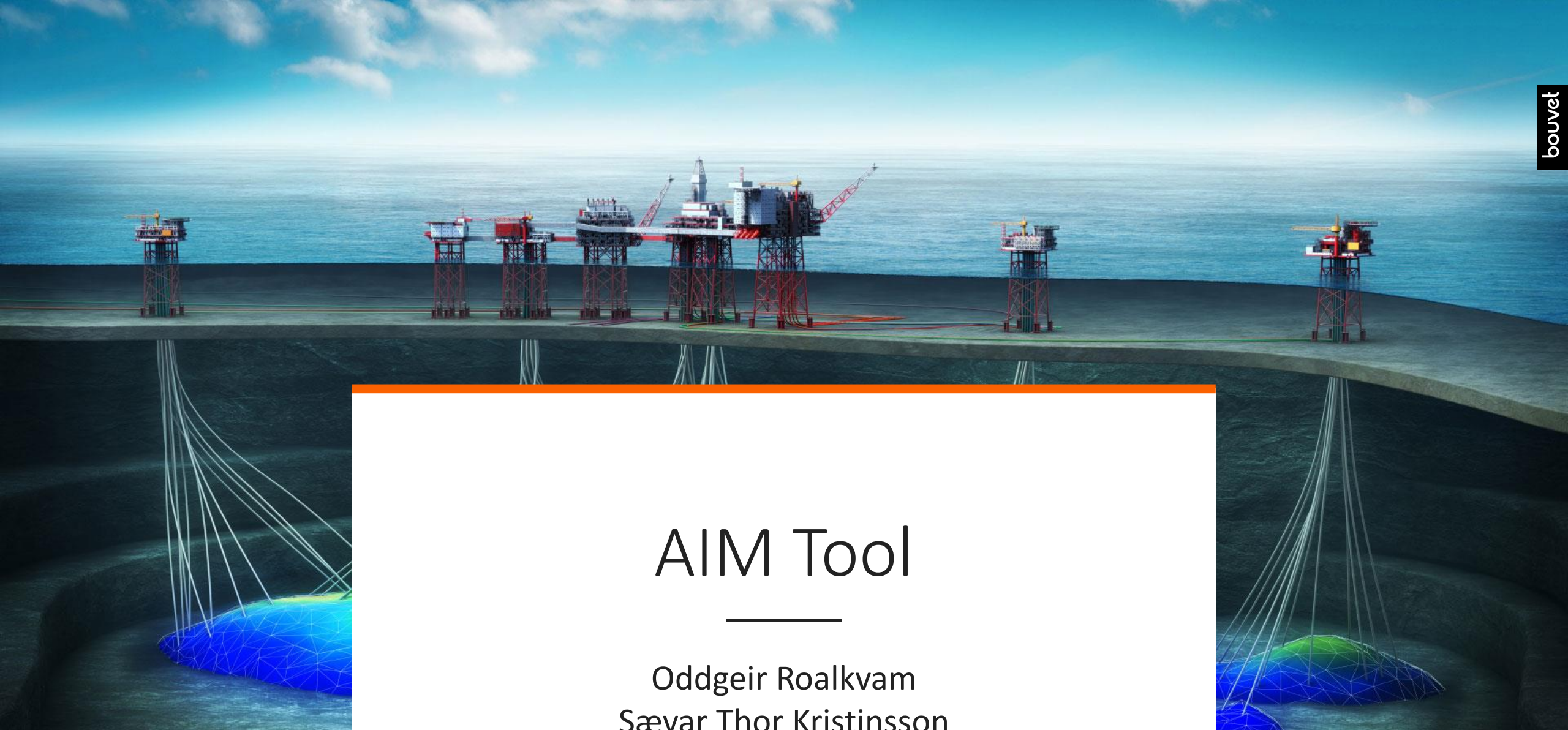






Market interest!

The article for AIM is one of the most read articles on bouvet.no

<https://www.bouvet.no/prosjekter/aim-tool>



AIM Tool - background

AIM Tool - background

- Pre-Project started in 2017
- On-going harmonization between BP and Det Norske
- Standardizing processes for Asset Integrity
- Standardizing tools and datasets for Integrity Management (IM)
- Some steps in the work process are cumbersome and not standardized
- New technology and opportunities exists. Exploit new benefits in addition to alignment
- Standard software will not adapt to our practice nor enable benefits sufficiently
- SAP S/4 does not support important parts of IM work processes

AIM Tool – Overall benefits

- Part of CSP (Core Systems Program) at AkerBP: AIM Tool, CoW, LCI, SAP and D2
- Continued compliance with regulatory integrity requirements
- Efficient implementation of specific Aker BP integrity processes and standards
- Provident investment in a technical IT platform for future enhancements
- Integration with SAP and SAP work processes
- Enriched quality and value of collected inspection and condition data

AIM Tool - Improved work process support

- Using tablets offshore
- Parameterized inspection reporting
 - Enable data logic, mining and learning
- Inspection reporting links directly to
 - Anomaly Management
 - Fabric Maintenance
- Link to process data from PI
- Web interface
 - Improved user experience
 - Improved interaction with other applications
- Improved integration to related tools
- Improved job packaging for efficient execution
- Automated creation of SAP WOs and Notifications



AIM Tool - Technology

Oracle APEX

- Highly productive browser-based application development framework for creating responsive applications with SQL and PL/SQL
- Built-in templates with responsive design and good selection of components
- Easy to learn and use
- Easy to customize if needed
- Free to use with all Oracle setups

Technology

- Oracle APEX 18 -> In update process to APEX 21
- Oracle 18 DB on Linux (RedHat)
- Oracle ORDS / Tomcat / Apache (dev)
- PL/SQL
- TargetProcess used for project organization
- GitHub for source control
- SAP integrations uses Soap API and rest API
- Various other integrations -> Cognite CDF, Aveva Net and others.

APEX team inspection application experience

- AMIS – Conoco Phillips
 - Used as the base template for AIM Tool
 - Master data from SAP
 - Long history, started as an inhouse development at CopNo
 - First version in use around 1995

- NEMIS (EMIS) – Neptune Energy (former Engie)
 - Focus on visual inspections
 - Covers inspections and evaluation of inspections
 - Master data from COMOS (Siemens)
 - Developed by Bouvet in 2015 – 16, continuous development and support since



AIM Tool – The project and status

APEX team delivery model

- Work organized in 2-week sprints using Scrum-ish methods
- Sprint review at end of every sprint at Bouvet
- Quick startup and fast setup of test environment with a useable version of the application after first or second sprint
- Strict rules for coding, naming standards etc.
- All business logic separated from the GUI in Oracle packages
- Reusable framework with common objects for quick startup
- Deliver usable version of the application at the end of each sprint
- In-application guidelines for naming convention, icons etc

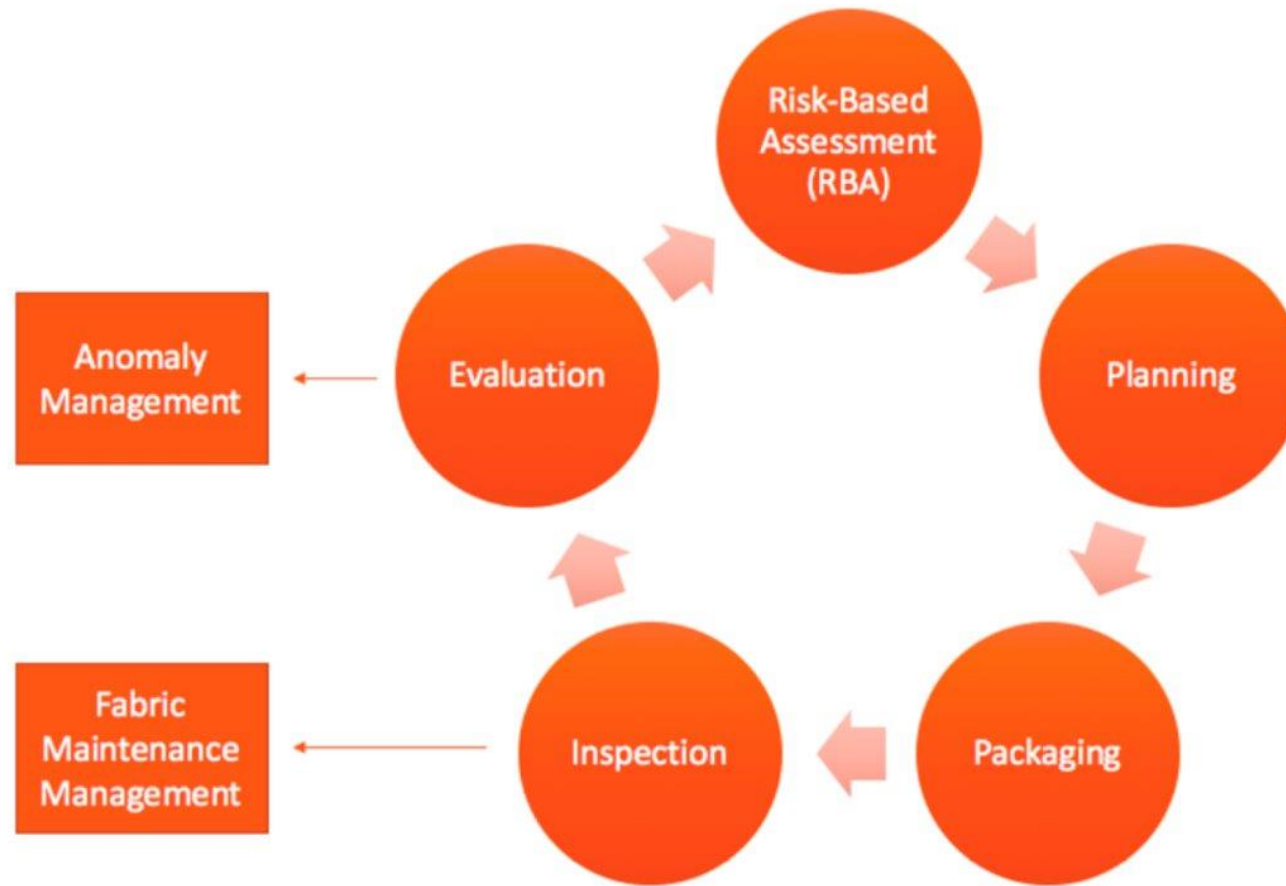
AIM Tool - status

- AIM Tool has been in production since January 2020 along with all the other projects in the CSP (Core Systems Program), CoW, LCI, SAP and D2.
- Work ongoing for the last 2 years with additions, further development and bug fixing.
- Scope for 2022 includes support for handheld devices, lightweight version of inspections module to perform inspections out in the field.
- Further integrations and development of the application.

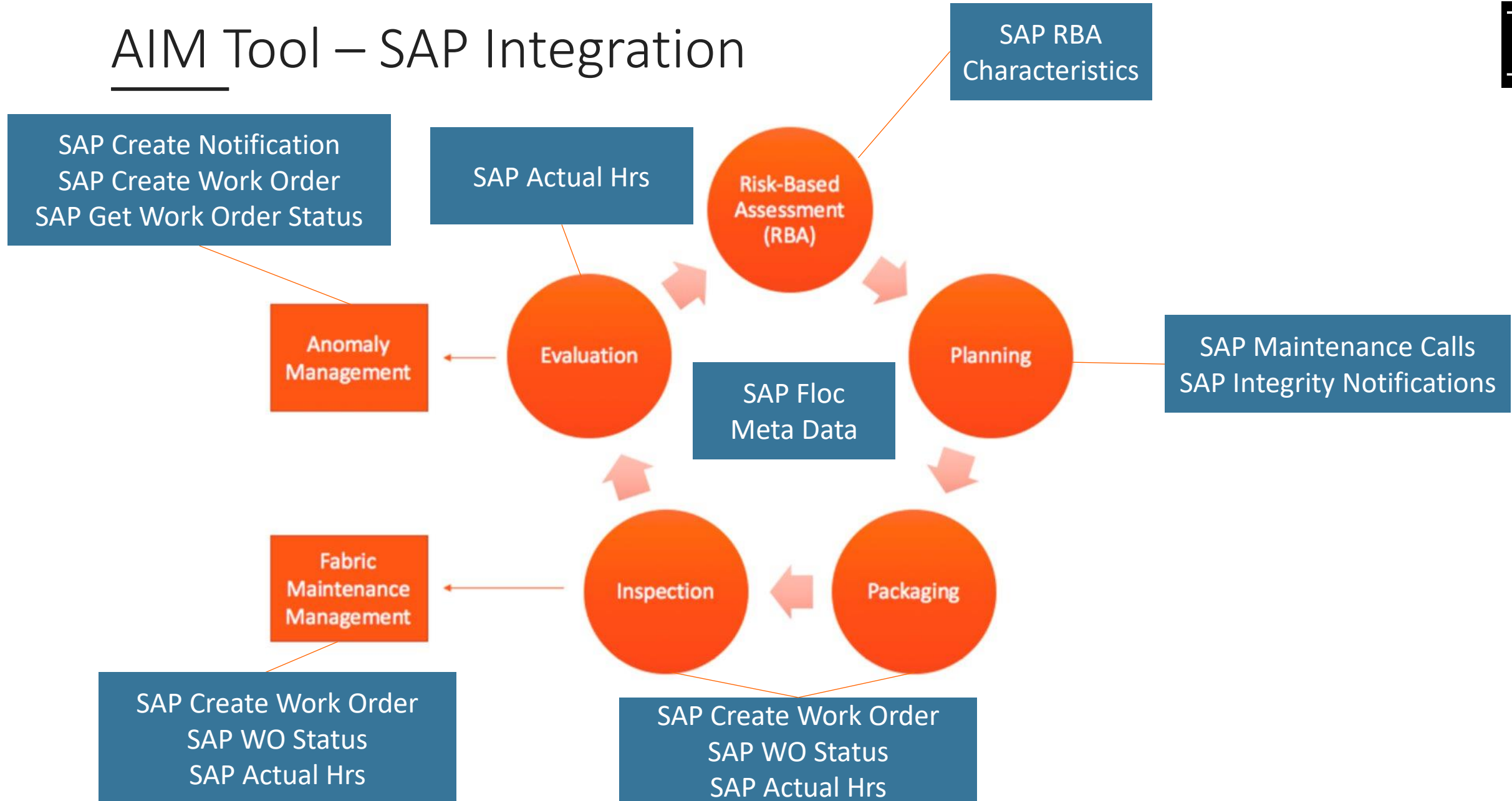


AIM Tool – SAP integration

AIM Tool - Work process support

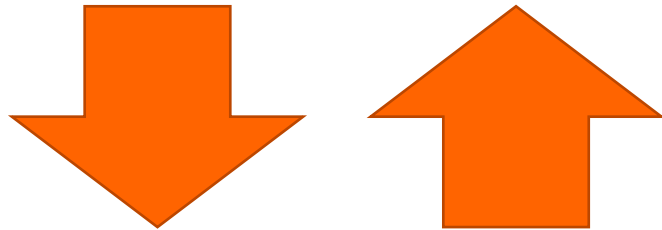


AIM Tool – SAP Integration



AIM Tool – RBA Characteristics

RBA Module
(AIM Source)



SAP
Characteristics

- RBA Risk/Consequence/Probability
- Pr Tag on Nightly Routine
- Mapping AIM Risk and SAP Risk
- Returned to AIM (Verify)

AIM Tool – RBA Characteristics

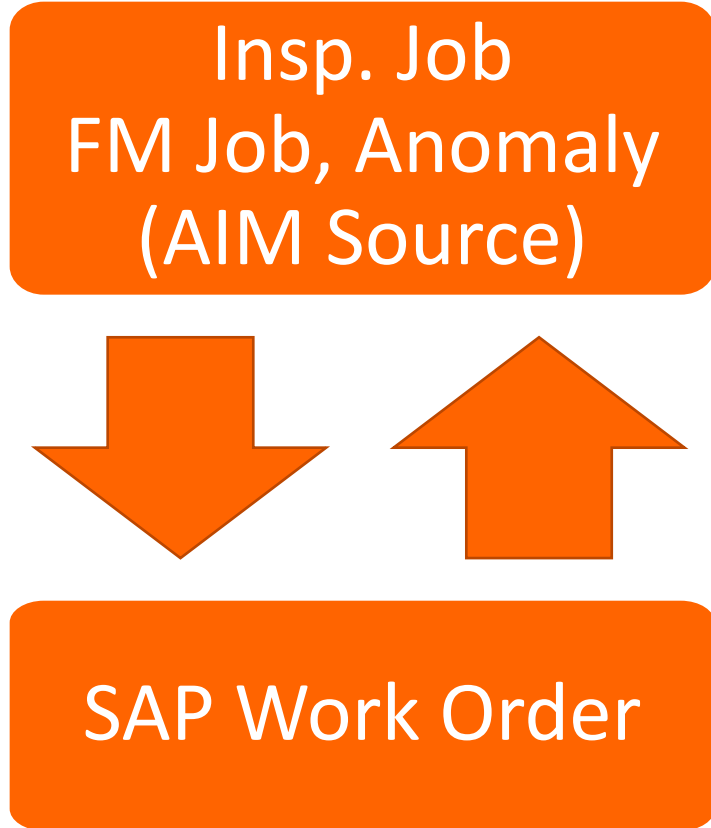
AIM – Tag RBA - DEMO

Type : RBA						
Group Code ↑≡	Object Type	Group Tag Cnt	Max RBA Group Risk	Safety Risk	Environment Risk	Business Risk
ULD-00-AB-CS-1	Pipework	1	H	 F3	 F5	 C5
ULD-00-AB-CS-2	Pipework	1	H	-	-	-
ULD-00-AP-CS-1	Pipework	25	M	 F3	 F5	 E5

SAP (SAP App)

Characteristics (8)	
Characteristic Description	Value
Maintenance Planning Plant	(5000)
RBA Consequence Cost	Minor (5)
RBA Consequence Environment	Negligible (6)
RBA Consequence Max	Minor (5)
RBA Consequence Production	Minor (5)
RBA Consequence Safety	Negligible (6)
RBA Probability	Very Likely (5)
RBA Risk	Medium (M)

AIM Tool – Work Orders



- Work Orders Created
 - Operations
 - Hrs
 - Function Locations
 - Links
- Pr Job (Insp/FM Job) or Anomaly
- Work Order Status
- Automatic Close Out Jobs (TECO)

AIM Tool – Work Orders

AIM – Create Work Order DEMO

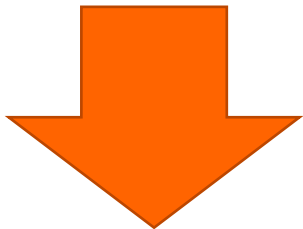
SAP (SAP App) – Returned to AIM for verification

The screenshots show the AIM Tool interface for creating and verifying work orders. The interface is divided into several sections:

- Header:** Work order: 400031003. Planning plant: 5000 - ULA MPP. Long text: Insp 19076 (GVI) (D00,D04,D05,D14) G BULK AIR CS lines on D-platform and Q. Due Date: 20211220.
- Operations:** User status: CNF JBFI MANC NMAT PRC SE. System status: M.ULAAA.UL.33.P000. Notification: WBS Element: M.ULAAA.UL.33.P000. Cost: Planned: 0,70 Actual: 0,00. Estimated Cost: 0.
- Components:** Operation: 0010. Description: GVI. Duration / Unit: 8.8 / H. Remaining Work: 0.00.
- Attachments:** A table listing attachments with columns: File name, File title, Created by, Creation date, Notification. The table contains three rows: URL, BMS Work Process: 53-01-0..., and Procedure: GVI.
- Return Document:** A table listing return documents with columns: Return Docu..., De..., Line No., Material, Item Text, Quantity, Recommended Action, Step. The table contains one row: No Files.

AIM Tool – Maintenance Calls / Integrity Notifications

Maint. Calls
Int. Notif.
(SAP Source)



AIM Listing

- Needed for planning work
- Listing and Sign Off in AIM
- Create Observation from Integrity Notification

AIM Tool – Tag Report

SAP Tag
(Functional Loc.)

Link

Link

AIM Tag

- SAP App Link to AIM Tag Report
- AIM Link to SAP GUI Tag Details
- No Need For Real Integration

AIM Tool – Tag Report

SAP – Link to Tag Report in AIM

General Information Responsibilities Characteristics (8) BOM (13) Work Orders (0) Maintenance Items (0) Measuring Readings (0) Repair Report (0) Documents (1) MoC (4)

[Create Notification](#) [Historical Data Workmate](#) [AIM Inspection info](#)

FLOC: [ULD-0300-AB-3519-C1A-A](#)
 Description: BULK AIR
 Maintenance Plant: Ula D (5012)
 ABC Indicator:
 Location: MODULE 4 - DRILLING (D04)
 Object Type: Piping (PI)

Construction Type: [1000199448](#)
 Manufacturer Name:
 Model Number:
 Manufacturer Part No:
 Manufacturer Serial No:

System Status: CRTE (Created)
 User Status: SERV (In-Service)
 Catalog Profile: Piping (PI0000001)
 Barrier System:
 SCE:

Serialdata: Material nr:
 Serial No:
 Technical Identification No:
 Connected to Maintenance Items:
 Does BOM exist?: ☒

Responsibilities

Planner Group: Offshore Planning (100)
 Main Work Center: Mechanical Technician (MIMEK)



AIM - Tag Info Report: ULD-0300-AB-3519-C1A-A

KEY TAG INFO

Facility	Platform	Tag No	Functional Location	System	Object Type	Tag Status	No. of Test Points (TP)	TP Areas
Ula	Ula D	0300-AB-3519-C1A-A	ULD-0300-AB-3519-C1A-A	00 - General	PIPEWORK	IN OPERATION	1	D04

Imp Type Last Imp Date Next Tentative Imp Date

EXTVIS	24.11.2021	16.03.2022
INTVIS	28.02.2022	17.06.2026
NDT	N/A	17.06.2022

Assessment Max Risk Box Risk Low Risk Safety Risk

RBA Groups	C3	C3	F3	F3
Anomalies	F4	-	-	F4
PIB Facts	-	-	-	-

INSPECTION PLANS AND RISK

Inspection Plan Code	Group Code	Group Type	Inspection Type	Interval (months)	Last Imp Date	Next Imp Date	Failure Mechanism	Box Risk	Low Risk	Safety Risk
RBA-PS-ULD-00-EXTVIS-41	ULD-00-AB-CS-1	RBA Group	EXTVIS	48	-	16.03.2022	Atmospheric Corrosion (External) - Carbon Steel	C3	F3	F1
RBA-PS-ULD-00-NDT-41	ULD-00-AB-CS-1	RBA Group	NDT	24	-	17.06.2022	CO2 Corrosion (Internal) - Carbon Steel	C3	F3	F3
RBA-PS-ULD-00-EXTVIS-03	ULD-00-AB-CS-1	RBA Group	EXTVIS	24	21.11.2021	21.11.2023	External General Corrosion	F3	F3	F3
RBA-PS-ULD-00-INTVIS-5	ULD-00-AB-CS-1	RBA Group	INTVIS	48	28.02.2022	17.06.2026	Erosion Corrosion (Internal) - Carbon Steel	C3	F3	F1

ANOMALY

Display Functional Location: Master Data

Classification Measuring points/counters Data origin

Functional loc. [ULD-0300-AB-3519-C1A-A](#) Cat. 6 Equipment unit ID (F..

Description BULK AIR

Status CRTE SERV

General Organization Structure MoC Assessments Asset Central

General data

Class AKERBP_INSP AkerBP Inspection Class

Object Type PI Piping

AuthorizGroup

Start-up date

Responsibilities

Planning Plant 5000 ULA MPP

Planner Group 100 Offshore Planning

Main WorkCtr MIMEK / 5000 Mechanical Technician

Catalog Profile PI0000001 Piping

AIM – Link to Tag Details SAP

Tag Code 0300-AB-3519-C1A-A

Status In Operation

Type PIPEWORK

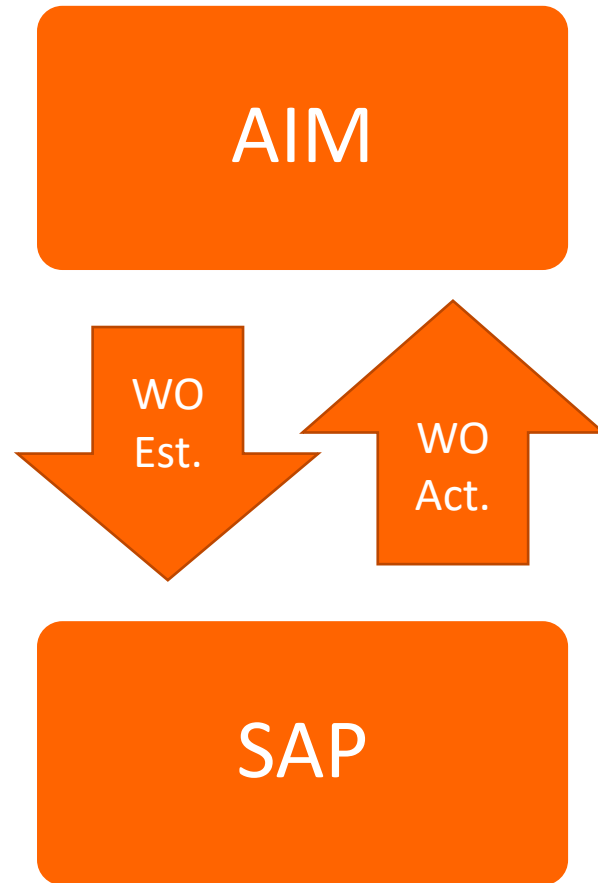
Platform Ula D Area D04

Remarks

Parent Tag Connected From Connected To



AIM Tool – Work Order Actual Hours



- Work Order Hours
 - Pr Operation
 - Actual Hrs
 - Remaining Hrs
- Compare Planned/Actual/Remaining
- Improve Estimation Engine
- Change Norms, Estimation Factors etc..
- Future KPIs, Automatic changes to Estimation Factors?