Integration & Innovation

Companies are focusing on business-driven applications to avoid data lakes from becoming swamps.
www.cio.com

Low-code & User-driven applications

By 2020, at least 50 percent of all new business applications will be created with high-productivity toolsets.
www.gartner.com

COMMON BUSINESS CHALLENGES

“Internal development for SAP-integrated applications takes way too long!”

“How does a fast database like HANA help me if it takes a 6-month project to get new data loads, ETL jobs, and reports built?”

Today's businesses have “a need for speed”!



“I need an IOT application developed quickly and I need real time reporting on that data!”

Ability to capture data quickly

Data agility will separate winners and losers.

www.cio.com

Ability to analyze, interpret, & predict new data

RAPID APPLICATION DEVELOPMENT & IoT WITH HANA

Outline

- A. Background & Introduction
- B. Challenges & Trends in Today's Digital Transformation
- C. Agile Development as a Solution**
- D. SAP Solutions for Agile Application Development
- E. Agile Application Scenarios with HANA
- F. Summary



AGILE SOFTWARE DEVELOPMENT

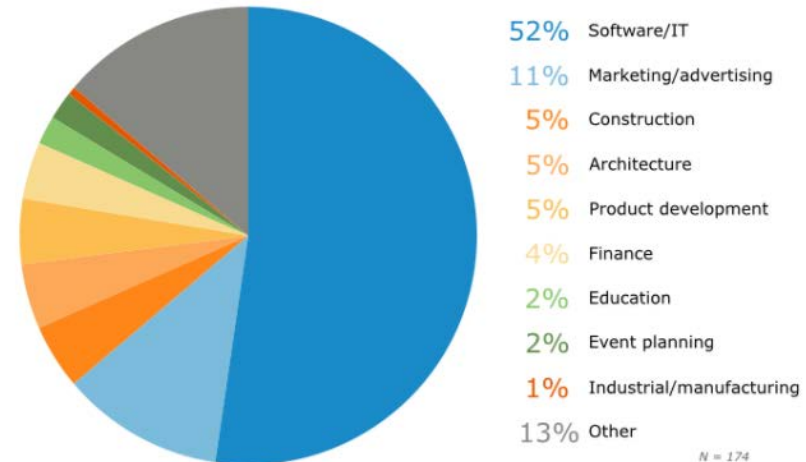
- Manifesto for “Agile” created in 2001
- Facilitates a better way to deliver software that values:
 - **Individuals and interactions** over processes and tools
 - **Working software** over comprehensive documentation
 - **Customer collaboration** over contract negotiation
 - **Responding to change** over following a plan
- Highest priority is to *satisfy the customer through early and continuous delivery of valuable software*

WHY AGILE?

Companies are realizing the benefits of the Agile Project Methodology

- **98% of respondents said that their organization has realized success from agile projects.**
- 48% of project managers surveyed use agile software primarily for projects not related to software development.
- 90% of respondents say workflow tracking improves efficiency more than any other agile functionality.
- 88% of respondents say scrum boards and activity streams increase project management efficiency.
- 49% say the most common challenge of using agile software is training others how to use it.
- Workflow tracking is the most commonly used agile software functionality, used regularly by 95% of respondents.

Top Project Types Managed with Agile Software



Source: <http://stateofagile.versionone.com/>

AGILE APPLICATION DEVELOPMENT

“Desired” Capabilities

1. Design Applications Quickly – Agile framework that facilitates Business & IT collaboration
 - a) Agile based platform for collaboration and user stories
2. Build & Develop – Model driven approach
 - a) Low code
 - b) Embedded data modeling
 - c) Integrated security
3. Manage – Centralized Governance
 - a) Approval of changes
 - b) Deployment of changes – versioning
 - c) “Where used” capabilities
4. Easy to deploy – 1-click for desktop and mobile platforms
5. Integration with other applications
 - a) Avoid creating an application silo of data
 - b) Low code applications can be created to facilitate data integration and business processes
6. Consider the impact of testing
 - a) May need more production data copies
 - b) Don't sacrifice too much quality for speed

“Agile” = “Low Code” = “High Productivity”

RAPID APPLICATION DEVELOPMENT SOLUTIONS

High Productivity Platforms & Tools

“Low code” development tools can dramatically reduce the time-to-market for application delivery to the user.

Mendix* (www.mendix.com)

- a) Runs on PostgreSQL, SQL Server, DB2 or MySQL (all supported by HANA Smart Data Integration-SDI)
- b) Built-in **Agile** framework
- c) On-premise or cloud (including SAP Cloud Foundry)
- d) Minimal coding
- e) Enables “Citizen” developers or business analysts

*Recognized as a Leader and Visionary by Gartner

Figure 1. Magic Quadrant for Enterprise High-Productivity Application Platform as a Service



RAPID APPLICATION DEVELOPMENT & IOT WITH HANA

Outline

- A. Background & Introduction
- B. Challenges & Trends in Today's Digital Transformation
- C. Agile Development as a Solution
- D. SAP Solutions for Agile Application Development**
- E. Agile Application Scenarios with HANA
- F. Summary

SAP SOLUTIONS FOR AGILE APPLICATION DEVELOPMENT

Examples of applications that extend SAP systems



Equipment tracking



Mobile order entry



Procurement portals



Master data management



Workflow automation



Vacation tracking



Reporting & compliance

Custom ABAP/HANA XS/JAVA Applications

- SAP UI5
- Develop in HANA Studio/Eclipse
- Leverage HANA DB services
- Leverage HANA application “micro-services”
- Agile limitations
- Not “citizen developer” friendly

or

CLOUD FOUNDRY



mendix

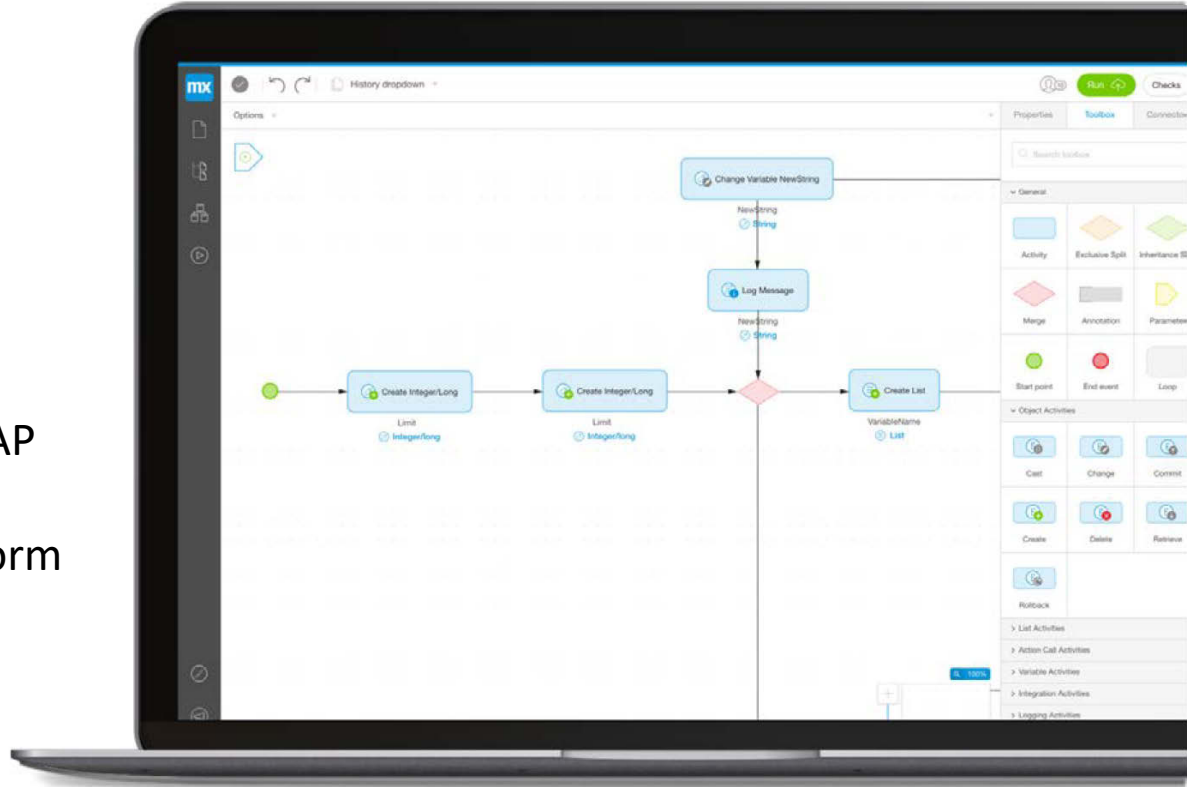
Integrate with
SAP/HANA/Cloud Services

*Mendix applications can be deployed on the Cloud Foundry including SAP Cloud Platform

EXTEND SAP/HANA APPS WITH MENDIX



- ✓ Low-code
- ✓ Visually Design Data Model
- ✓ Visually Define Logic
- ✓ Drag & Drop UI
- ✓ Out of the box integration with SAP
- ✓ oData/REST support
- ✓ 1-Click Deploy to SAP Cloud Platform
- ✓ Leverages PostgreSQL database services on SAP Cloud Platform



SAP SOLUTIONS FOR AGILE APPLICATION DEVELOPMENT



SAP S/4HANA API

The SAP S/4HANA APIs for Cloud, Finance and Marketing lets you access core business functionality including purchase order processing, post invoices, budgets, marketing contacts, offers and more.



SAP Cloud Platform API

Access and test the SAP Cloud Platform API which enables you to integrate directly with SAP Cloud Platform for lifecycle management, user authorization monitoring and more.



SAP SuccessFactors API

The SAP SuccessFactors Web Services API based on OData lets you integrate your app with SuccessFactors Human Capital Management Suite for accessing job requisitions, applications, positions, work schedules, employee information and more.



SAP Gateway

Enable your SAP systems and processes with custom APIs through SAP Gateway. We provide you a full tool to enable the APIs in the SAP systems which can then be accessed from SAP Fiori or your API consumer for choice.

SAP HANA CLOUD PLATFORM



mx mendix

asUG

SAP HANA (DB) PLATFORM

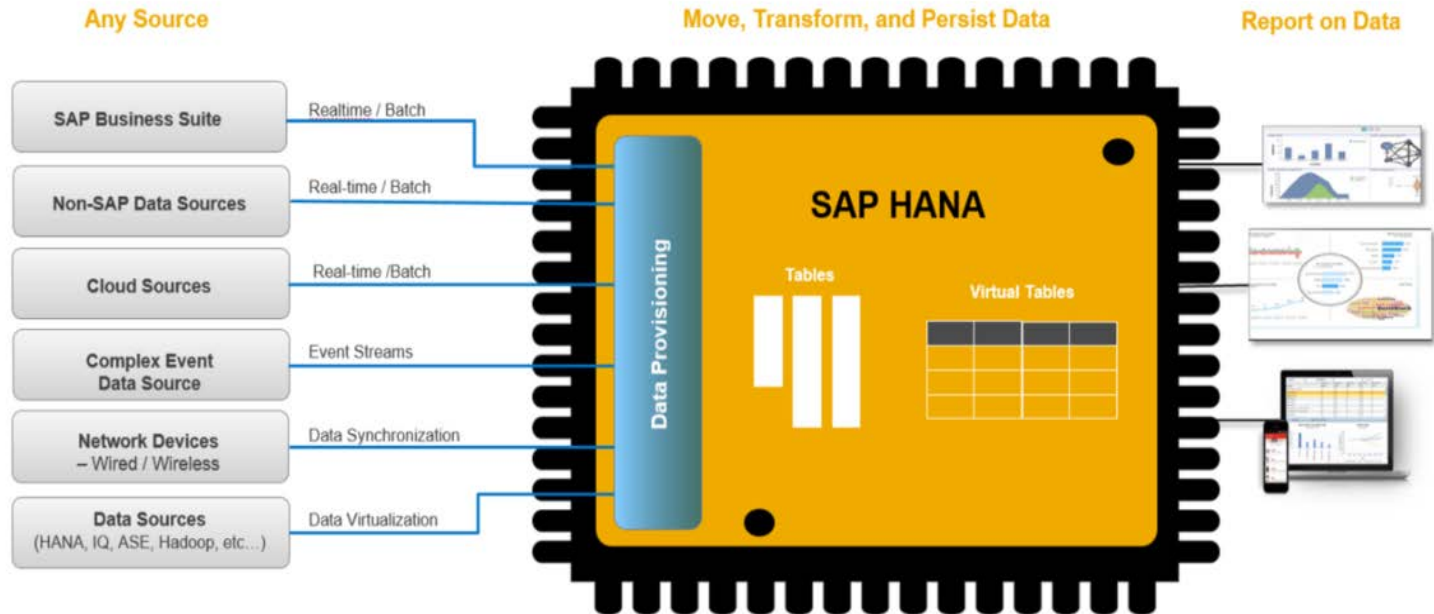
SAP HANA Platform

Simplification through native data integration solutions

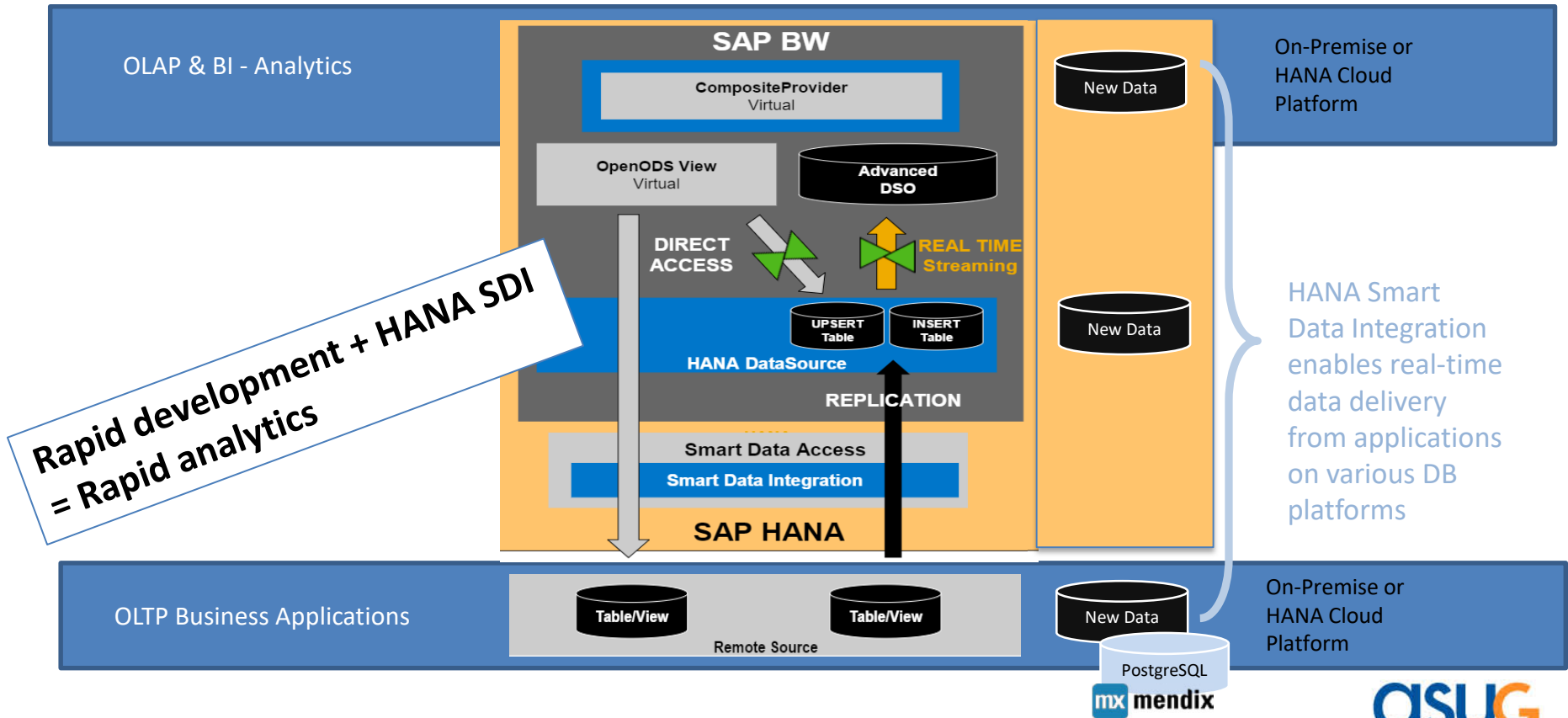
*On-premise or cloud

mx mendix

Applications
can integrate
various sources



BW 7.5 ON HANA WITH SDI - REPORT ON DATA FROM "RAPID APPS"



RAPID APPLICATION DEVELOPMENT & IOT WITH HANA

Outline

- A. Background & Introduction
- B. Challenges & Trends in Today's Digital Transformation
- C. Agile Development as a Solution
- D. SAP Solutions for Agile Application Development
- E. Agile Application Scenarios with HANA**
- F. Summary

AGILE APPLICATION SCENARIOS WITH SAP/HANA

Low-Code Application Scenarios with HANA

- ✓ Systems of Innovation - Capture of Big Data, IoT (sensors, networked devices)
- ✓ Systems of Differentiation – Self-service, mobile, geo-spatial
- ✓ Systems of Record (augmentation) – ERP, CRM, HCM, Billing
- ✓ BW data-entry (write-back), KPI planning, Master Data Management

Examples of applications that extend SAP systems



Equipment
tracking



Mobile order
entry



Procurement
portals



Master data
management



Workflow
automation



Vacation
tracking



Reporting &
compliance

AGILE APPLICATION SCENARIOS WITH SAP/HANA

DEMO & Overview

https://youtu.be/_sJCEDUoHg8

SAP Scenario

<https://youtu.be/JNZyvUn22FQ>

AGILE APPLICATION SCENARIOS

EPI-USE Client – MIT (Mendix Platform/SAP HANA)



Accelerating Innovation To Digitize Key Admin Processes

MIT (Massachusetts Institute of Technology) use the Mendix platform to develop business applications that are improving business processes. Below are some examples of applications we have developed with MIT.

Compensation Merit

- ✓ **Need:** To collate data from numerous sources in order to support HR in the award of Merit payments.
- ✓ **Application:** A tool used by the HR leadership to evaluate and determine the amount of merit distributions to employees based on the collective analysis of data in SAP, Success Factors, and other systems.

Agreements

- ✓ **Need:** Agreements between departments was through email and verbal communication. This informal structure made the access to agreements difficult and time consuming.
- ✓ **Application:** The agreements system store and displays all the current agreements between departments in an accessible and easy to use format, which saves times and resources.

Time Collection

- ✓ **Need:** Improve the time recording process when booking time against a project. The previous process could take up to 6 weeks to be able to see the actual time booked to a project and resulted in budgeting and reporting issues.
- ✓ **Application:** A weekly time collection system for use by the project management team to capture actual time booked to all projects across their portfolio, with integration into project management applications.

Vacation Tracker

- ✓ **Need:** Previously individuals would maintain a personalized Excel file to keep track of accruals and vacation days available. All requests were previously done through email. This was not an efficient process.
- ✓ **Application:** The application allows visibility and workflow management for vacation requests within a department. It keeps track of accruals, available days and sending email notification to requesters and approvers. Built with enterprises in mind it allows for multi-departmental use and is for both mobile and desktop devices.

Project Portfolio

- ✓ **Need:** The reporting and measurement of projects was managed through Excel with the associated issues associated with disparate systems.
- ✓ **Application:** A project system that keeps track of the financials, milestones, allocations of resources and risks of ongoing projects. It captures new project ideas, which then will be submitted for approval and created as a new project.

Multiple applications

RAPID APPLICATION DEVELOPMENT & IOT WITH HANA

Outline

- A. Background & Introduction
- B. Challenges & Trends in Today's Digital Transformation
- C. Agile Development as a Solution
- D. SAP Solutions for Agile Application Development
- E. Agile Application Scenarios with HANA
- F. Summary**

SUMMARY

Key Takeaways

- A. As OLTP and BI are becoming more integrated and complicated, development doesn't have to get slower.
- B. Low code, agile platforms (ie. Mendix) can be leveraged for agile application development with HANA.
- C. Leverage HANA SDI for database replication of low code applications:

Rapid development + HANA SDI = Rapid analytics

- D. When considering low code platforms, remember:
 - 1. Not all applications can benefit from Agile development.
 - 2. Continuous delivery needs continuous integration.
 - 3. Continuous integration needs continuous testing.
 - 4. Increased automation is required for faster testing.

FOLLOW US

Thank you for your time

Follow ASUG on  at @ASUG365

CONTACT INFO

Greg Sprowles | Senior Manager | EPI-USE America, Inc.

Email: greg.sprowles@us.epiuse.com

www.epiuse.com