



## State of Arkansas: Lessons from Three Parallel SAP HANA Migrations and a Conversion to SAP BW/4HANA

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Session ID # 82645

# About the Speakers

## Johannes Lombard

- EVP: Analytics & Technology
- 25 years in SAP, focused on SAP HANA and Cloud Migrations
- I'm so afraid of heights I won't be able to stand on this podium!

## Amber Rust

- AASIS Technical Manager
- 6 years with the State of Arkansas working on SAP in BASIS Administration and Security
- As a kid, I thought jaywalking was walking down the street naked.

# Key Outcomes/Objectives

1. *Bringing the benefits of **in-memory computing to 30,000 Arkansas employees and 200 agencies**, accelerating the interaction with the ERP system and creating a virtual data warehouse on a single platform to enable innovation and gain insights across the organization.*
2. *On-premise technical **upgrade of the entire** Arkansas Administrative Statewide Information System (AASIS) technical ecosystem.*
3. *Seamless migration to SAP **Suite on HANA**, as well as migrating to SAP **BW/4HANA**, addressing the extreme need for state-of-the-art reporting technology, providing a platform that will open doors to more views of the data, bringing better insight and value to the State of Arkansas.*

# Agenda

- How did we mitigate risk?
- Why HANA?
- BW/4HANA Lessons Learned

# Risk mitigation summary

– Suite on HANA, BW on HANA and BW/4HANA in parallel:

- Project management;
- Find issues early in SBX, off fresh copies;
- Accurate Migration scripts and runbooks;
- Q-gates before exiting;
- Soft and Hard freezes (SOFT: No more new development in DEV until after the Migration is complete, HARD: all transports in QAS goes to PRD by this date, with no more changes to PRD except critical break fixes until after PRD migration).

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	23-Jul	30-Jul	6-Aug	13-Aug	20-Aug	27-Aug	3-Sep	10-Sep	17-Sep	24-Sep	1-Oct	8-Oct	15-Oct	22-Oct	29-Oct	5-Nov	12-Nov
TASKS AND ACTIVITIES																	
PREPARE																	
SANDBOX																	
BW --> BW on HANA																	
BW on HANA --> BW/4HANA																	
ECC --> Suite on HANA																	
DEVELOPMENT																	
CONTENT SERVER																	
QUALITY ASSURANCE																	
TRAINING																	
PRODUCTION																	
POST-PRODUCTION SUPPORT																	

# How did we mitigate risk?

- Limited scope to a **pure technical migration**, using our proven HANA database migration methodology;
- The exact same **Migration scripts were repeated** across all the non-PRD environments, ensuring we have well tested scripts for PRD cutover;
- Functional teams created a **robust test plan** that covered all the key processes, with enough focus on custom solutions, and slow running programs;
- **Limiting changes** during the project by imposing a SOFT freeze when DEV system migration started, and a HARD freeze when we started with the QAS systems;
- Engaged with **highly experienced resources** to execute our previously vetted Migration Runbooks;
- Requiring well defined quality exit gates (**Q-Gates**) at each milestone, allowing you to only move to the next phase after mitigating all defects and risks in previous phase;
- Risk were reduced by splitting the project into separate **parallel tracks**;
- **War room execution.**

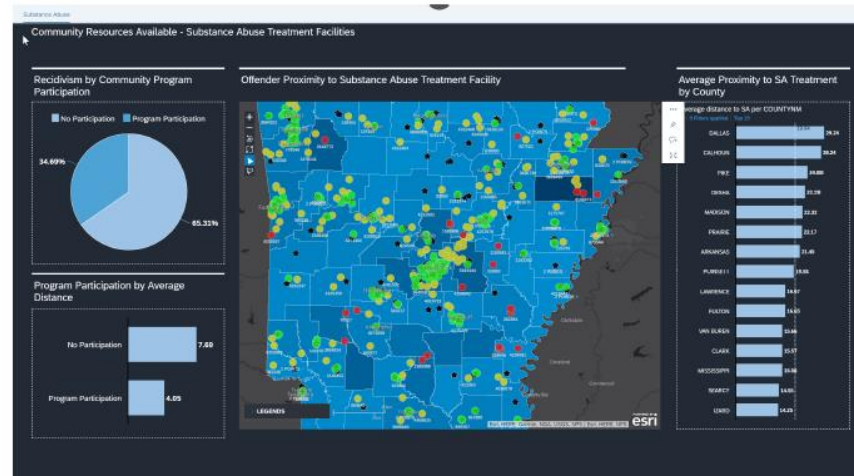
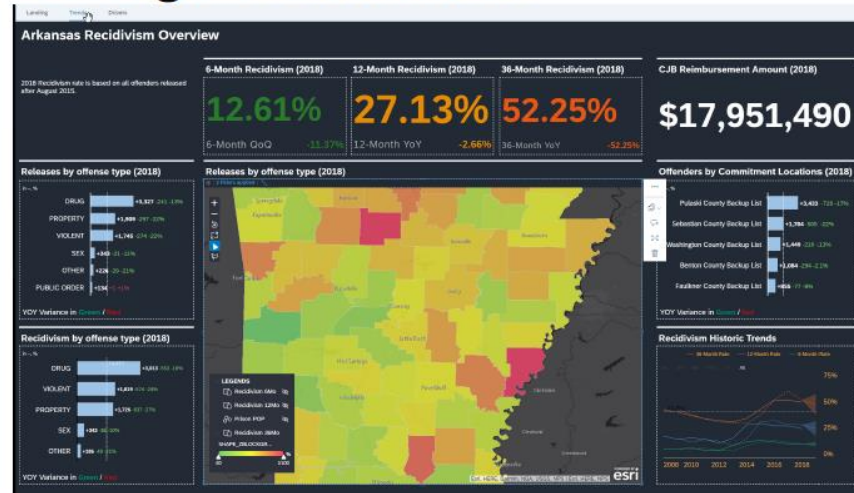
# Why HANA?

- **Data volume growth**: over the last two years alone 90 percent of all global data was generated;
- **Predictive Analytics** requirements increasing (focuses on **High Spend areas, e.g. Recidivism**);
- **Statewide analytics requirements**, e.g. Spend Analysis (state and university);
- **Hybrid scenarios** increasing;
- Desire for having **ONE copy of the data** with **LESS persistence** and **MORE innovation** {massive ROI};
  - single copy of data in an in-memory and columnar structure
  - in-memory columnar technology the enabler for SAP S/4HANA and SAP BW/4HANA, but it's about much more than just these applications
  - real-time 1:1 replication from other non-SAP databases into the in-memory columnar structure without having to batch the data, storing ONE copy in RAW format.
- BW/4HANA the **true virtual DW**, providing insights across complex and hybrid scenarios, supporting a hybrid approach to analytics --> using localized, embedded operational analytics where possible and follow a hybrid approach across platforms.

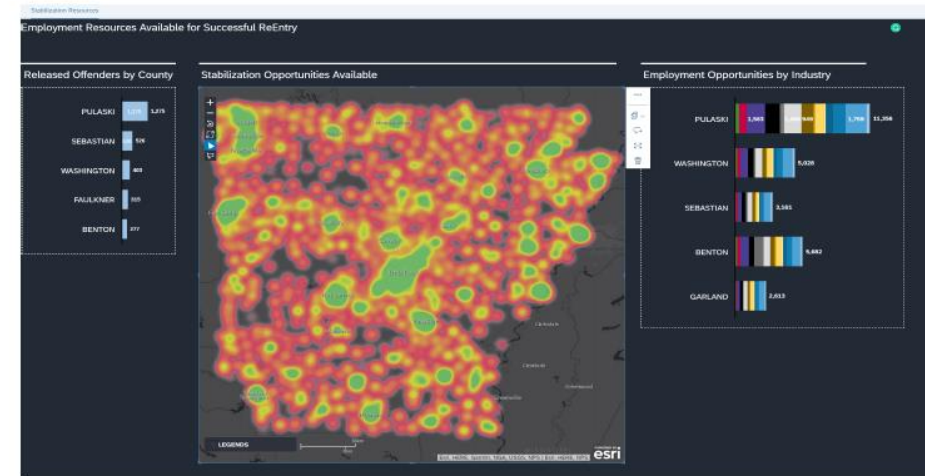
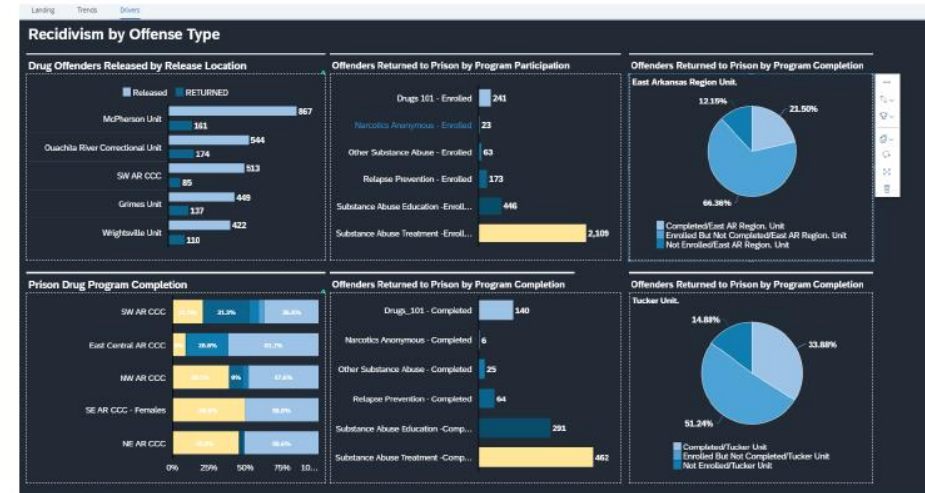
# Why HANA? (example: real ROI)

- Reducing Prison Recidivism through Data Science on the SAP HANA Platform
- Fastest Growing Prison Population in the US
- 3-year recidivism rate of 57% (> half released returning within 3 years)
- If you missed the session please find the slides or follow up afterwards for cost saving details...

## Strategic Dashboards



Session ID	Title	Session Type
ASUG82649	State of Arkansas' Journey to Reduce Recidivism Using SAP HANA and SAP Analytics Cloud	ASUG Presentation (40 min)
ASUG82645	State of Arkansas: Lessons from Three Parallel SAP HANA Migrations and a Conversion to SAP BW/4HANA	ASUG Presentation (40 min)
PL86176	Follow Arkansas's Journey to Reducing Recidivism Through Machine Learning	Demo Session





# BW/4HANA Lessons Learned

**2383530** - Conversion from SAP BW to SAP BW/4HANA Version 115 from Jan 28, 2019 in English

Component: BW-B4H-LM	Category: Consulting	Corrections: 0	<i>SAP Note/KBA Num</i>
Priority: Correction with high priority	Release Status: Released for Customer	Manual Activities: 0	
		Prerequisites: 0	

Description   Software Components   References ▾   Attachments   Attributes   Languages

Conversion note  
**2383530** provides an  
xml file to identify  
the required  
notes/updates

- **Disclaimer:**

- “Converting a SAP BW system to SAP BW/4HANA is not a simple task...no "wizard" that magically converts everything.
- While SAP provides a well-defined process, automating where applicable and feasible, they are not built or meant to fix badly designed models or clean-up neglected systems;
- ...essential that you understand the differences between SAP BW and SAP BW/4HANA...thoroughly analyze your existing system, estimate the complexity and duration of required tasks, properly plan all conversion activities, learn and practice to use the conversion tools, test the conversion processes ideally with a "copy of production", and actively manage changes to your business....good project management and skilled personnel will be required to execute a timely and efficient conversion of a complete SAP BW system and if done right, your conversion to SAP BW/4HANA will be very successful.

# BW/4HANA Lessons Learned

- Consider the BEX Pilot program: SAP BEx Web Applications
- Planned support for temporary use of the existing SAP BEx Web Applications in SAP BW/4HANA through a dedicated pilot program:

**2496706** - BEx Web Application Add-on for SAP BW/4HANA - Deployment and Limitations Version 9 from 12/21/2018 in English

Component: BW-B4H-LM

Category: Release planning information

Corrections: 0

SAP Note/KBA Number

68

Priority: Recommendations / Additional Info

Release Status: Released for Customer

Manual Activities: 0

Prerequisites: 0

Description

Software Components

References

Attachments

Attributes

Languages

## Symptom

You want to use parts of the WAD/BEx Web functionality in SAP BW/4HANA - details described in the attached document.

Further information regarding the SAP Business Explorer Maintenance and Support Policy you will find [here](#).

## Reason and Prerequisites

**Update June 2018:** the pilot program will be **extended until end of 2022** to give customers sufficient time to transition their analytics applications to SAP Analytics Cloud.

Customers moving to SAP BW/4HANA from SAP BW should transition their SAP BEx reports and applications to SAP Analytics.

Public Information you will find here: <https://www.sap.com/community/topic/business-explorer.html>

To allow customers a parallel approach to complete the conversion project, SAP supports the temporary use of the existing BEx Web Applications through a dedicated pilot program.

This temporary functionality is exclusively available with the [In-Place Conversion](#) (Chapter 2.1.3.1.) to SAP BW/4HANA and will be supported for a limited time until end of 2022.

# BW/4HANA Lessons Learned

- **Housekeeping!** Cleanup data & objects (e.g. old PSA tables, Change logs, other test objects, DTP error logs, System Logs, Process Chain Logs) that will not add value in the migrated system: **ONLY MOVE WHAT YOU NEED;**
- Be **cognizant of what you convert**...every GB of data, and every single object not utilized, adds time & complexity to the conversion process;
- Apply relevant **SAP notes** required for the RSB4CONV conversion cockpit program on BW and the source system;

# BW/4HANA Lessons Learned

- Execute sizing (program /SDF/HANA\_BW\_SIZING), SCI code inspection and the transformation finder program to **estimate the conversion & optimization effort;**
- Expose all data sources to the ODP source system, some of the **hierarchy/groups** or set data sources will need a custom program to expose;
- The Pre-Check program will **ID objects that are incompatible** with B4H conversion, and need to be deleted before switching to B4H mode. e.g. Bex object types, BPS objects, technical content etc.;

# BW/4HANA Lessons Learned

- **Convert InfoCubes to HANA** optimized if not converted during BW on HANA migration;
- If **InfoSets** are being used, the flag for join attributes need to be set before conversion;
- ID the data models which have **dependencies** and use the conversion cockpit to **convert them together** to avoid orphan objects for next task lists;
- Delete or **release all transport requests** which will cause object locks during conversion;
- Execute all **delta loads** before starting the conversion;

# BW/4HANA Lessons Learned

- Perform data flow conversions through the Transfer cockpit using **Minimal Scope**, be ready to reactivate / delete objects during the conversion;
- It's a good idea to **reactivate all the ADSO, CP, DTP** after the conversion to compile all the objects;
- Some of the **includes** are deleted as part of migration, but dependent objects will keep existing, leading to failure when these includes are called, we noticed this behavior with some Bex Variables, also HCM ETL business content;
- For objects using InfoSources (especially **HR objects**) includes were deleted, had to create new InfoSources and recreate programs to replace these includes;

# BW/4HANA Lessons Learned

- If the conversion program fails on a particular object, **reactivating** the object might kick the task list to the next step. e.g. Composite provider error, reactivate Composite for the system to recompile all the settings.
- Be prepared to modify **process chain variants** during the conversion, some variants become obsolete e.g. delete PSA requests, delete & create indexes etc.;
- Ensure **process chains** are all green in activated mode, and not just in planning mode;
- Execute the **clean-up program** (Transfer cockpit – RSB4HCONV) on a frequent schedule to clean up dependencies;

# BW/4HANA Lessons Learned

- Make use of the **task lists** mentioned in the **B4H conversion guide**:
  - SAP\_BW4\_TRANSFER\_INPLACE, RS\_COMPATIBILITY\_TO\_B4H, RS\_B4H\_TO\_READY4CONVERSION, SAP\_BW4\_AFTER\_CONVERSION
- Expect that **OSS notes will keep receiving updates** e.g. 2383530, 2495549, 2637796, 2637797, 2637710;
- **ADP's are not supported** and will have to be converted to **Open Hub** Destinations;
- Once all the data models are converted, there will be task lists to be executed to **ready the system for conversion** and to switch to B4H mode.



# Take the Session Survey.

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# Presentation Materials

Access the slides from 2019 ASUG Annual Conference here:

<http://info.asug.com/2019-ac-slides>

# Q&A

For questions after this session, contact us at [jlombard@lsiconsulting.com](mailto:jlombard@lsiconsulting.com) (@lombardjohannes) and [Amber.Rust@dfa.arkansas.gov](mailto:Amber.Rust@dfa.arkansas.gov)

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