OZ Minerals

The "Story" OZ Minerals using SAP Analytics Cloud to provide valuable insights into budgeting for asset maintenance costs and activities

November 2022

OZ MINERALS

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Dean Rigelsford

OZ Minerals

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Agenda

/ Background – Who are OZ Minerals

/ SAP/SAC Timeline

/ The Building Blocks of our SAC EAM Planning Solution

- Models
- Data
- Stories
- Dashboard/Reports
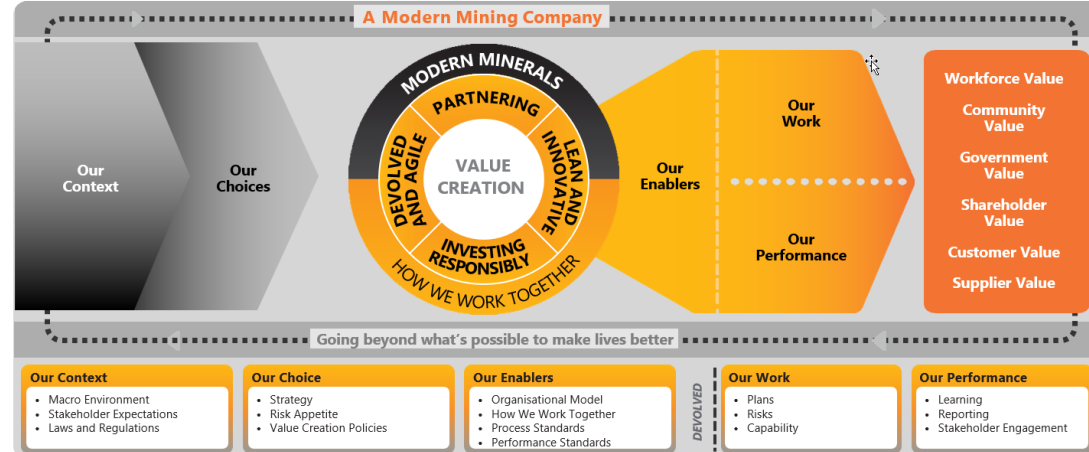
/ Learnings – Importance of Master Data

/ Roadmap

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About the Company

At OZ Minerals, we strive to be modern.

/ Our Strategy is centred around value creation for stakeholders, and supports the achievement of our Purpose, going beyond what's possible to make lives better

/ We seek to ethically and responsibly explore, mine and sell modern minerals. In doing so, we are contributing to a low carbon future and economic wellbeing which, in turn, helps us achieve our purpose and contribute to a better future.
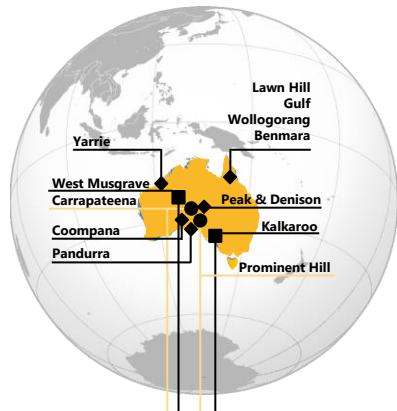

The OZ Way

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Our Context — Our Choices — MODERN MINERALS / PARTNERING / DEVOLVED AND AGILE / LEAN AND INNOVATIVE / INVESTING RESPONSIBLY / HOW WE WORK TOGETHER — VALUE CREATION — Our Enablers — Our Work / Our Performance — Workforce Value / Community Value / Government Value / Shareholder Value / Customer Value / Supplier Value

Going beyond what's possible to make lives better

Our Context	Our Choice	Our Enablers		Our Work	Our Performance
• Macro Environment • Stakeholder Expectations • Laws and Regulations	• Strategy • Risk Appetite • Value Creation Policies	• Organisational Model • How We Work Together • Process Standards • Performance Standards	DEVOLVED	• Plans • Risks • Capability	• Learning • Reporting • Stakeholder Engagement

Purpose driven organisation creating value for stakeholders enabled by culture

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Overview

The Global Modern Minerals Mining Company

Australia — **World** — **Brazil**

Lawn Hill
Gulf
Wollogorang
Benmara

Yarrie

West Musgrave
Carrapateena
Peak & Denison
Coompana
Kalkaroo
Pandurra
Prominent Hill

Painirova, Lannavaara, Sadjem, Skellefte, Rockliden

Sweden

Australia

Brazil

Peru

Gurupi Province

Carajás Province

Paraiso, Peru

Carajás East
● Pedra Blanca
■ Santa Lúcia

■ Carajás West
■ Pantera

Carrapateena
Resource
950Mt @ 0.56% Cu, 0.25g/t Au

Mine life
23 years
Reserve
210Mt @1.1% Cu, 0.44g/t Au
Guidance
2022 production
55-61kt Cu, 75-85koz Au
2022 AISC
US135-155c/lb

Cu Au

Prominent Hill
Resource
150Mt @ 0.9% Cu, 0.8g/t Au

Mine life
14 years
Reserve
62Mt @ 0.9% Cu, 0.6g/t Au
Guidance
2022 production
55-62kt Cu, 120-125koz Au
2022 AISC
US200-215c/lb

Cu Au

West Musgrave
Resource[1]
390Mt @ 0.33% Cu, 0.30% Ni
+
156Mt @ 0.6% Cu

Mine life
24 years
Reserve
270Mt @ 0.34% Cu, 0.31% Ni
FS metrics
Production (LOM)
28kt Ni, 35kt Cu
C1 cash cost
US(1.20-1.10)c/lb
(net of Ni by-product)

Ni Cu

Kalkaroo[2]
Resource[3]
245Mt @ 0.45% Cu, 0.41g/t Au

Mine life
15 years
Reserve[3]
100Mt @ 0.47% Cu, 0.44g/t Au
PFS metrics[4]
Production
30kt Cu, 72koz Au
C1 cash cost
US167c/lb

Cu Au

Carajás Province
Resource[5]
19Mt @ 1.6% Cu, 0.4 g/t Au
+
5Mt @ 2.1% Cu, 0.35 g/t Au

Mine life
7 years (Pedra Branca)
Reserve
5Mt @ 2.1% Cu, 0.5g/t Au
Guidance
2022 production
10-12kt Cu & 8-10koz Au
2022 AISC
US265-275c/lb

Cu Au

Gurupi Province
Resource
28Mt @ 1.9g/t Au

Mine life
10 years
Reserve
20Mt @ 1.7g/t Au
PFS metrics
Production
100-120koz
AISC
US$640/oz

Au

LEGEND ● Operating ◆ Exploration ■ Study phase Cu Copper Au Gold Ni Nickel **Operations** **Project/Studies** **Option to Acq.**

Notes: 1. West Musgrave includes the Succoth deposit (156Mt @ 0.6% Cu Mineral Resource); 2. Havilah shareholder approval was obtained to grant OZ Minerals the option to acquire the Kalkaroo Project on 31 August 2022. See ASX release entitled "Havilah Shareholders approve Kalkaroo Option" dated 31 August 2022; 3. Kalkaroo Resource and Reserve metrics taken from Havilah Resources' ASX release, "Annual Report to Shareholders" dated 26 October 2021; 4. Kalkaroo production metrics taken from Havilah Resources' ASX release, "Positive Kalkaroo PFS Supports Large Scale Copper Project" dated 18 June 2019; 5. Carajás Province includes the Santa Lúcia deposit (5Mt @ 2.1% Cu, 0.35g/t Au Mineral Resource).

The OZ Minerals SAP Journey

SAP S/4 HANA 1709 Upgrade

SAC Engineering Budgeting Project

S/4 HANA 2020 Upgrade

2016

2019

2020

2018

2021

SAP ECC Implementation – Corporate/Prominent Hill

Carrapateena Operational

Prominent Hill Maintenance SAC Budget Process

SAC Engineering Budgeting Enhancements (LOM)

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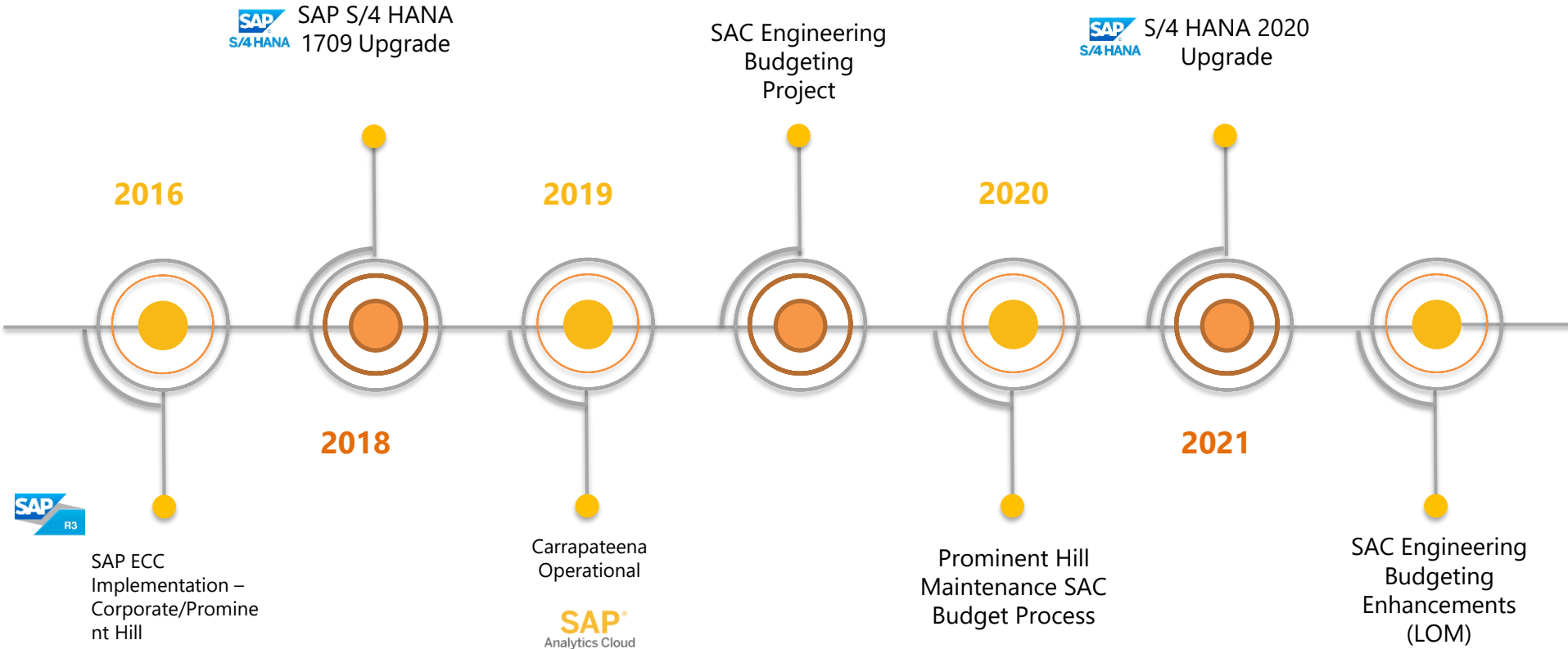
SAP Analytics Cloud – Architecture
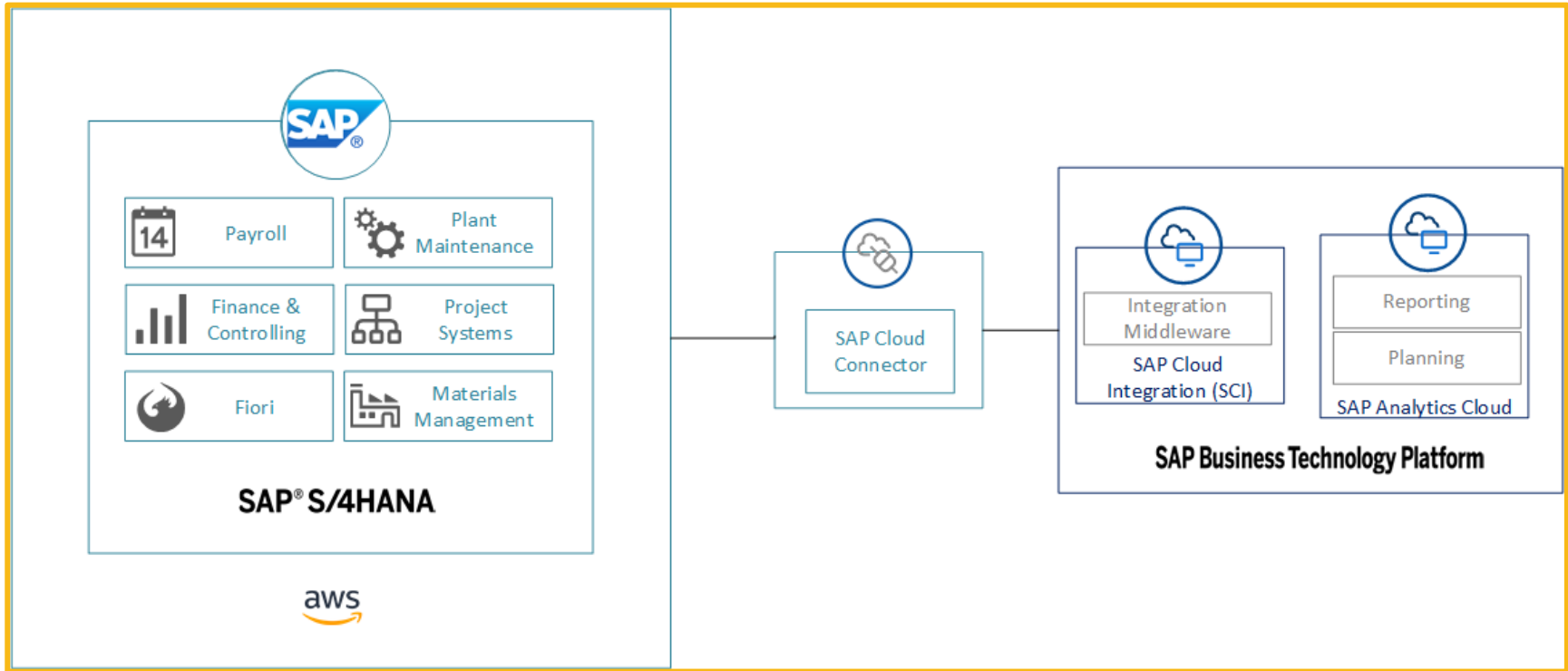
Engineering & Maintenance Budgeting

The Vision

Develop a modern Zero Based Budget solution to support financial planning for Preventative (Maintenance Plans), Minor Corrective (Work Orders) and Major Corrective Maintenance at a Functional Location, Maintenance Type, Material and Object Type level

Problems we are solving

- Shift away from complex Excel budget spreadsheets
- Common data model & automate integration
- Shared planning process across sites
- Breaking down knowledge silo's
- Better visibility and analysis of budgets and actual performance

Benefits to OZ Minerals

- Reduce time to value
- Reduce overheads of budgeting, forecasting & planning
- Accurate Engineering & Maintenance Budgets – Data Quality
- Improve Maintenance Budget Reporting
- Build positive partnerships & relationships

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Building Blocks of the SAC Engineering Model

SAC Budget Solution Overview
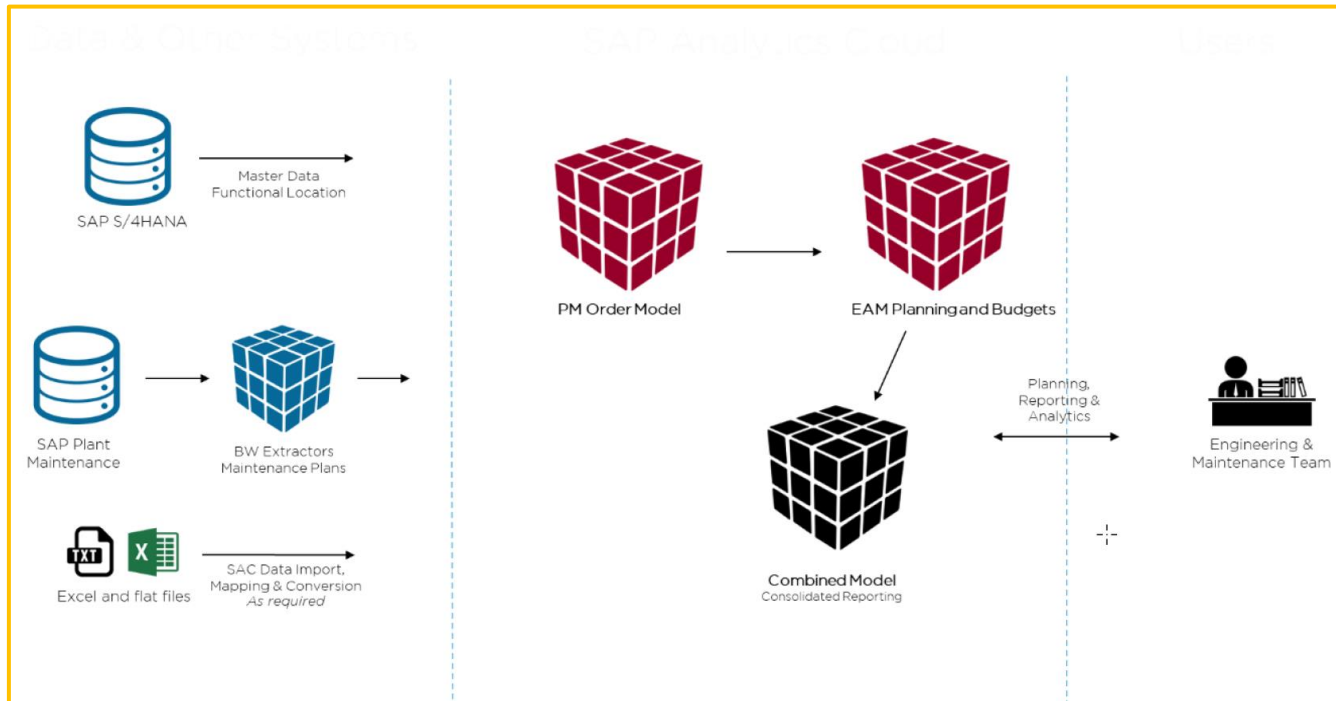
CDS Views – The Wizardry Pulling The Data Together

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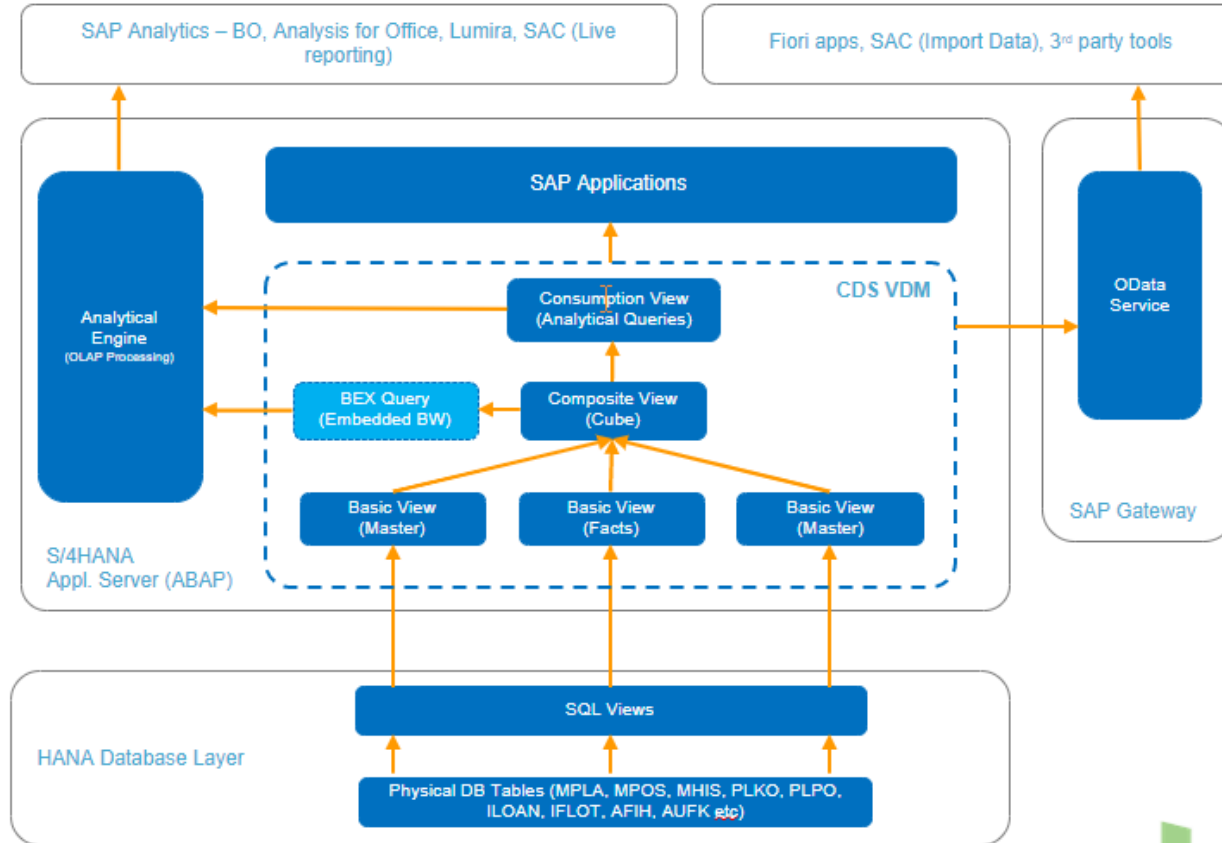
EAM Budgeting and Planning Solution
Planning Process

Stories

Planning Story
Inputs

/ Planned

– The Planned tab of the EAM Planning story will facilitate all planned tasks. The Frequency, Actual Cost per Task (Median), Plan Cost per Task (SAP) Cost Variance % and Total cost per account will be loaded in the EAM Planning and Budgeting Model. This will be loaded against Company, Cost Centre, Functional Location, Task List and Account.

*Please Note – All values in this screenshot are test data.

Planning Story
Inputs

/ Unplanned

- The Unplanned tab of the EAM Planning story will facilitate all Unplanned maintenance task planning. The Frequency, Actual Cost per Task (Median), Plan Cost per Task (SAP) Cost Variance % and Total cost per account will be loaded in the EAM Planning and Budgeting Model. This will be loaded against Company, Cost Centre, Functional Location, Task List **(System generated task list)** and Account.

- The data will be recorded against 12 dummy Task lists:

Planning Story
Inputs

/ New Planned

    – The New Planned tab of the EAM Planning story will facilitate all New Planned maintenance task planning. Planning at a Company, Cost Centre, Functional Location , Account and Task List. The data will be recorded against 12 dummy Task lists:

Planning Story
Inputs

/ **New Unplanned**

– The New Unplanned tab of the EAM Planning story will facilitate all New Unplanned maintenance task planning. Planning at a Company, Cost Centre, Functional Location , Account and Task List. The data will be recorded against 12 dummy Task lists:

| Unplanned Major Electrical Non-Shutdown |
| Unplanned Major Electrical Shutdown |
| Unplanned Major Mechanical Non-Shutdown |
| Unplanned Major Mechanical Shutdown |
| Unplanned Major Production Non-Shutdown |
| Unplanned Major Production Shutdown |
| Unplanned Routine Electrical Non-Shutdown |
| Unplanned Routine Electrical Shutdown |
| Unplanned Routine Mechanical Non-Shutdown |
| Unplanned Routine Mechanical Shutdown |
| Unplanned Routine Production Non-Shutdown |
| Unplanned Routine Production Shutdown |

EAM Budgeting and Planning Solution
Cost Centre Planning (Non-Maintenance driven costs)

EAM model – Cost Centre Planning (Non Maintenance driven costs)

EAM Planning Model

Input

Direct Cost centre planning → Direct CC Planning Incl. Actuals → Total Cost Centre Plan Report

Process

System Admin → Transfer from Work Force Planning

Output

Cost Centre Dashboard

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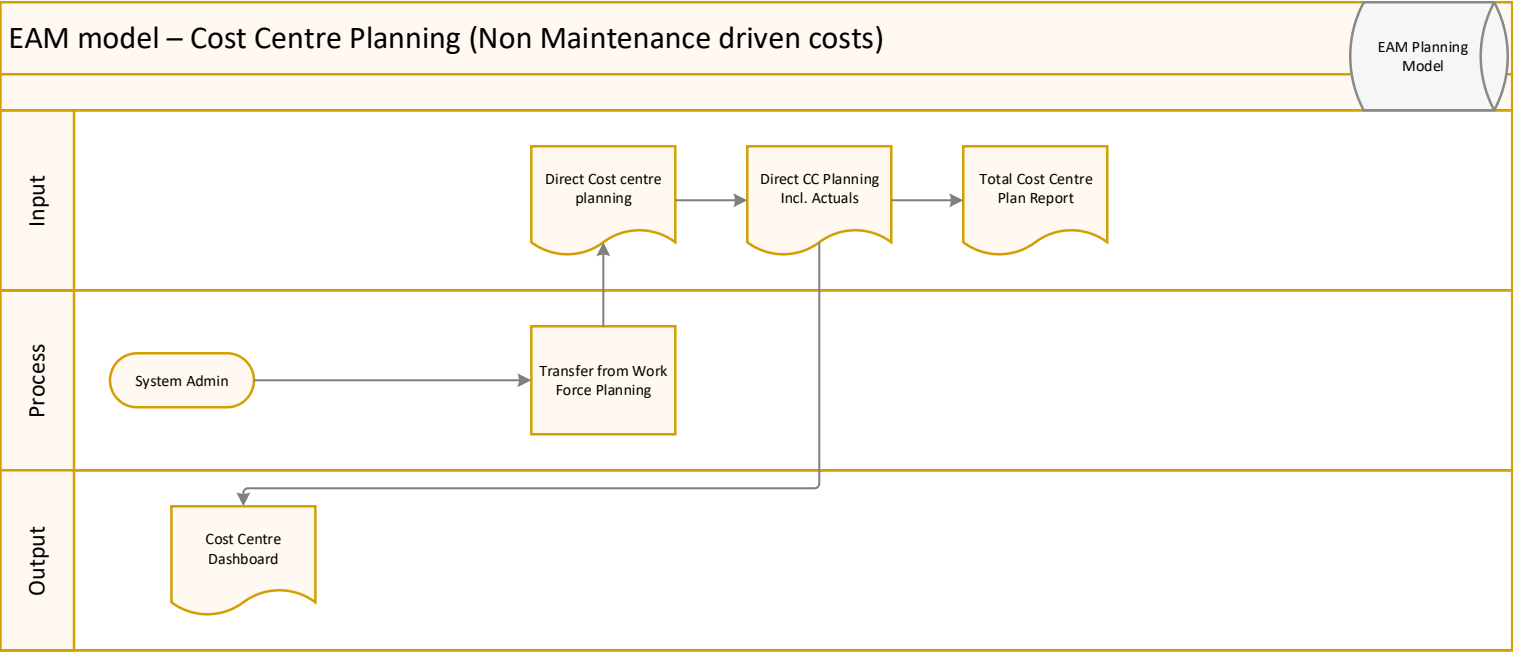
Cost Centre Planning Story
Cost Centre Planning (Non-Maintenance driven costs)

/   Direct Cost Centre planning

   –   Direct costre centre planning will be done at a company, cost centre and account combination.

*Please Note – All values in this screenshot are test data.

Using Add member functionality

Example Dashboard

*Please Note – All values in this screenshot are test data.

Example Reporting Stories

PM Order Actuals - This report displays data at a cost centre, Functional Location, Task list, PM orders and Account level. The Median Cost (PM Orders) is displayed in the report.

Version (1) Actual	Company (All)	Cost Centre	Functional Location (All)	Task List (1) 1W Mech Statutory Scaffoldin...	Date (1) 2015 - 2020

Task List Actuals | PM Orders Actuals

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*Please Note – All values in this screenshot are test data.

PM Orders - Actuals
Date: Mar 1, 2020 User: Steven Blumenthal

Company (All)	Cost Centre (All)	Functional Location (All)	Task List (All)

				Version	Actual			
				Date	(all)	2016	2017	2018
Cost Centre	Functional Location	Task List	PMORDERS	ACCOUNT_EAM				
6080003211	PH-3000-3100-3110	Total	420057913 1W Mech Statutory Scaffolding Inspection	Total Cost	1,356.00	1,356.00	–	
			420057915 1W Mech Statutory Scaffolding Inspection	Total Cost	1,808.00	1,808.00	–	
			420058997 1W Mech Statutory Scaffolding Inspection	Total Cost	2,028.00	–	2,028.00	
			420059150 1W Mech Statutory Scaffolding Inspection	Total Cost	624.00	–	624.00	
			420059266 1W Mech Statutory Scaffolding Inspection	Total Cost	1,404.00	–	1,404.00	
			420059377 1W Mech Statutory Scaffolding Inspection	Total Cost	3,700.00	–	3,700.00	
			420059502 1W Mech Statutory Scaffolding Inspection	Total Cost	3,208.00	–	3,208.00	
			420059795 1W Mech Statutory Scaffolding Inspection	Total Cost	3,776.00	–	3,776.00	
			420060034 1W Mech Statutory Scaffolding Inspection	Total Cost	2,442.00	–	2,442.00	
			420060260 1W Mech Statutory Scaffolding Inspection	Total Cost	960.00	–	960.00	
			420060409 1W Mech Statutory Scaffolding Inspection	Total Cost	2,320.00	–	2,320.00	
			420060543 1W Mech Statutory Scaffolding Inspection	Total Cost	2,960.00	–	2,960.00	
			420060676 1W Mech Statutory Scaffolding Inspection	Total Cost	1,920.00	–	1,920.00	
			420060797 1W Mech Statutory Scaffolding Inspection	Total Cost	560.00	–	560.00	
			420060969 1W Mech Statutory Scaffolding Inspection	Total Cost	2,400.00	–	2,400.00	
			420061114 1W Mech Statutory Scaffolding Inspection	Total Cost	3,120.00	–	3,120.00	
			420061240 1W Mech Statutory Scaffolding Inspection	Total Cost	1,440.00	–	1,440.00	

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Learnings

Master Data – Task List & BOM Accuracy for Budgeting

/ Development of the EAM Budgeting Solution highlighted issues around data quality in Task Lists & Bill of Materials.

/ Significant amount of Task Lists did not contain Materials and/or accurate operation data (incorrect resource work centers, planned hours etc). This had a significant impact on the Planned portion of the budget process.

/ PM Eleven's BOM & Task List Review Tools significantly reduced the administrative requirements that would have consumed Maintenance Planners at site for weeks.

Task List Review Tool

/ Focused on Shutdown Task Lists first, given these were the most complex / high $$

/ Eventually making way down to the higher frequency tasks

/ Easily able to update the Planned Hours/RWC/Material all within the one screen

BOM Review Tool

/ It works by finding all the material components previously used on Maintenance Work Orders for an Equipment/FLOC selection and provides the user with a clear list of those which don't exist in a BOM. It then can quickly and easily update the BOM based on your actual material usage

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SAP S/4 HANA Upgrades & CDS Views

/ S/4HANA Upgrades & Existing CDS Views
  – Don't forget about these when doing testing.
  – Some CDS Views failed/had issues after the upgrade

/ Set up Alerting on SAC Interfaces between S4/HANA to monitor any integration issues

/ Increase the Data Management frequency in SAC to update Master Data & Transactional Data, particularly during the business planning/budgeting phase.

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Recent Developments & Roadmap
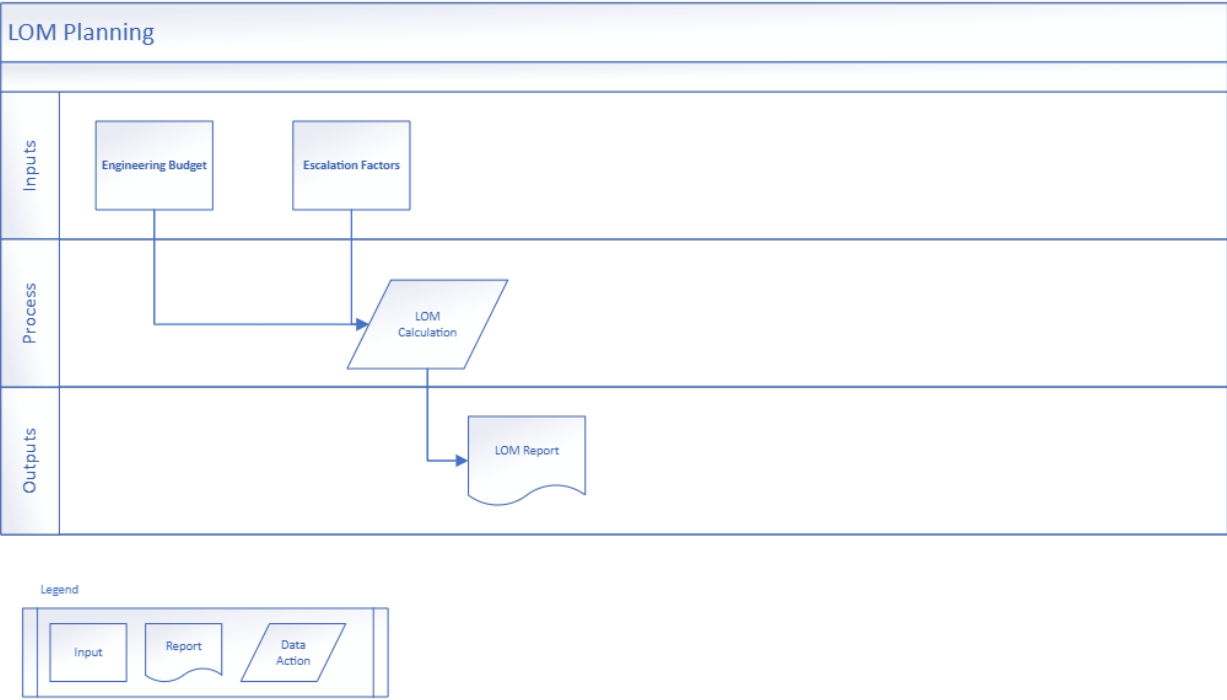
30 Year Engineering Budget - Life Of Mine

/ During the 2021 budget process a requirement was made to be able to simulate an increase or decrease in budget figures at a Cost Center / GL Account level for the next 30 years.

/ Whilst this could have been achieved with the existing Planning inputs it would have required a number of load sheets to be built to input the data for the longer planning horizon.

/ We engaged Bluetree to develop a new SAC Story, Data Actions, and Reports to be able to simulate future year budget numbers utilizing the existing Planning & Budgets Model.

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Maintenance Budget LOM Process

Cost Centre	Description	Account Version Date	Jan (2022)	Jan (2023)	Jan (2024)	Jan (2025)	Jan (2026)	Jan (2027)	Jan (2028)	Jan (2029)	Jan (2030)	Jan (2031)	Jan (2032)	Jan (2033)	Jan (2034)	Jan (2035)	Jan (2036)	Jan (2037)	Jan (2038)	Jan
		Escalation % LoM Test V2 *																		
6080101621	Primary Ventilation - Maintenance		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
6080101001	UG Supervision/Admin - Maint		99.00	90.00	80.00	75.00	–	–	–	–	–	–	–	–	–	–	–	–	–	
6080101081	UG Facilities - Maintenance		99.00	90.00	80.00	75.00	–	–	–	–	–	–	–	–	–	–	–	–	–	
6080101111	Development Drilling - Maintenace		99.00	90.00	80.00	75.00	99.00	90.00	80.00	75.00	99.00	90.00	80.00	75.00	99.00	90.00	80.00	75.00	–	
6080101211	Production Blast - Maintenance		99.00	90.00	80.00	75.00	99.00	90.00	80.00	75.00	99.00	90.00	80.00	75.00	99.00	90.00	80.00	75.00	–	
6080101601	Mine Services - Maintenance		99.00	90.00	80.00	75.00	99.00	90.00	80.00	75.00	99.00	90.00	80.00	75.00	99.00	90.00	80.00	75.00	–	
6080101731	Backfilling - Pastefill - Maintenance		99.00	90.00	80.00	75.00	99.00	90.00	80.00	75.00	99.00	90.00	80.00	75.00	99.00	90.00	80.00	75.00	–	
6080101811	Dewatering - Maintenance		99.00	90.00	80.00	75.00	–	–	–	–	–	–	–	–	–	–	–	–	–	
6080101821	In-Pit Dewatering Maintenance		99.00	90.00	80.00	75.00	–	99.00	90.00	80.00	75.00	–	–	99.00	90.00	80.00	75.00	–	–	
6080003211	Primary Crusher - Maint		99.00	90.00	80.00	75.00	–	99.00	90.00	80.00	75.00	–	99.00	90.00	80.00	75.00	75.00	90.00	80.00	
6080003301	Grinding - Maint		–	–	–	–	–	99.00	90.00	80.00	75.00	–	99.00	90.00	80.00	75.00	75.00	90.00	80.00	
6080003311	Ball Mill - Maint		99.00	90.00	80.00	75.00	–	–	–	–	–	99.00	99.00	90.00	80.00	75.00	99.00	90.00	80.00	
6080003321	SAG Mill - Maint		99.00	90.00	80.00	75.00	–	99.00	90.00	80.00	75.00	99.00	90.00	80.00	75.00	–	–	–	–	
6080003401	Reagent Mixing - Maint		99.00	90.00	80.00	75.00	–	99.00	90.00	80.00	75.00	99.00	90.00	80.00	75.00	–	–	–	–	
6080003501	Concentrator - Maintenance		–	–	–	–	–	99.00	90.00	80.00	75.00	75.00	–	–	–	–	–	–	–	
6080003511	Flotation - Maint		99.00	90.00	80.00	75.00	99.00	90.00	80.00	75.00	80.00	75.00	–	–	–	–	–	99.00	90.00	
6080003521	Thickening - Maint		99.00	90.00	80.00	75.00	99.00	90.00	80.00	75.00	80.00	75.00	–	–	99.00	90.00	80.00	75.00	90.00	
6080003531	Filtering - Maint		99.00	90.00	80.00	75.00	99.00	90.00	80.00	75.00	–	–	–	–	99.00	90.00	80.00	75.00	90.00	
6080003541	Paste Fill Production - Maint		–	99.00	90.00	80.00	75.00	–	–	–	–	–	–	–	99.00	90.00	80.00	75.00	–	
6080003551	Paste plant new maintenance		–	99.00	90.00	80.00	75.00	–	–	–	–	–	99.00	90.00	80.00	75.00	–	–	
6080003801	Tailings Dam - Maintenance		–	99.00	90.00	80.00	75.00	–	–	–	–	–	99.00	90.00	80.00	75.00	–	–	
6080006000	Engineering		–	–	–	–	–	–	–	–	–	–	99.00	90.00	80.00	75.00	–	–	
6080006001	Engineering - Maintenance		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
6080006120	Workshop Electrical		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
6080006220	Workshop Mechanical		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	

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Maintenance LOM Example Reporting

*Please Note – All values in this screenshot are test data.

Wrapping Up

The Vision

Develop a modern Zero Based Budget solution to support financial planning for Preventative (Maintenance Plans), Minor Corrective (Work Orders) and Major Corrective Maintenance at a Functional Location, Maintenance Type, Material and Object Type level

Problems we are solving

Shift away from complex Excel budget spreadsheets

Common data model & automate integration

Shared planning process across sites

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Benefits to OZ Minerals

Reduce time to value

Reduce overheads of budgeting, forecasting & planning

Accurate Engineering & Maintenance Budgets – Data Quality

Improve Maintenance Budget Reporting

Build positive partnerships & relationships

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Questions?

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MASTERING **SAP**
An SAPinsider Company

Gold Coast, QLD
14 - 15 November, 2022

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