

SHOALTM

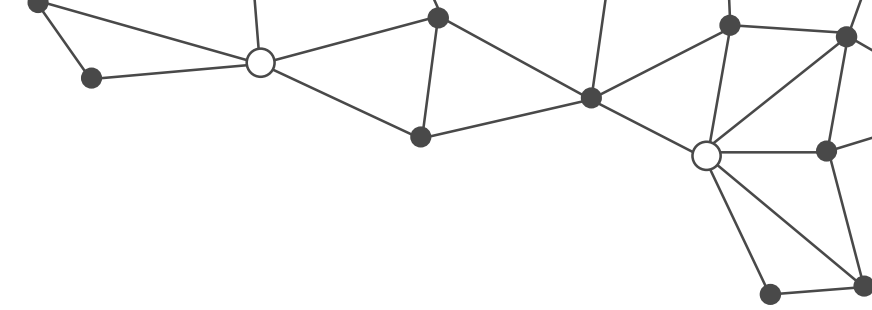


SHOAL™

The Evolution of a Model-Based Asset Management System Framework

Asset Management in Critical Infrastructure 2020

Agenda



This presentation discusses a novel approach to structure and leverage existing asset information to produce tailored documentation and analysis for a variety of stakeholders.

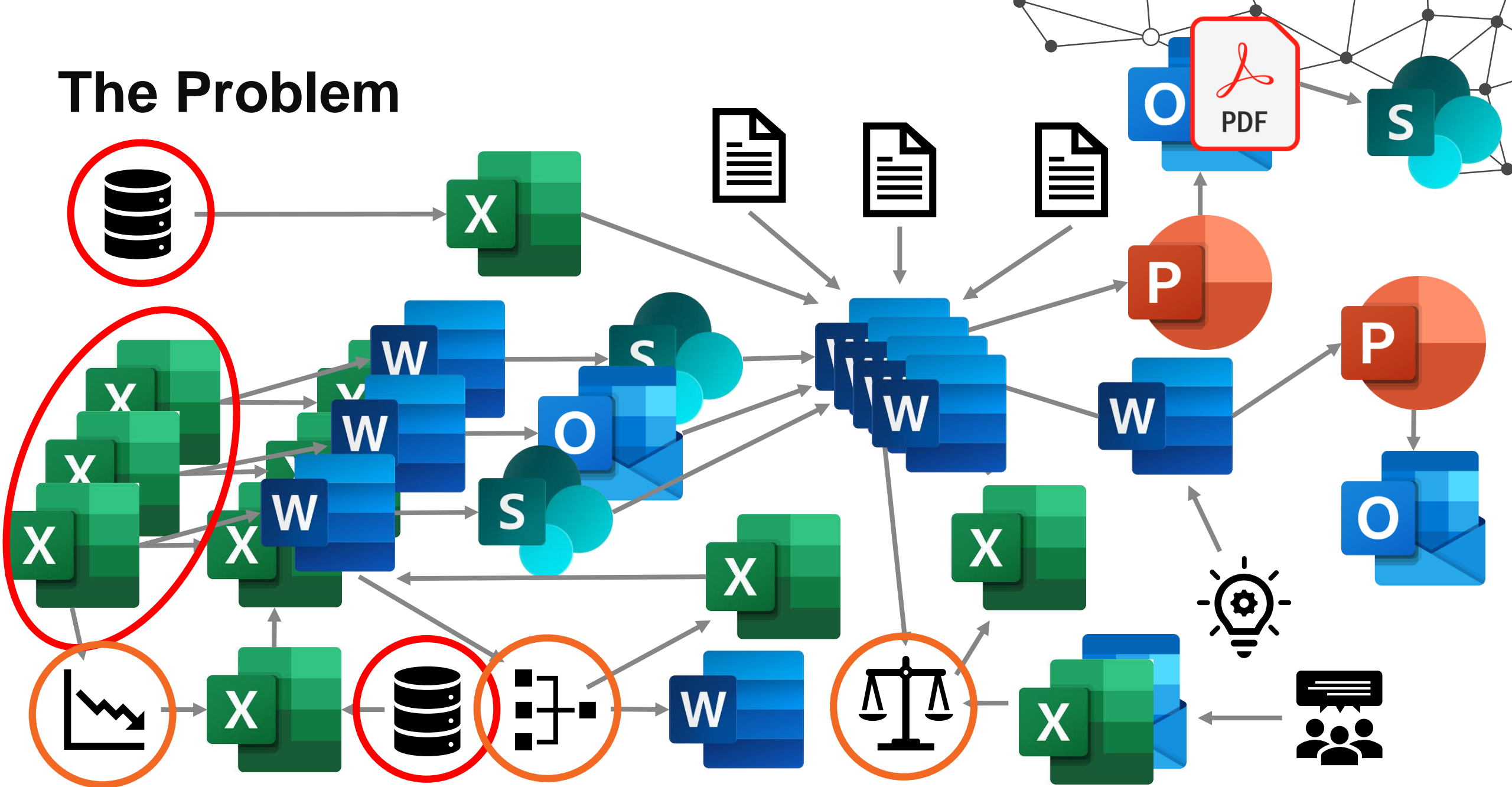




CONTEXT



The Problem

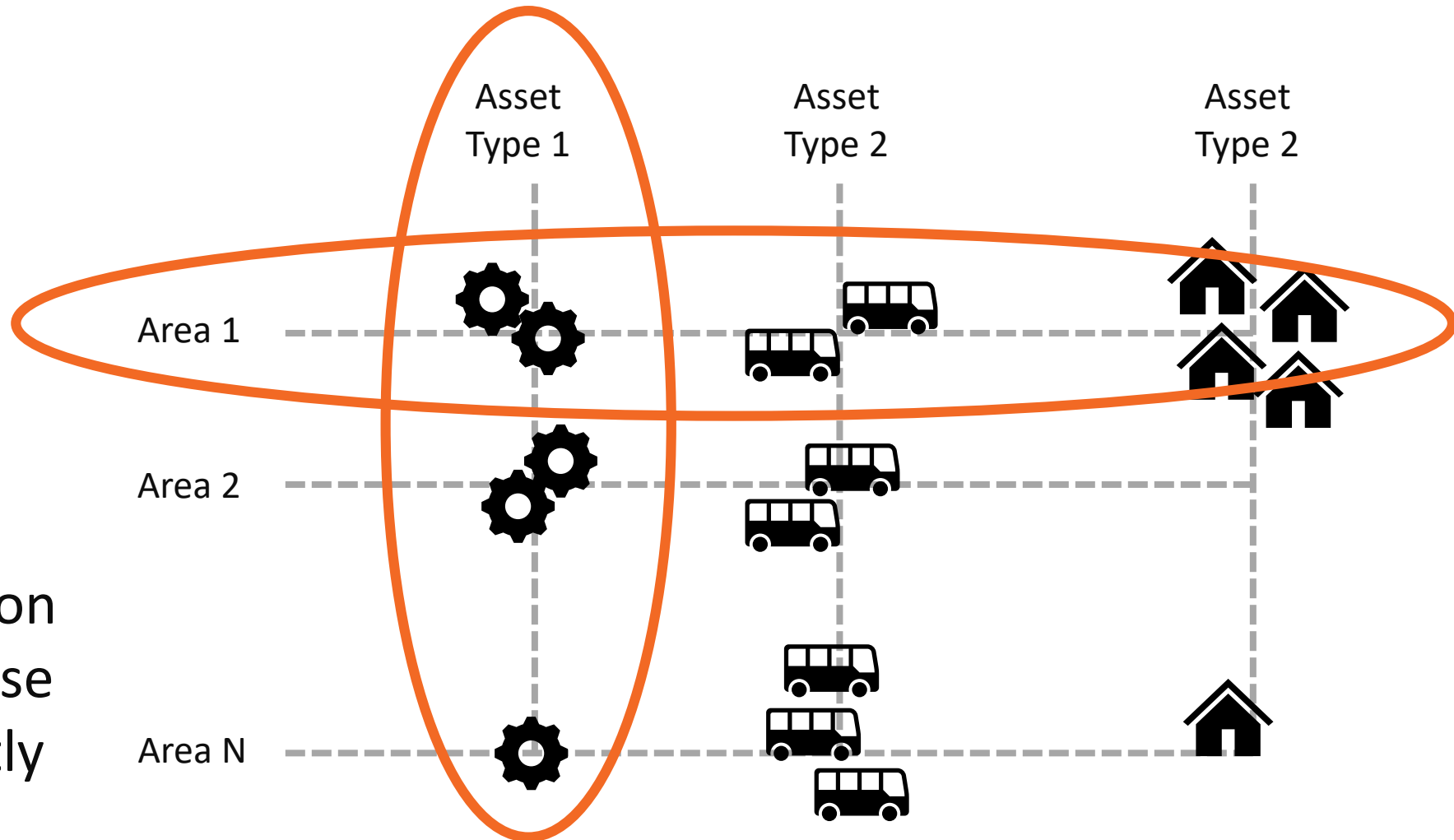


The Specific Problem #1

Principle engineer
will want to see an
AMP for their asset
type

Area manager will
want to see an
AMP for their area

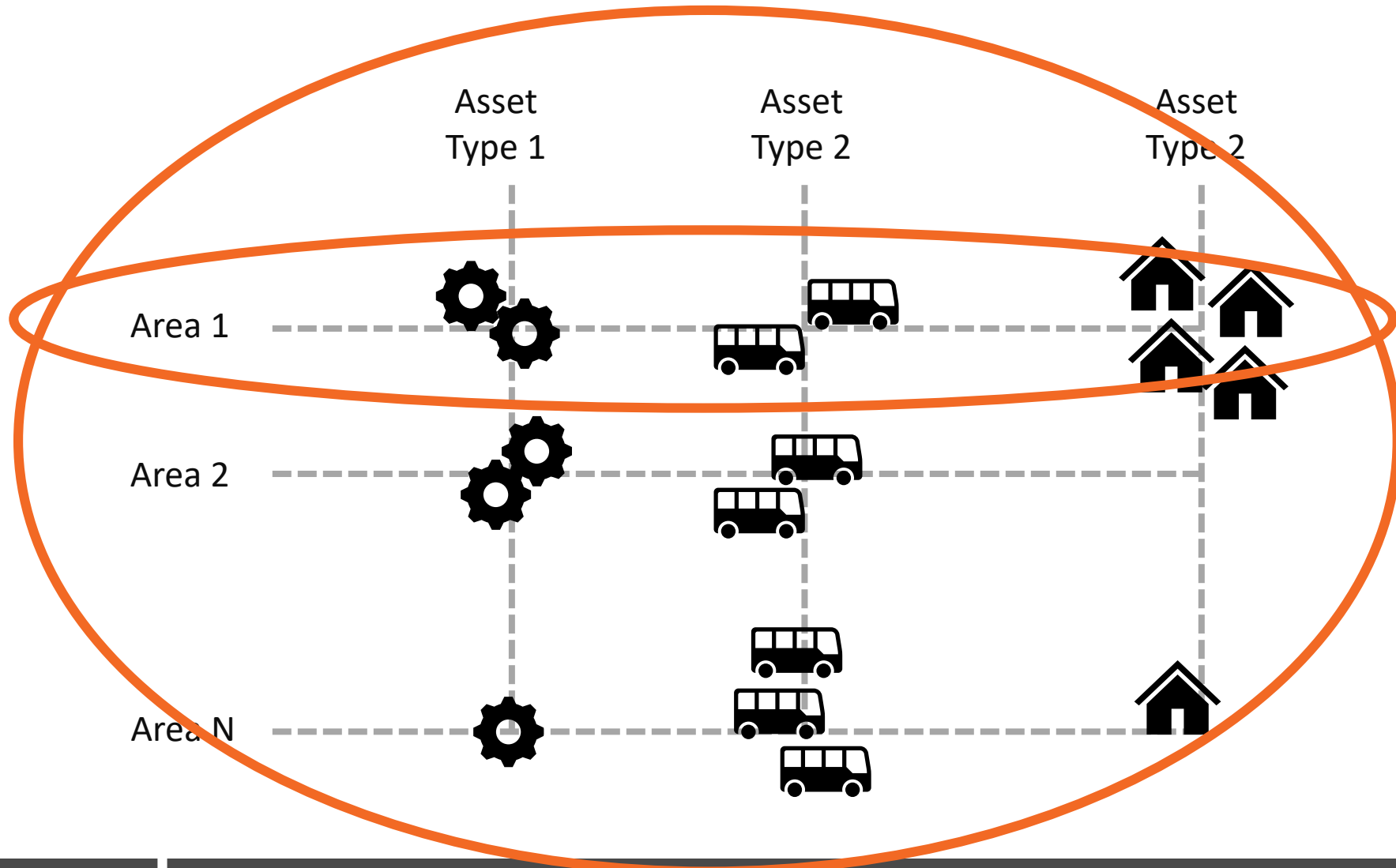
The information
in each of these
AMPs is mostly
the same!



The Specific Problem #2

How can activities across different asset classes within an area be prioritised?

How can activities across the entire asset base be prioritised?

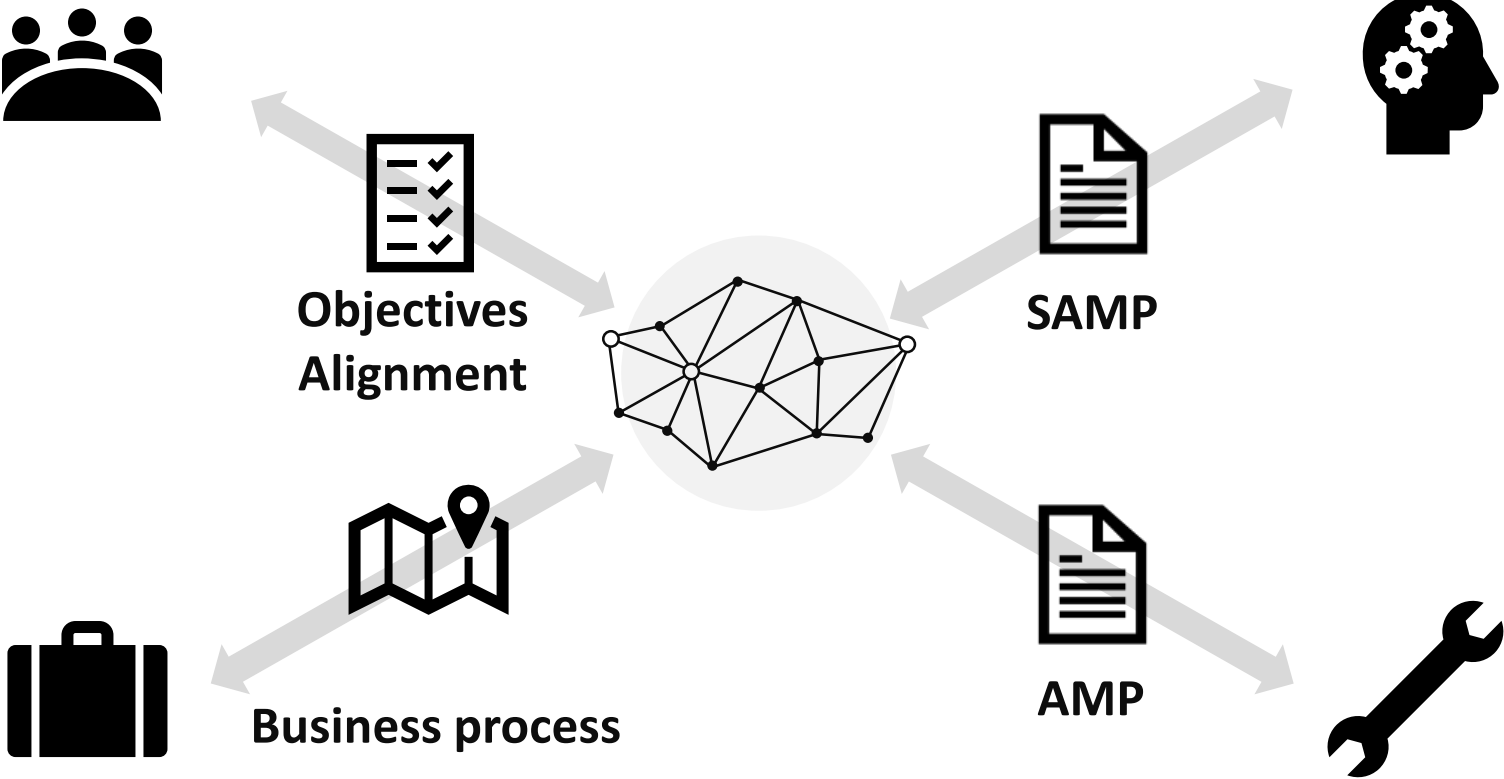




MODEL-BASED AMS FRAMEWORK

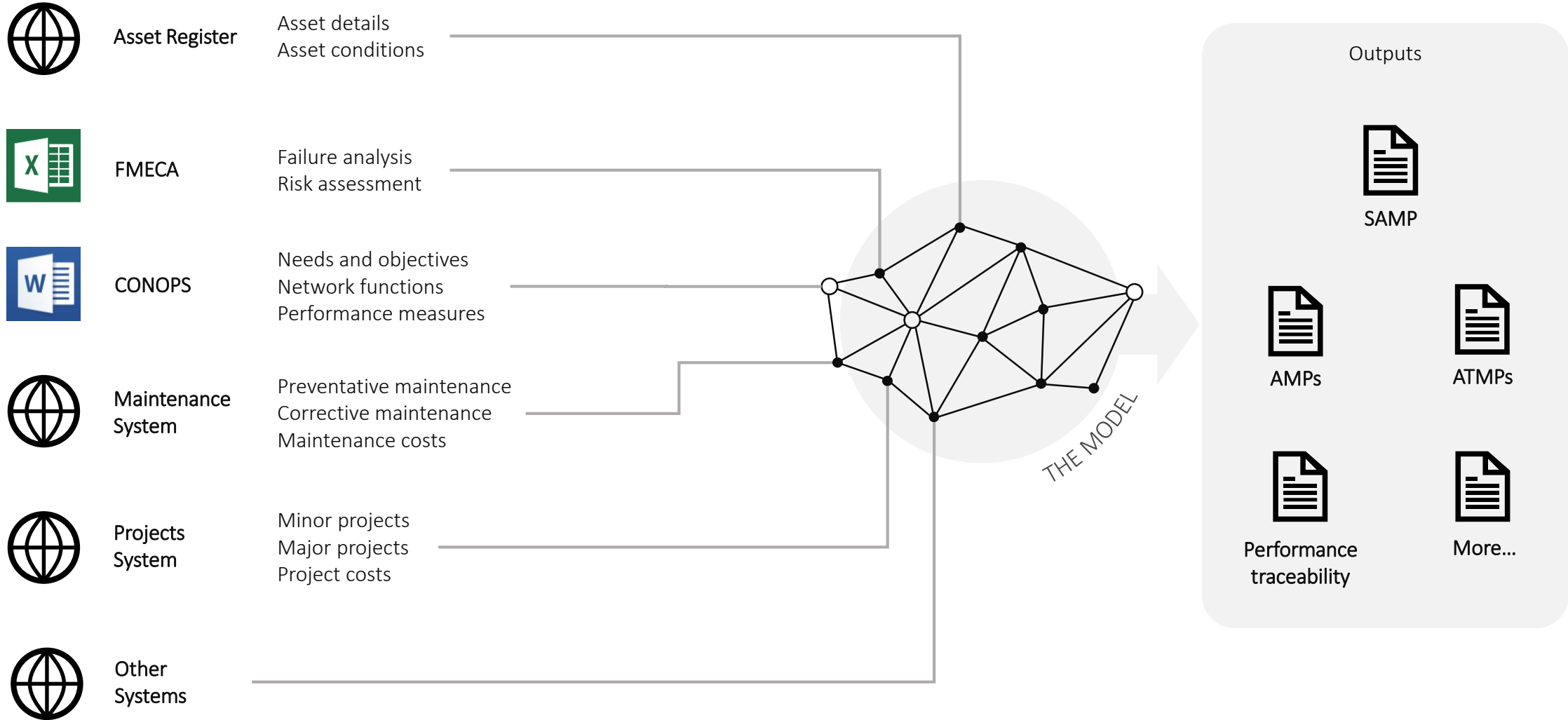


Framework Overview



The model enables a
single source of information
and
multiple views and outputs

How it works



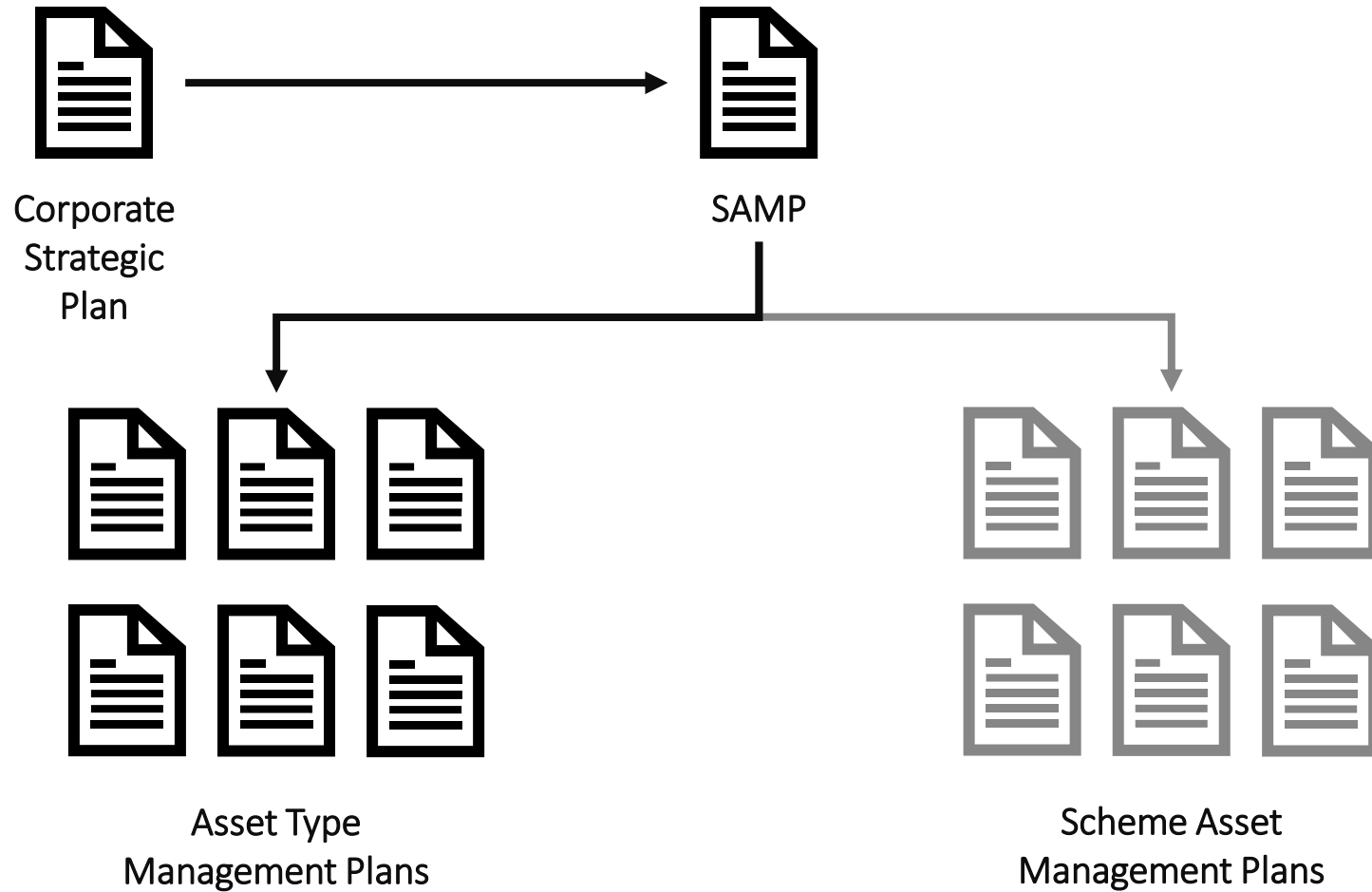


CASE STUDY 1

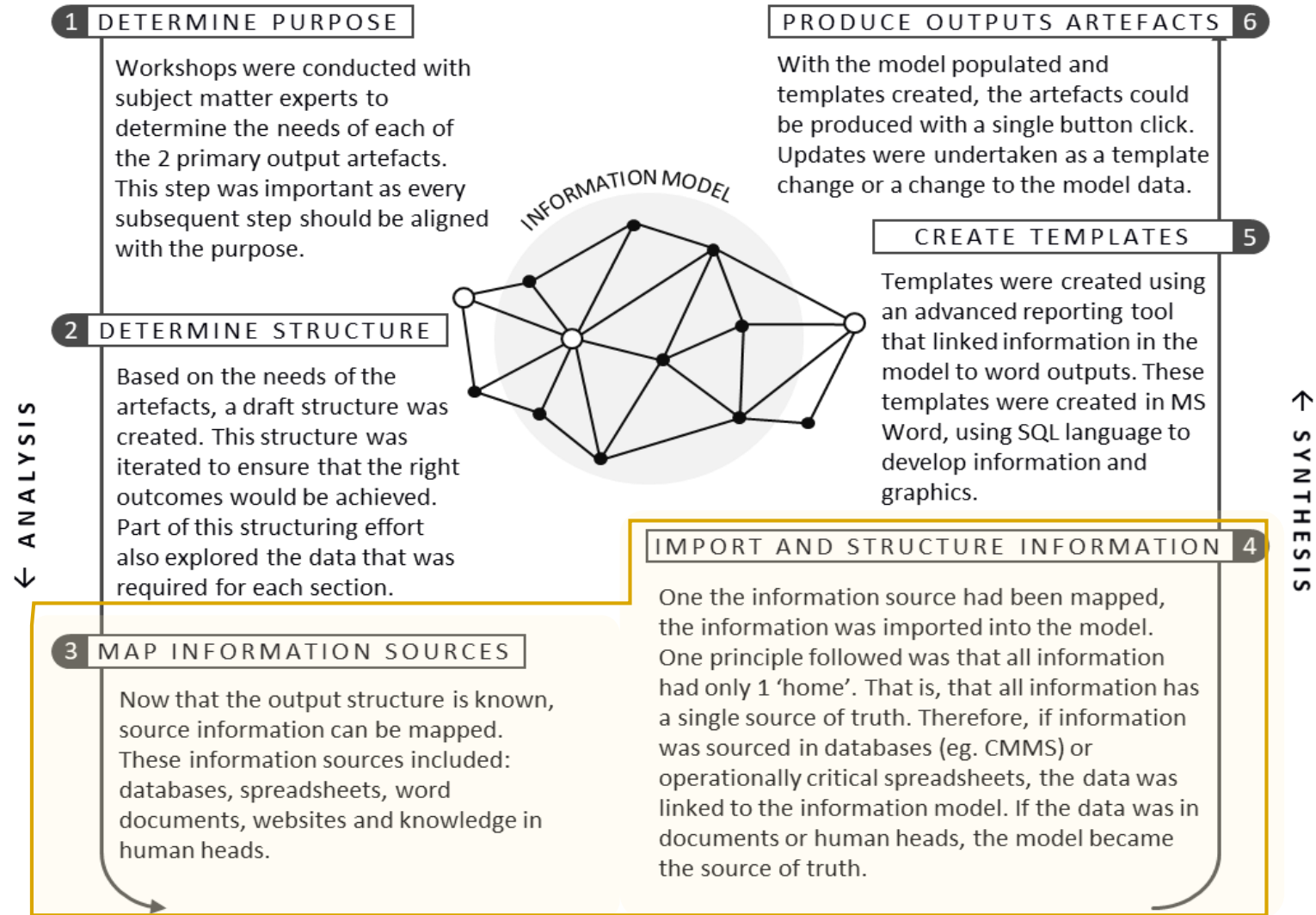
AMP Production



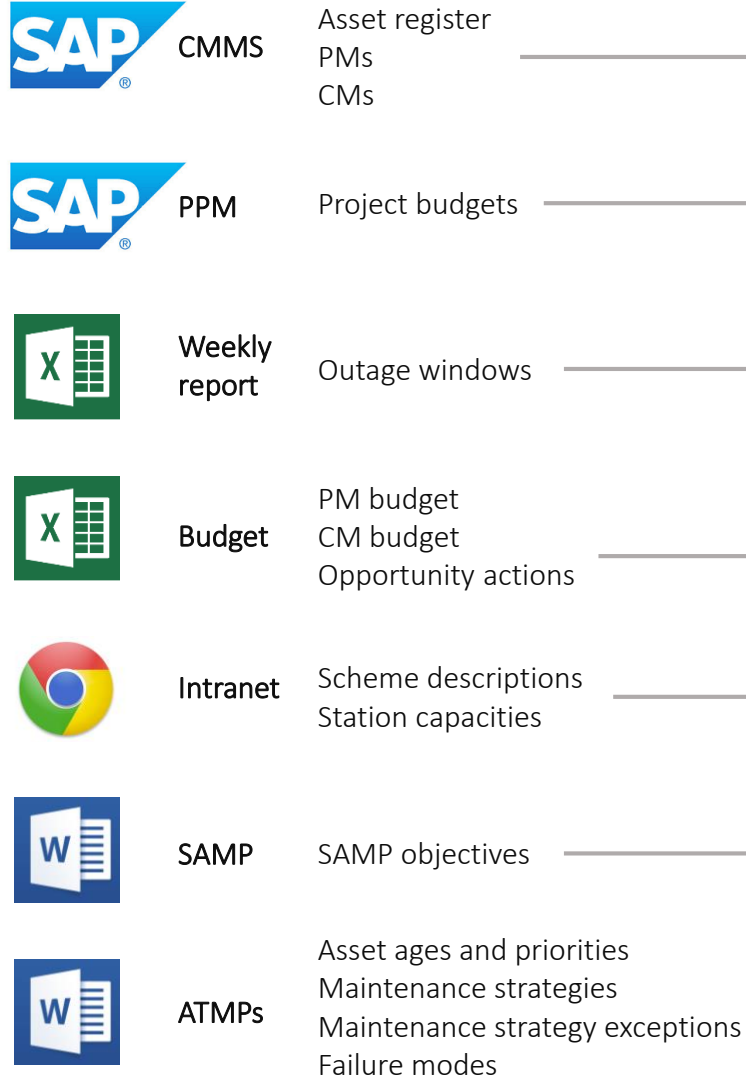
Objective



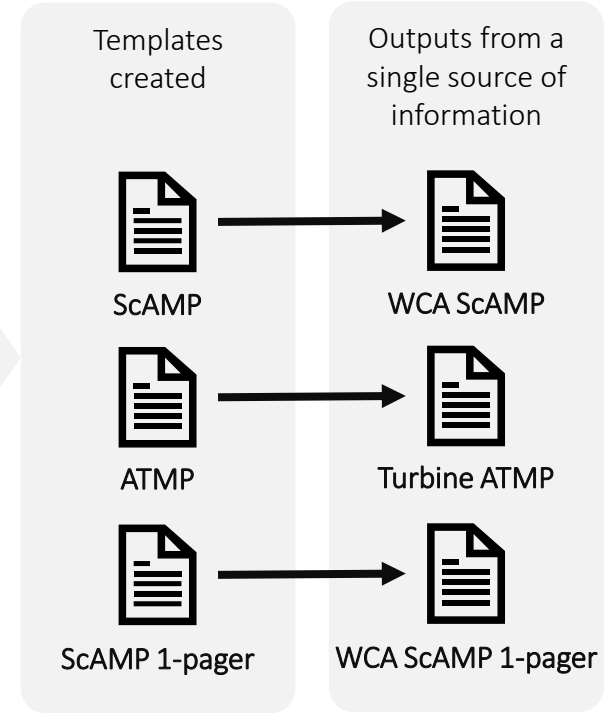
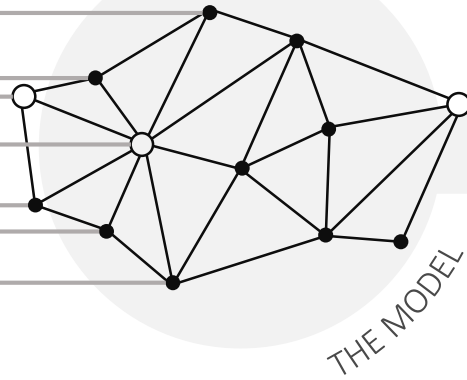
Methodology



AMSF



116,000 data entries
57,000 entities
59,000 relationships



Outputs

Scheme Asset Management Plan West Coast Area
Updated: 2 August 2019

PURPOSE AND CONTEXT

RISK SUMMARY (W2W)

OPERATIONAL CONSTRAINTS

PROJECT ACTIVITIES

The ScAMP On One Page

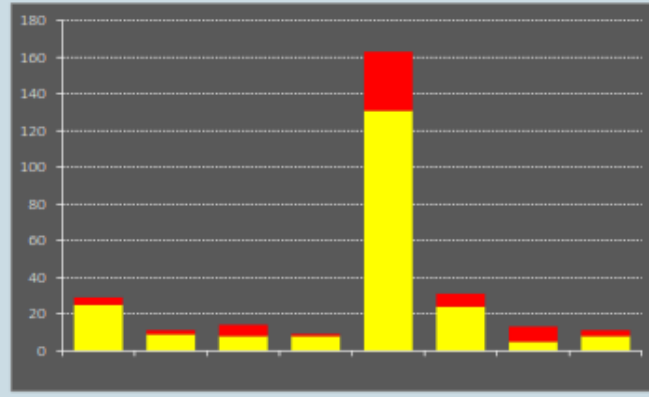
OVERVIEW

Hydro Tasmania's operations in this region comprise the King and Yolande Schemes and the Anthony Plemian Scheme, with a combined total of ten lakes and seven power stations.

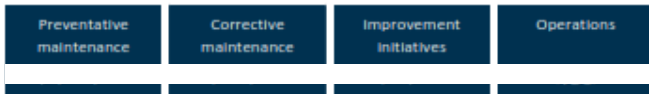
While our presence here began in 1983 in the King River catchment, hydropower has played an integral role on the West Coast since 1914, when the Lake Margaret Power Station was commissioned. Built by the Mt Lyell Mining and Railway Company to provide electricity for the mines, Lake Margaret has a rich and fascinating history. Hydro Tasmania purchased the upper and lower Lake Margaret Power Stations, together with the historic Lake Margaret village in 1985.



RISKS



BUDGET



West Coast Area

MAINTENANCE

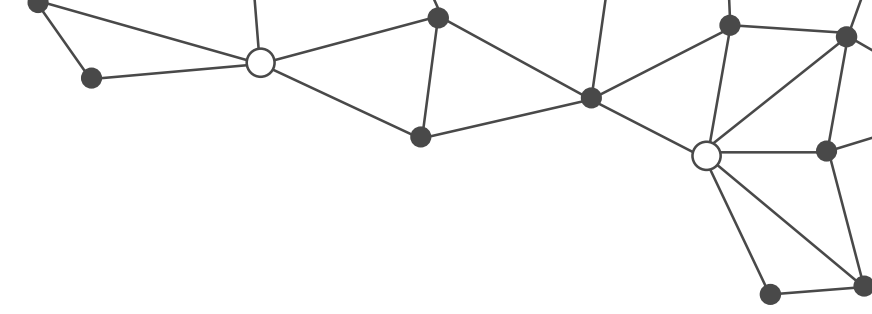
CORRECTIVE MAINTENANCE

DATE	ACTIVITY & LOCATION
Jan-2020	70025338 - DT Gate Indicator Pipework replacement Anthony/Tribute Power Station
Jan-2020	70041504 - Tribute Accumulator Oil valve passing Anthony/Tribute Power Station
Jan-2020	70042179 - Number 2 Intake repairs to ladders and p Reece
Jan-2020	70046437 - Reece Jet pump cover mods. Reece
Jan-2020	70057547 - Investigate / Repair Oil Injection Pump Anthony/Tribute Power Station
Jan-2020	70057548 - Groove developing in the top slip ring Anthony/Tribute Power Station

PLANNED MAINTENANCE

DATE	ACTIVITY & LOCATION
Sep-2019	70065273 - SPS Compliance Testing (4Y) Reece
Sep-2019	70065987 - Hydraulic Oil Contamination Analysis(4Y) Anthony/Tribute Power Station
Oct-2019	70059553 - Inspect Dumpy Creek Spoil Dump (4Y) Reece
Nov-2019	70048329 - Intake Gate Inspection & Maintenance (4Y) John Butters
Jun-2021	70066287 - Circuit Breaker Inspection (4Y) Newton Pump Station
Aug-2019	70049865 - Hydraulic Oil Chemical Analysis (8Y) Reece
Aug-2019	70054251 - Hydraulic Oil Chemical Analysis (8Y) Anthony/Tribute Power Station

Outcome



This case study achieved its goal in demonstrating that:

Separate Asset Management Plans for asset type and geographical area can be produced from a single structured information model (the AMSF) with no need to write a document.



CASE STUDY 2

Activity Prioritisation



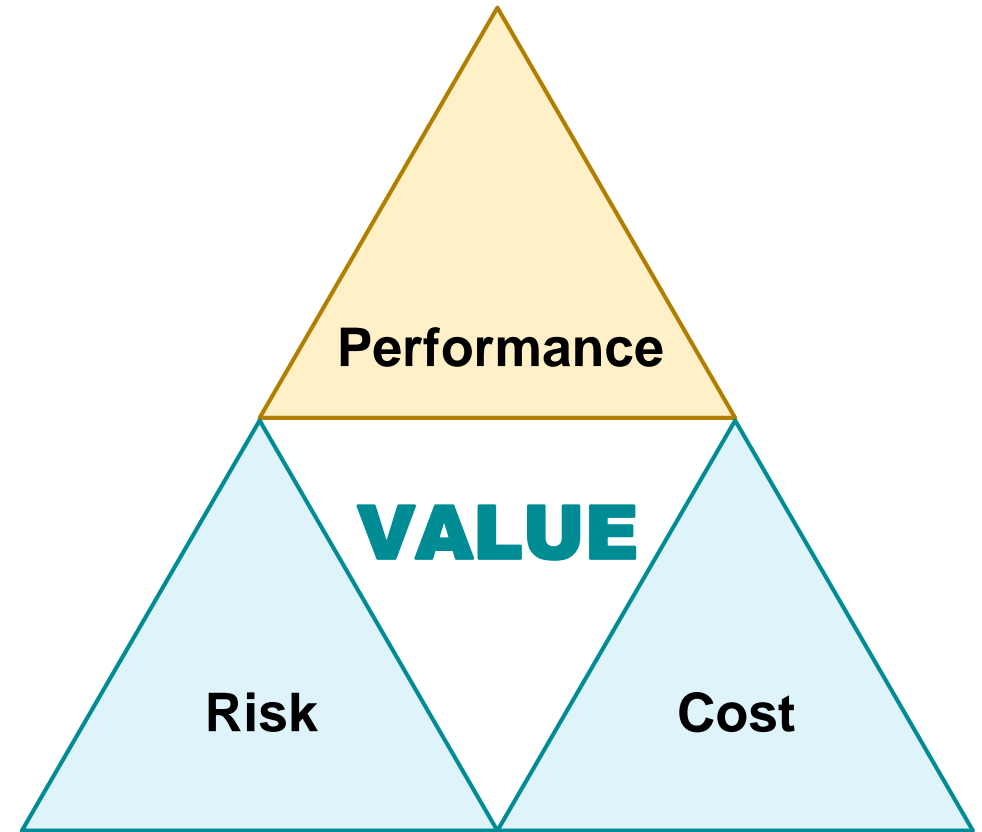
Context

DM Roads (part of Downer Road Services) are pushing further into **data driven decision making** so that they can better align their renewal works and maintenance activities to **delivering outcomes** for clients.

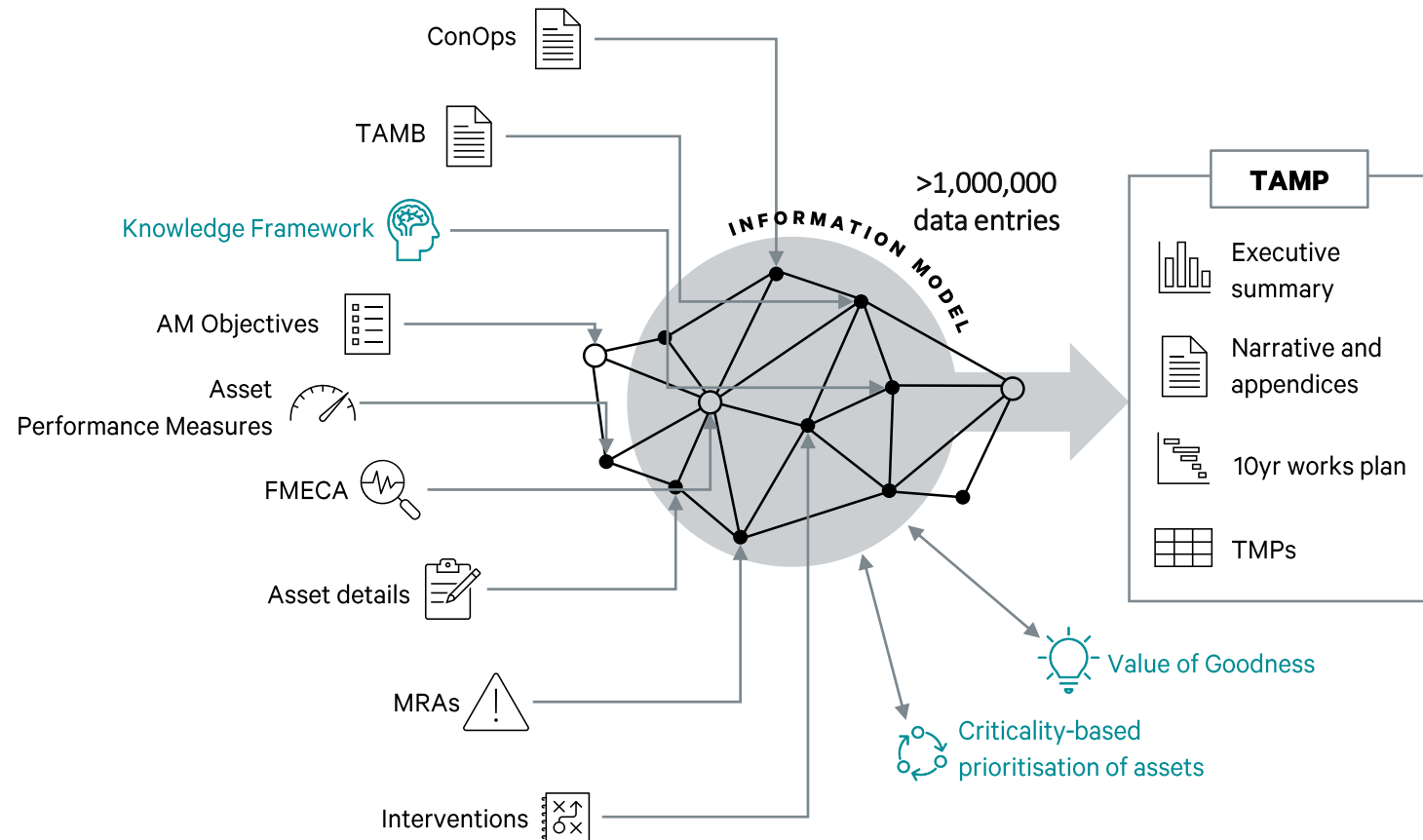
This push was furthered by the implementation of the Asset Management System Framework on the recent SRAPC tender in NSW.

Objective

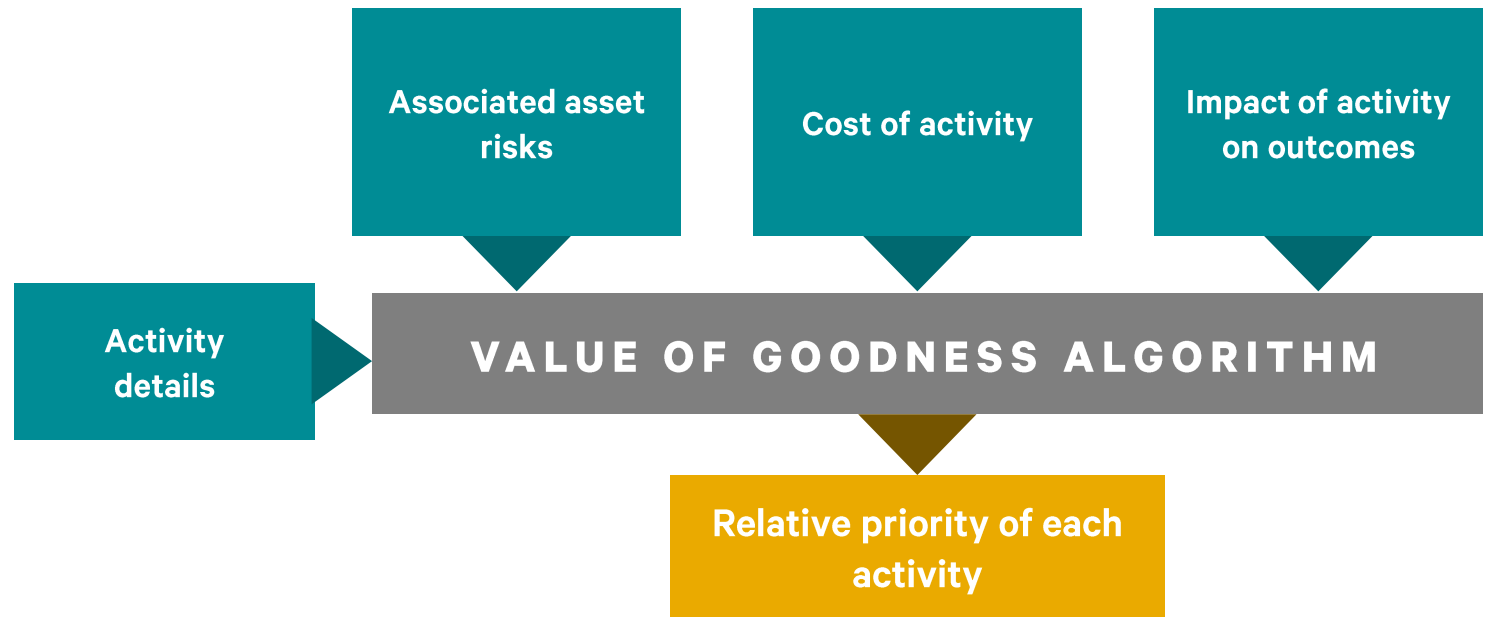
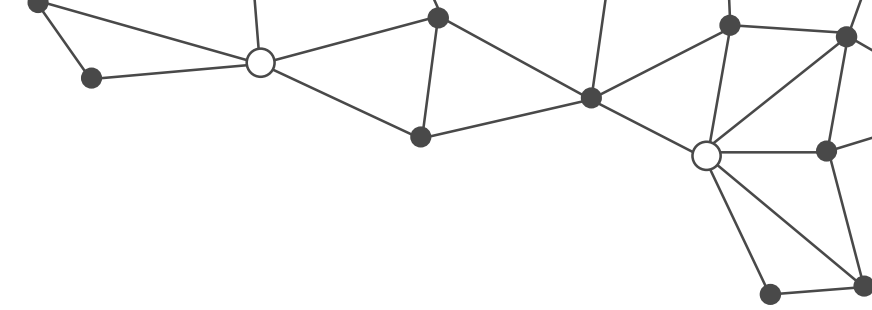
Prioritise work across asset classes in a way that allowed the balancing of cost risk and performance across a whole region.



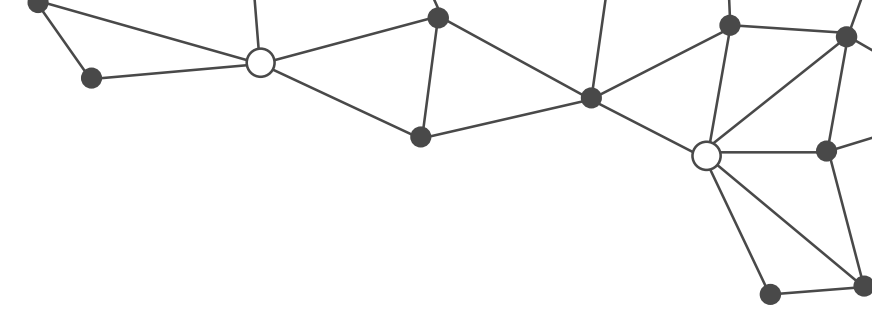
AMSF Implementation



Activity Prioritisation



Outcome



This case study achieved its goal in:

Using a data-driven approach to prioritising activities across asset classes to balance cost, risk and performance.

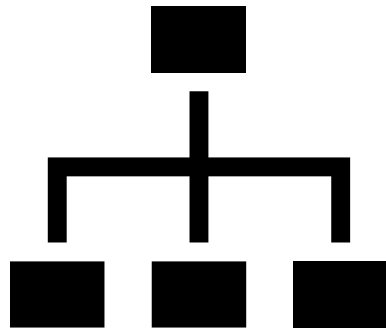


LESSONS

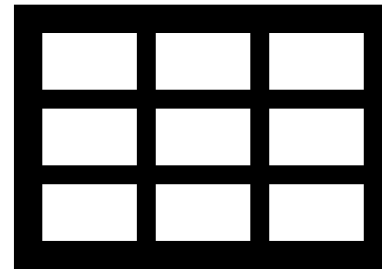


Tailoring of the Framework

- The ability to tailor the framework is essential. This includes:



Model
relationship
structure

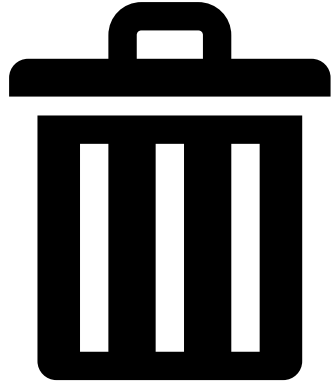


Information
attributes

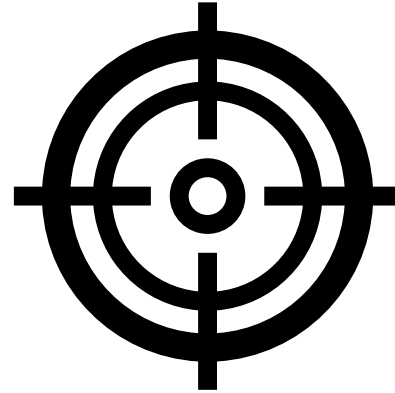


Output
structure and
format

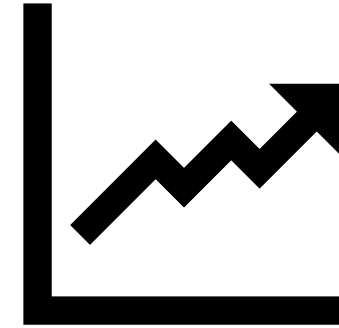
Key Lessons



Rubbish in,
rubbish out



Consistent
unique
identifiers



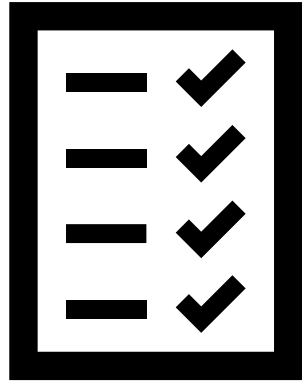
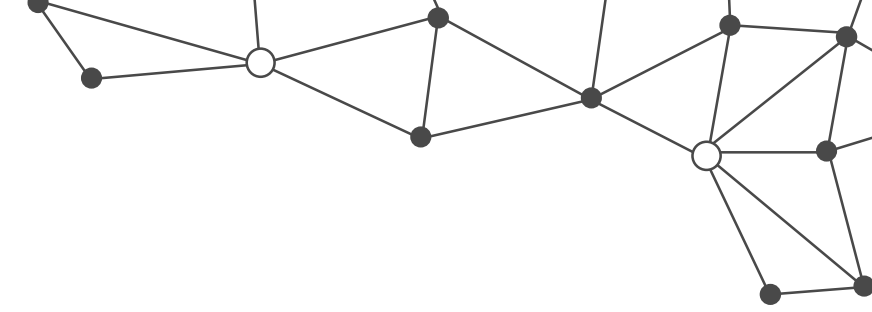
Relative impact
of activities on
performance



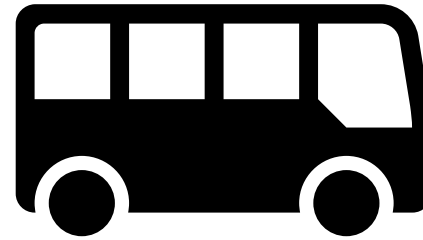
FUTURE WORK



The Next Evolution



Maturity models and ISO55001 compliance



Integration with projects, operations and maintenance



Further development of decision algorithms

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Questions and comments



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