

# Building Information Model (BIM) in Port Asset Management

By Tomasi Sauqaqa, RHDHV.  
Date: Thursday, 25 July 2024.

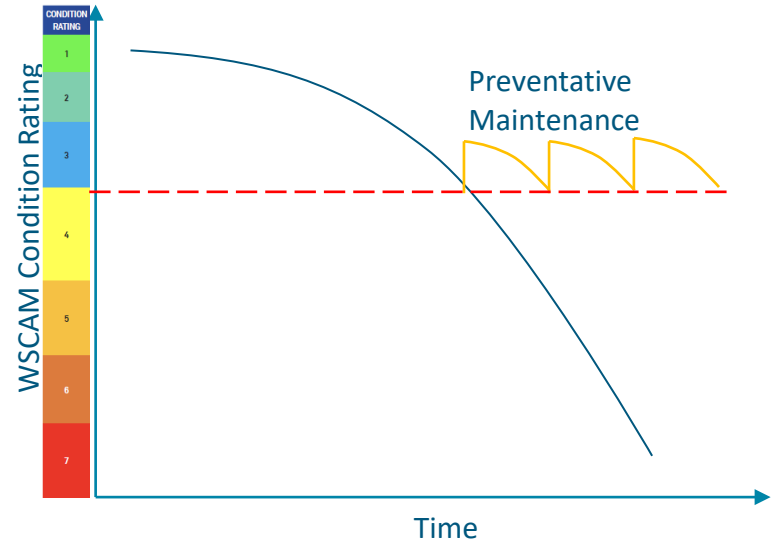
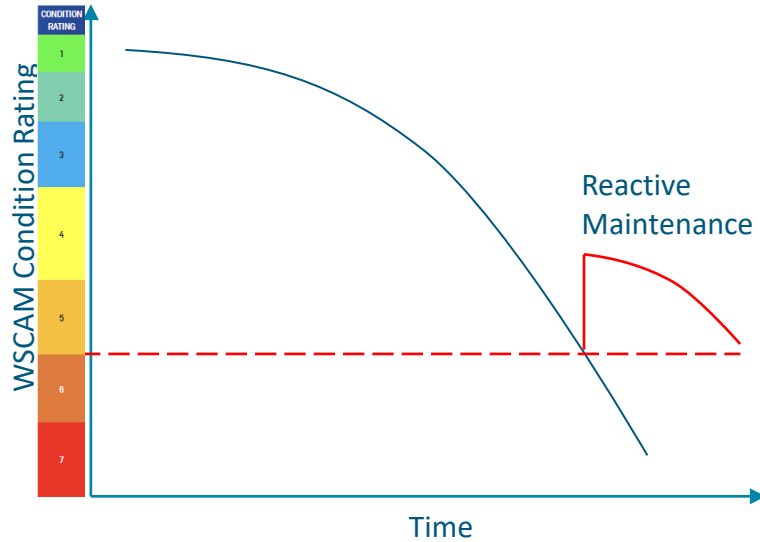


# Table of Contents

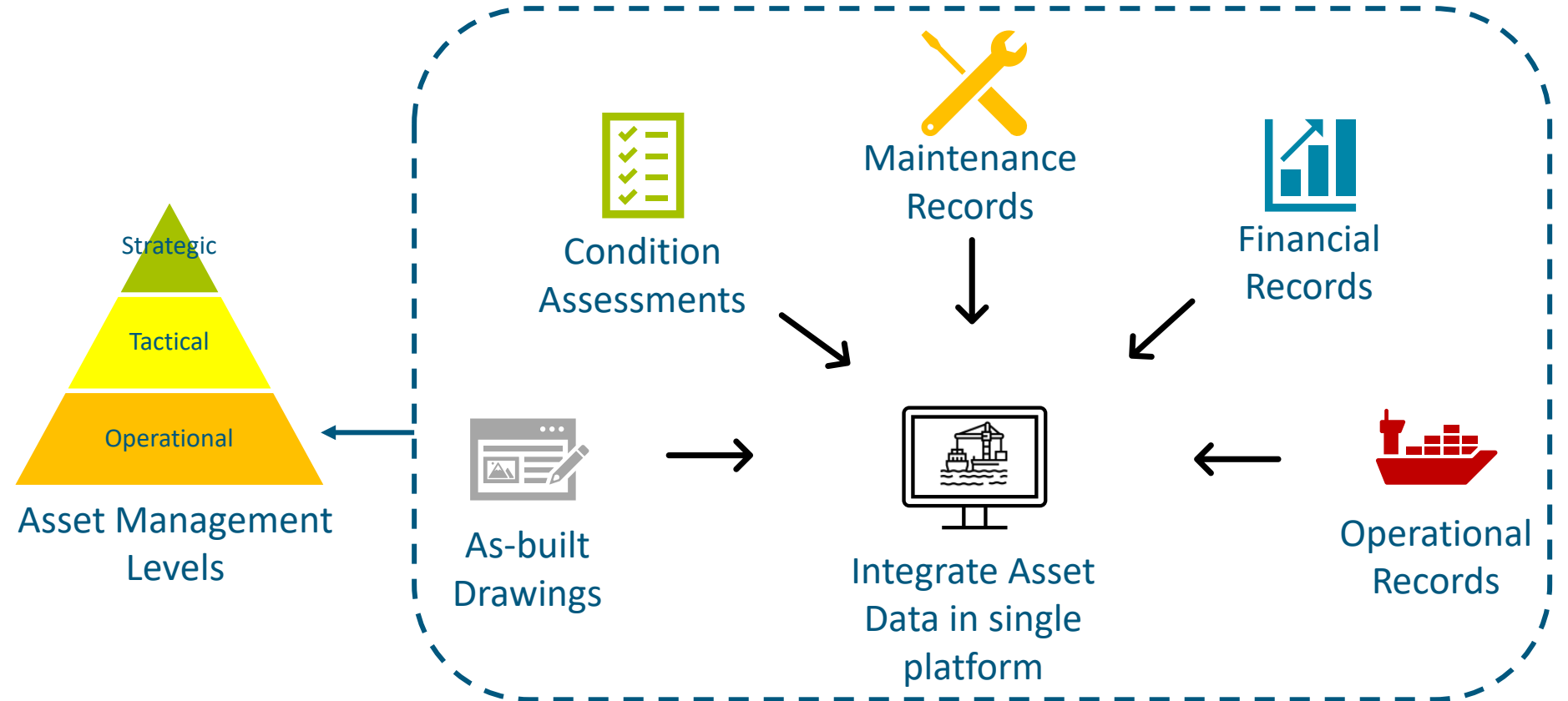
1. Project Development
  1. Challenges & Objective
  2. Desired Outcome
2. Asset Management Dashboard/Platform
  1. Development
  2. Deliverables
3. Questions

# 1. Project Development – Challenges

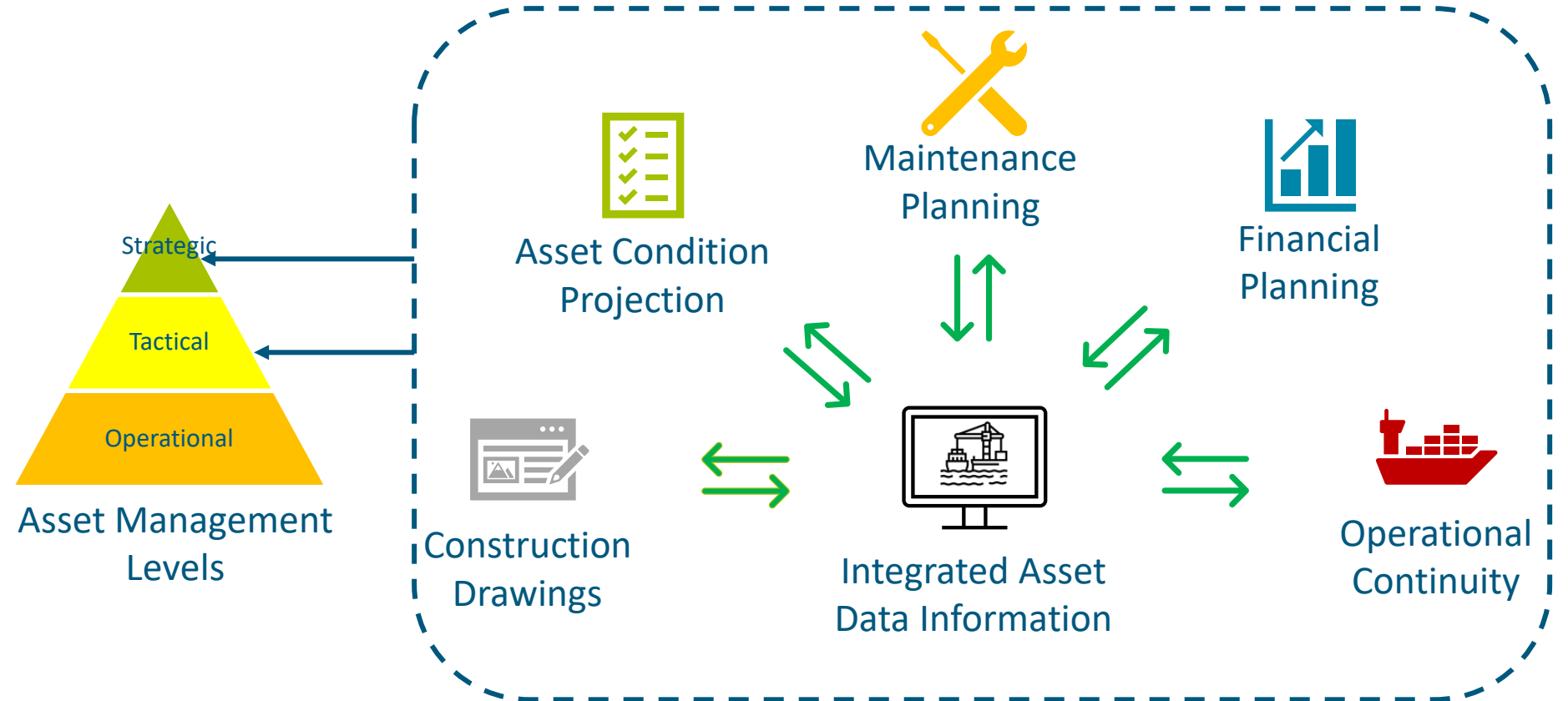
- Change from Reactive Maintenance to Preventative Maintenance Approach required detail knowledge of the asset components, its condition and rate of deterioration.



# 1. Project Development - Objective

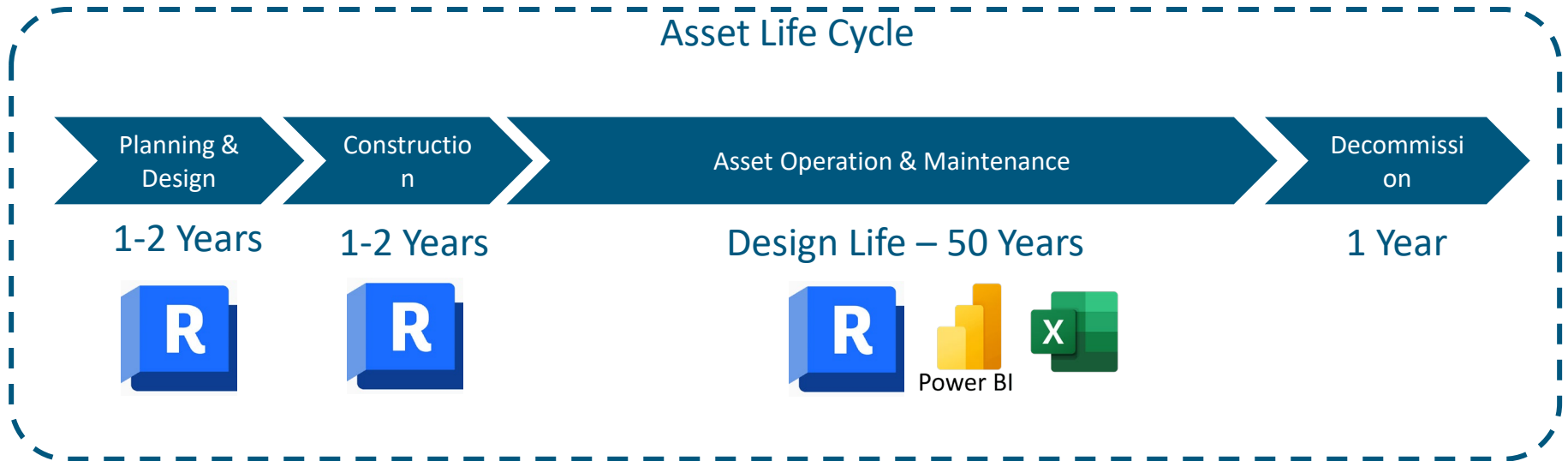


## 2. Project Development - Desired Outcome



### 3. Asset Management Dashboard - Development

- Extend the use of BIM into the Asset O&M Phase of the Asset Life Cycle.



### 3. Asset Management Dashboard - Development

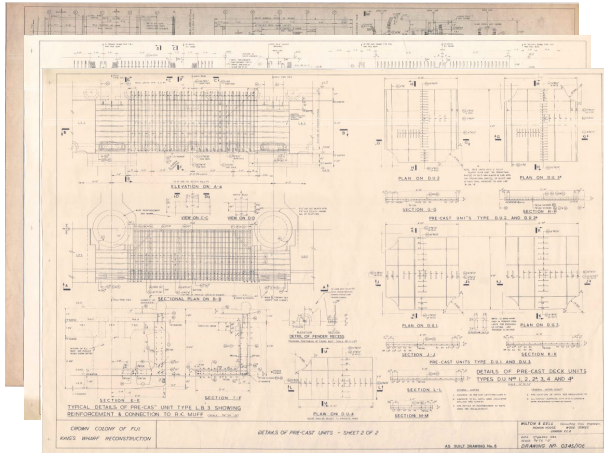
- For existing ports: As-built Drawings modelled into Revit. Material, geometry, reinforcements, quantities is captured.



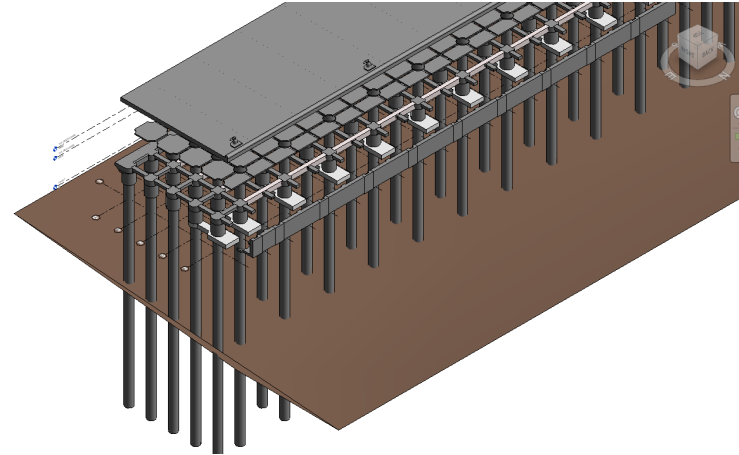
As-built Drawings



Autodesk Revit



1962 As-Built Drawings



Exploded view of 3D Asset Model

### 3. Asset Management Dashboard - Development

- Ports Australia WSCAM based condition assessment embedded into Revit.



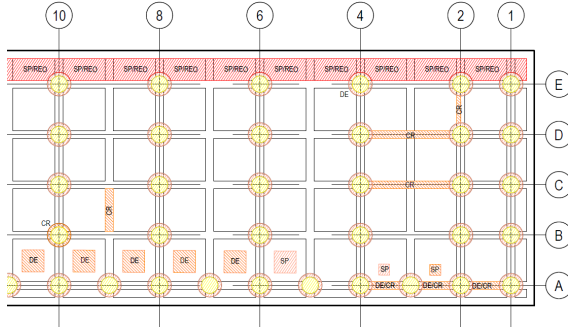
Condition Assessments



Autodesk Revit



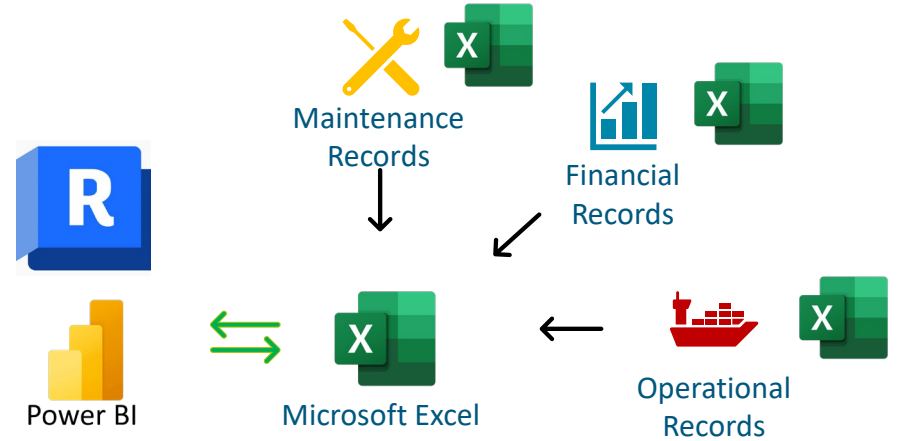
Power BI





# 3. Asset Management Dashboard - Development

- Maintenance, Financial and Operational datasets in csv or excel format can be integrated into the platform.



Item	Description	Qty	Unit	Rate	Amount
10	<b>PRELIMINARIES/CONTRACTOR'S ON COST</b>				
10.1	Mobilisation/Demobilisation.	1.00	Item	\$	-
10.1.1	Preparation and implementation of a Project Management Plan (including construction programme).	1.00	Item	\$	-
10.1.2	Preparation and implementation of project specific Environmental Management Plan.	1.00	Item	\$	-
10.1.3	Preparation and implementation of project specific Health and Safety Plans.	1.00	Item	\$	-
10.1.4	Preparation and implementation of project specific Quality, Health and Safety Plans.	1.00	Item	\$	-
10.1.5	Preparation and implementation of project specific Quality System (including Inspection & Test Plans)	1.00	Item	\$	-
10.1.6	Site establishment (including site fencing, amenities, etc. as required).	1.00	Item	\$	-
10.1.7	Temporary works (including personnel access system/scaffolding, breakout material capture, etc.)	1.00	Item	\$	-
10.1.8	Contractor's Insurance.	1.50	Item	\$	-
10.1.9	Location of existing services and provision to terminate or maintain.	1.00	Item	\$	-
20	<b>DEMOLITION</b>				
20.1	Demolition and disposal of 150mm thick concrete slab overlay	320.27	m <sup>2</sup>	\$	-
20.2	Demolition and disposal of existing concrete deck	894.14	m <sup>2</sup>	\$	-
20.3	Demolition and disposal of deck adjacent to end trispan	7.27	m <sup>2</sup>	\$	-
20.4	Demolition and disposal of existing concrete beams	200.00	No.	\$	-
20.5	Demolition and disposal of existing pile caps	282.00	No.	\$	-
20.6	Demolition and disposal of existing concrete trispan abutment beams	91.65	m <sup>2</sup>	\$	-
20.7	Demolition and disposal of existing kerbs	188.80	Lm	\$	-
20.8	Removal of existing bollards	8.00	No.	\$	-
20.9	Removal of existing trispan bridge and associated furniture	844.07	m <sup>2</sup>	\$	-
20.10	Removal of and disposal of existing cone fenders (including chairs and fender panels)	24.00	No.	\$	-
30	<b>CONSTRUCTION WORKS</b>				
30.1	<b>What Furniture</b>				
30.1.1	Re-install trispan bridge and associated furniture (Refer PIA-1002)	844.07	m <sup>2</sup>	\$	-
30.1.2	Re-install bollards (including new rails and hold-down bolts) (Refer PIA-1032)	8.00	No.	\$	-
30.1.3	Install cone fenders (including chairs and fender panels) - Supply by others	24.00	No.	\$	-

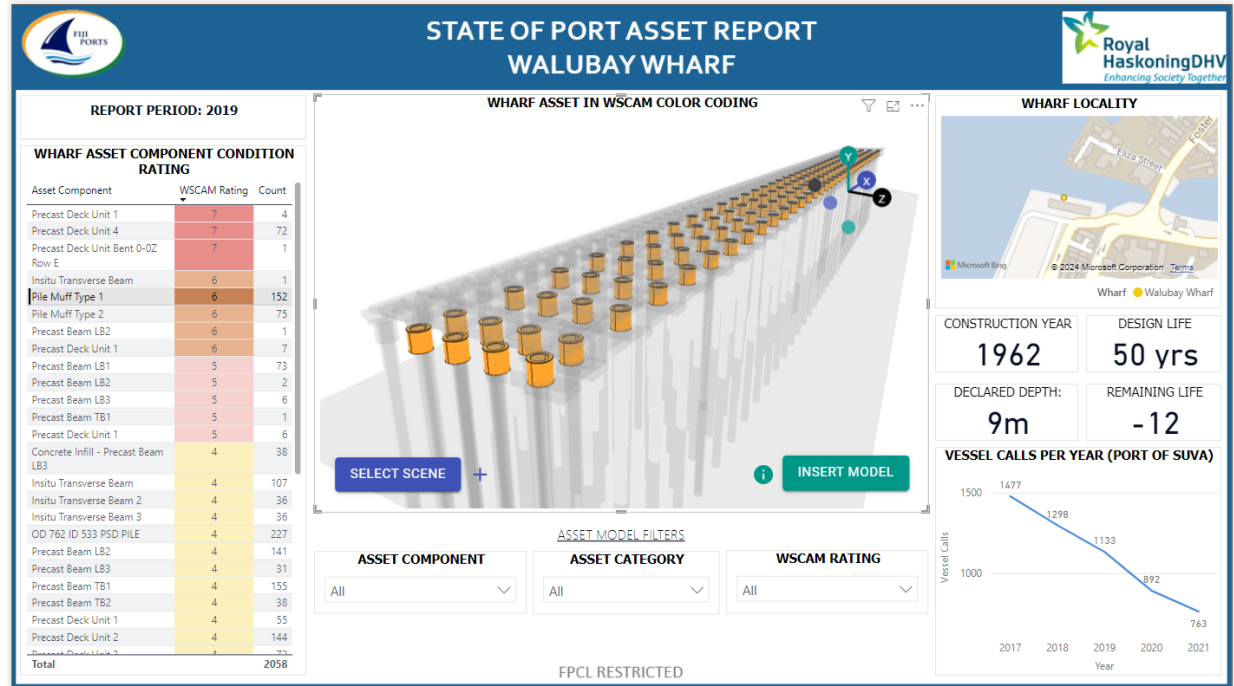


The screenshot shows a Power BI data table with the following columns: Item, Description, Quantity, Unit, Rate, and Amount. The data rows correspond to the items listed in the Excel table, such as 'Demolition and disposal of 150mm thick concrete slab overlay' with a quantity of 320.27 m<sup>2</sup>.

### 3. Asset Management Dashboard – Deliverables

Integrated Asset Information Dashboard showing State of Port Asset Report for reporting to Executive Management.

- Interactive Report on Microsoft Power BI.
- Shared to Executive Management via SharePoint.
- Interactive Report can be customized to the requirements of the Asset Owner.
- Drill Through Dataset.



### 3. Asset Management Dashboard – Deliverables

- The **Integrated Asset Information Platform** allows efficient and accurate development of:
  - Construction Drawings for repair or replacements works.
  - Asset Condition Projection based on current condition and expected deterioration rate.
  - Condition assessment – direct input to 3D model.
  - Maintenance planning based on unit cost, condition rating, criticality, level of service, etc.
  - Financial performance monitoring and planning.
  - Data sharing for operational coordination.
- **Refer to demonstration.**

## 4. Questions

- Any questions.
- Reach out to me if your port needs assistance on Asset Management in:
  - Integrated Asset Management Platform.
  - Condition Assessment, Detail Design, etc.
  - Asset Management Policy, Plans, etc.

Tomasi Sauqaqa

[tomasi.sauqaqa@rhdhv.com](mailto:tomasi.sauqaqa@rhdhv.com)

+679 9352246