

# Road Asset Management (RAM)

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## RAM Maturity Assessment

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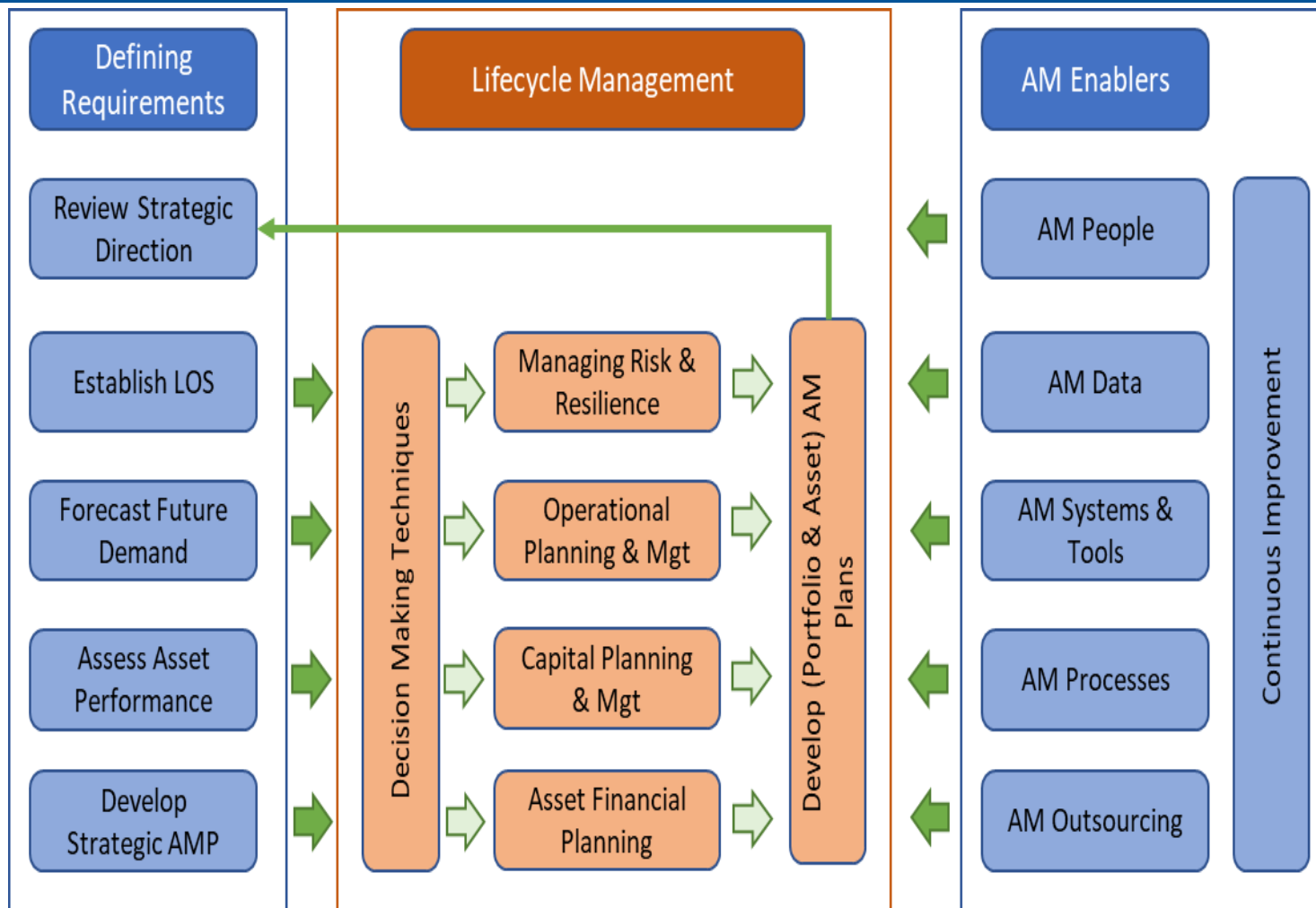
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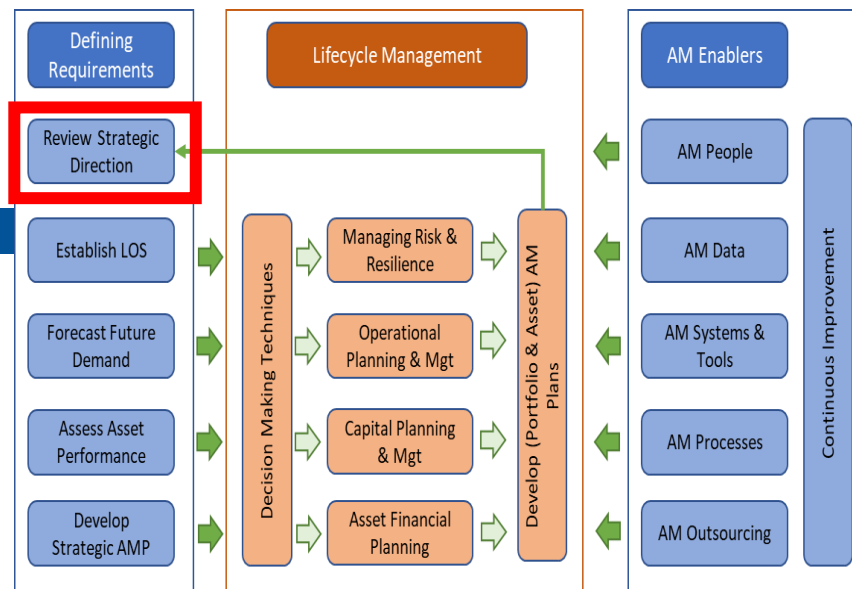
# Aim of the Maturity Assessment

- To systematically examine how advanced the processes and practices are.
- To yield a detailed improvement plan
  - Country specific, or CAREC wide
- To identify countries that are the leaders within CAREC for each component of RAM.
- Will be worked on throughout the next 4 days, and presented at the end of the workshop.
- It is not an examination of the assets themselves.

# International Infrastructure Management Manual (IIMM) AM Process



- The AM Policy provides the governing authority to implement all aspects of the RAM program



- Example from Australia

- [https://www.transport.tas.gov.au/\\_data/assets/pdf\\_file/0004/114439/Road\\_Management\\_Infrastructure\\_Asset\\_Management\\_Policy.pdf](https://www.transport.tas.gov.au/_data/assets/pdf_file/0004/114439/Road_Management_Infrastructure_Asset_Management_Policy.pdf)

- Easy to write, easy to approve, challenge is in delivering on the policy

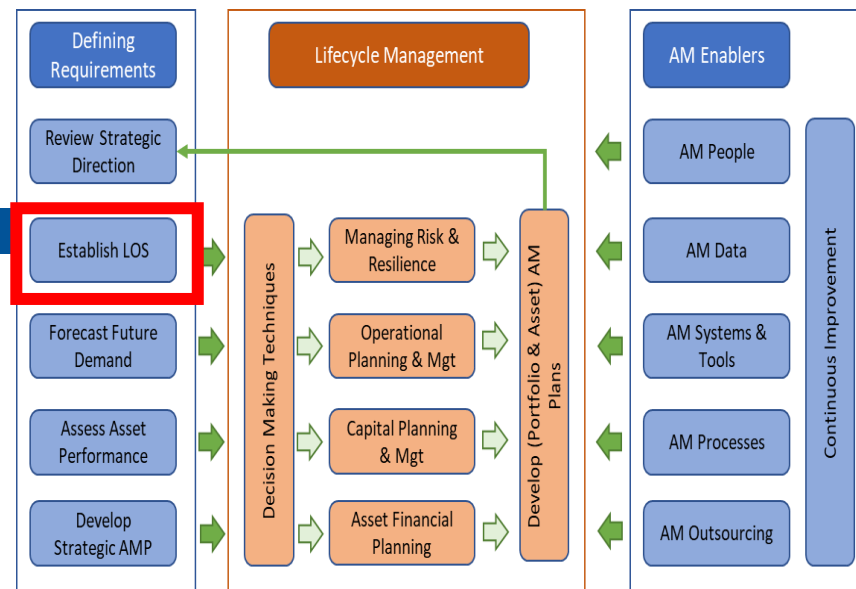
# Typical Policy

- Short document – a few pages, or even a single page
  - Scope of assets covered
  - Commitment to implementing RAM
    - Maybe commitment to achieving ISO55000
  - Commitment to life cycle costing principles
  - Level of service based
  - Management of risks
  - Customer focused
- 
- Authorised by highest level of authority – e.g. government minister

# Service Levels

- Define what it is that you are trying to deliver, in words that the customer understands

- We don't build roads, rehabilitate roads, or maintain roads for the fun of it, we do that to deliver a service level (whether explicitly stated or not)
- Service levels are about more than just the condition of the road
  - Most authorities mention Efficient, Safe, Informed, Cost-effective in their service level statements



# Defining the Level of Service is Critical



**One size doesn't fit all – its all about affordability & risk**



# Some key definitions

- Levels of Service

- What the organisation intends to deliver. Levels of service describe one or more attributes of the service from a customer point of view
- Example: Provide a network that connects communities.

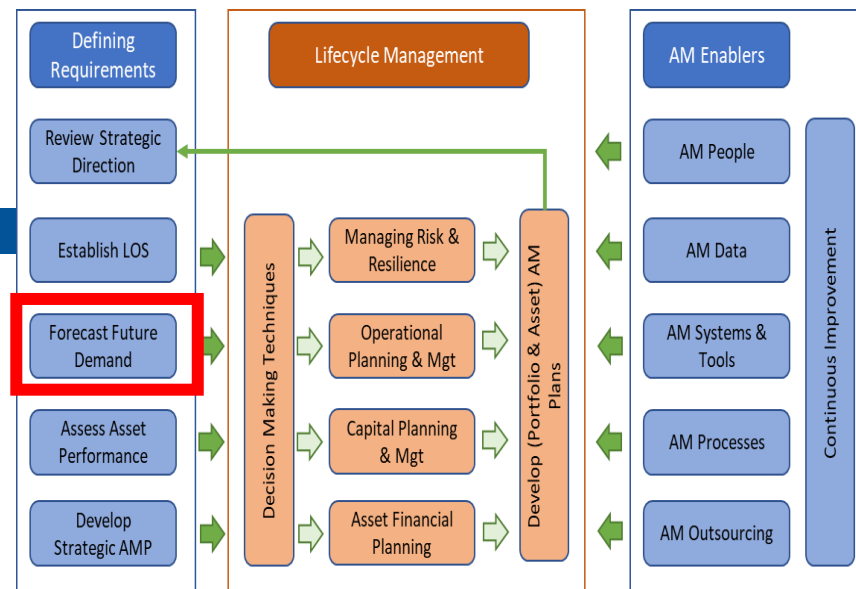
- Performance Measure (also termed Performance Indicator)

- A qualitative or quantitative measure of a service or activity used to indicate how the organisation is doing in relation to delivering levels of service
- Example: % of communities > 500 habitats serviced by an all weather road.



# Future Demand

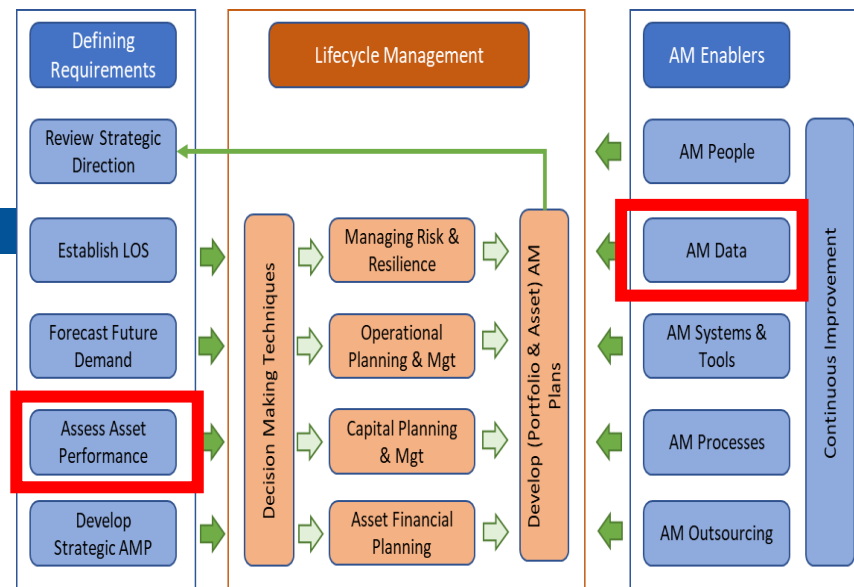
- Helps identify when expansion works will be required, along with future loading on the existing infrastructure.



- For simple networks can be a regression of past growth patterns.
- For complex and congested networks will involve full traffic models, linking land use development to traffic demand.
- Minimum forecast period of:
  - At least 20years for pavement and surfacing decisions
  - 20+ years for expansion projects

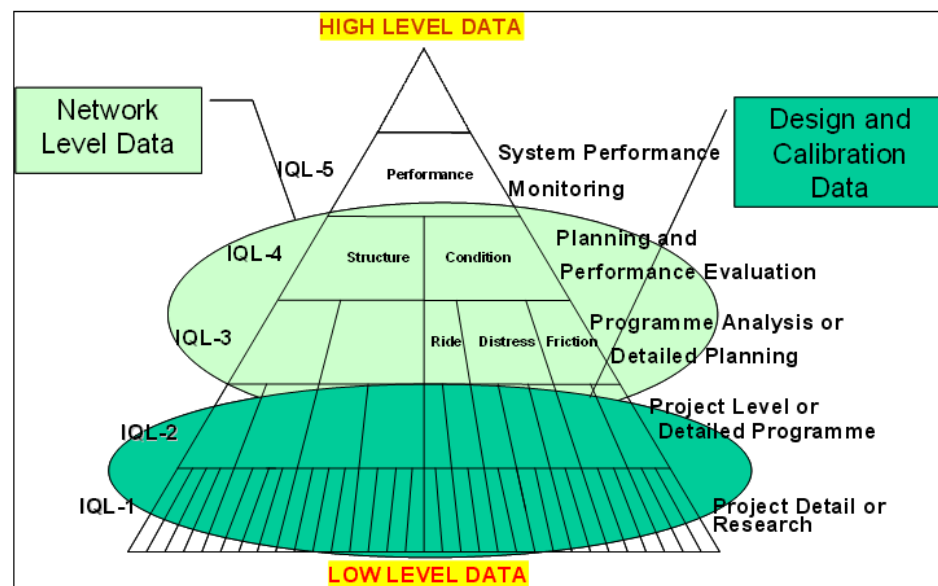
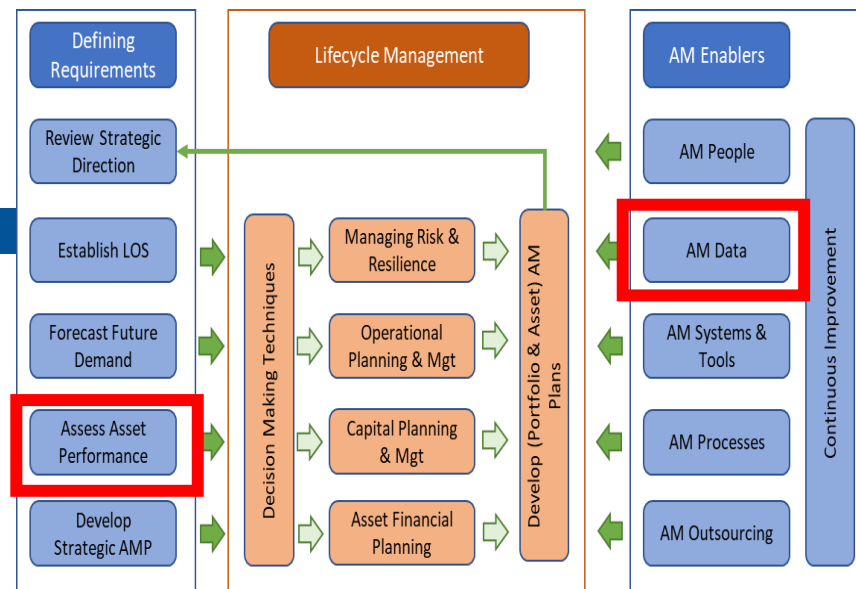
# Asset Register

- List of the physical assets you have
- At an appropriate level of detail / componentisation
- May start out being stored in a spreadsheet or simple database, then transition to full Asset Management Information System in the future
- Need a process to keep it up to date

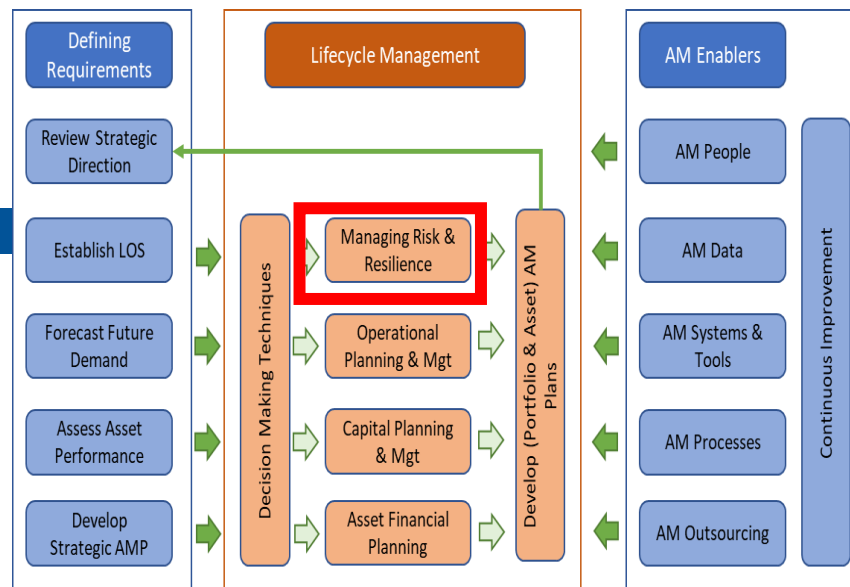


# Asset Condition

- Physical measure of the asset condition
- What to measure, how often, and to what level of accuracy?
- Not everything needs to be inspected every year
  - Risk based inspection regimes
- Consider the Information Quality Level (IQL) when designing your data collection program



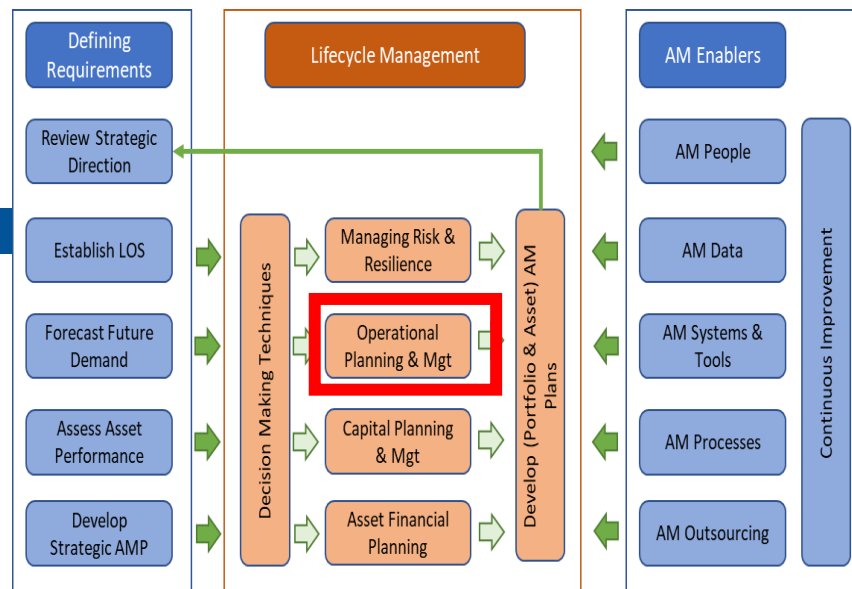
- Depends heavily on the nature of your road network
- Most authorities have an understanding of the risk, although it may not be in a formal process
- A good guidance document for physical risks is:
  - Road Geohazard Risk Management Handbook
  - <https://www.gfdrr.org/en/road-geohazard-handbook>



- Operations and Maintenance (O&M) covers the day-to-day activities

- Operations: e.g. Ramp signalling, peak hour pricing
- Maintenance: Filling potholes, cleaning drains, sealing cracks

- O&M is closest to what the road user experiences when travelling around the network
- Maintenance can be reactive or proactive (scheduled)
- Maintenance strategy should link to the overall plan for the road section
  - e.g. Don't do expensive repairs on a road that is due for reconstruction soon



- Typically two aspects:

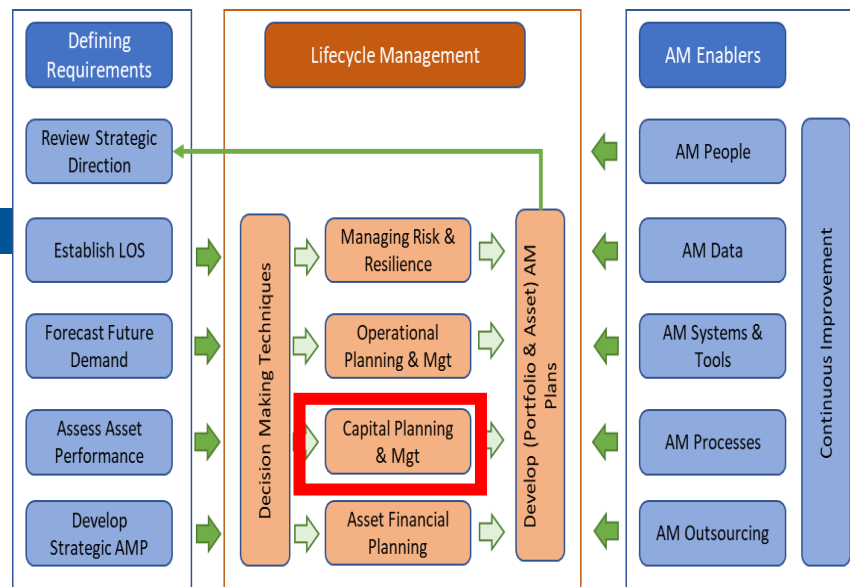
- Renewals
- Expansion works

- Renewals

- Quantity estimated through a combination of predictive modelling (HDM-4), historic records, and asset valuation parameters
- While impacting on the long term durability of the network, many renewals (especially resurfacings) do not impact significantly on the road users experience

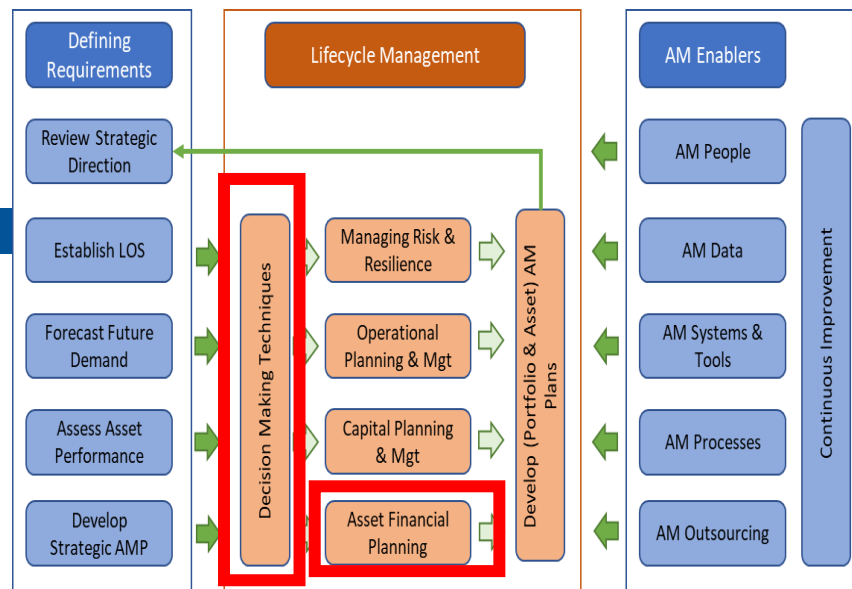
- Expansion works

- From traffic modelling, road safety investigations or similar



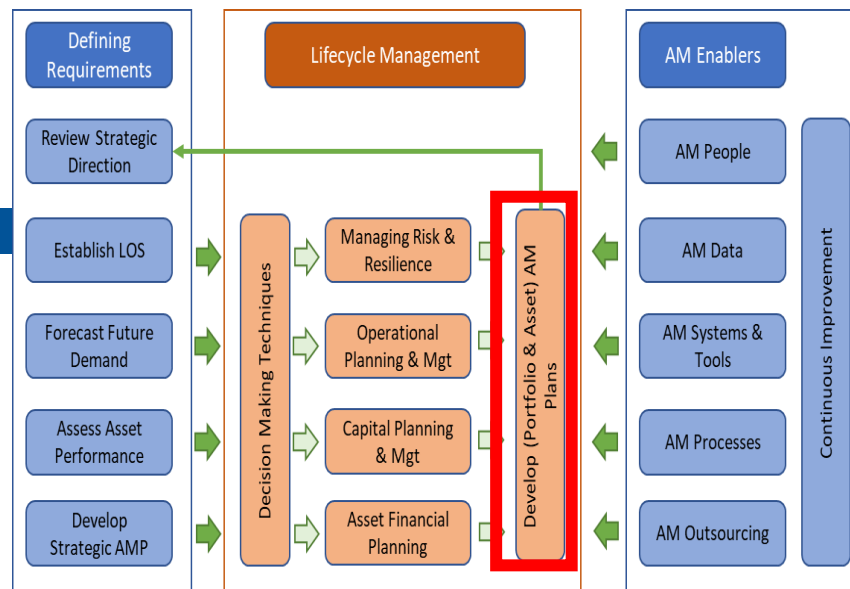
# Lifecycle Decision Making & Funding

- Need an agreed decision making framework
  - Net Present Value (NPV)
  - Benefit Cost Ratio (BCR)
  - Multi-Criteria Analysis (MCA)



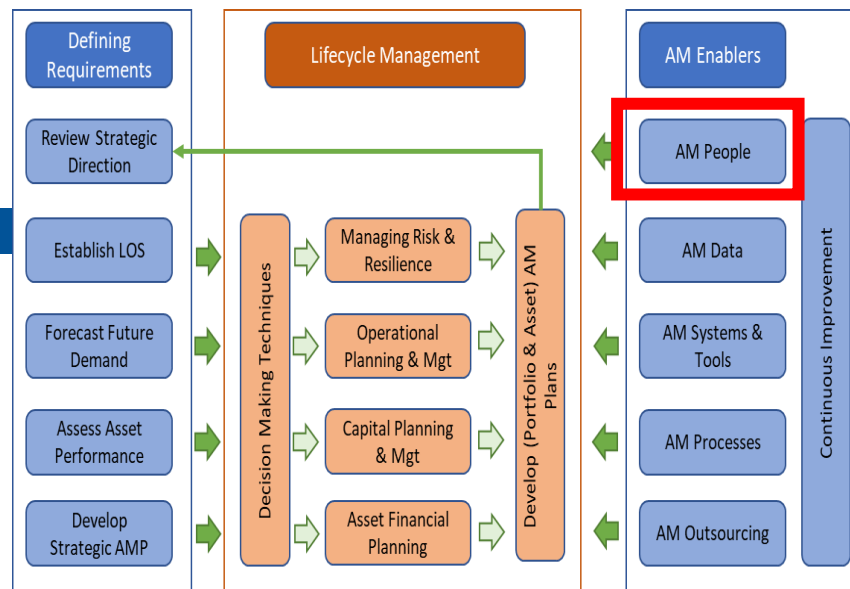
- What is the optimal balance of investment between operations, maintenance and capital works to deliver the agreed levels of service?
- How should that cost be funded?
- If not affordable, then where will the budget constraints do the least harm?
- HDM-4 and similar decision support tools often used at this stage.

- The AMP is a document that records past achievements and identifies future activities both in relation to investment in the assets, but also in the way they are managed
- Should provide summary information on each step of the process
- Ideally written in non-technical language
  - The AMP should be the easy read justification for the level of investment you are asking for
- Covers at least a 10 year forward projection of condition, funding needs, service level achievements etc.

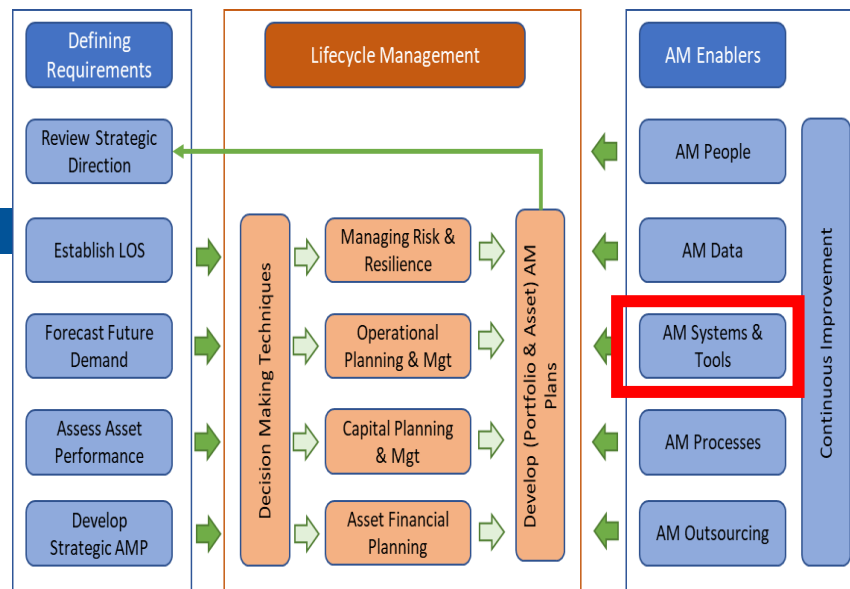




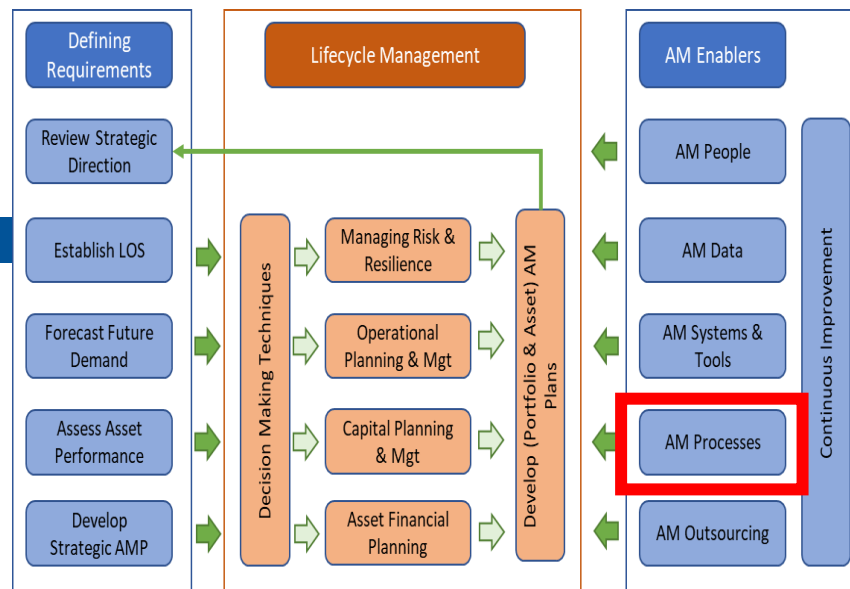
- Who is in charge of making sure compliance with the RAM Policy is occurring?
- While RAM requires an organisational wide approach, it takes a small team to oversee it
- To be effective the RAM Team needs to be able to influence the budget allocation process
  - Otherwise necessary change will not occur
- Various models for the RAM Team exist
  - Important to have a direct to the senior decision makers in the road authority



- RAM involves a lot of data, so need an appropriate Asset Management Information System (AMIS)
- Most modern AMIS
  - GIS interface
  - Web based
  - Multi-asset (pavement, bridges, signs etc)
  - Modular
- Also need some form of Decision Support Tool (DST)
  - Can be simple decision tree that does prioritisation
  - Or complex optimisation tool such as HDM-4

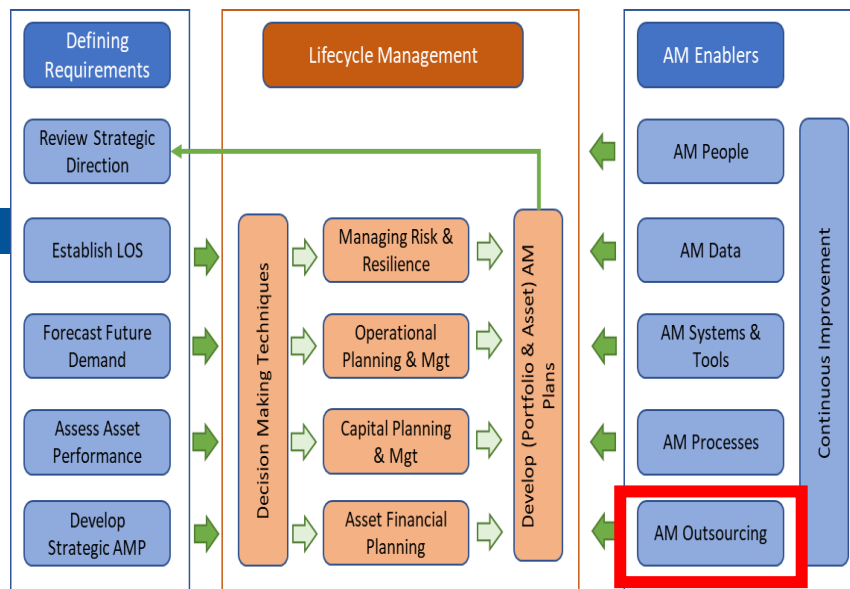


- As with any other aspects of activity, a quality management oversight is required to ensure compliance with the RAM processes
- One of the biggest causes for failure of RAM is where sound processes are bypassed for budget allocation and works program generation
  - Results in an undermining of all aspects of RAM



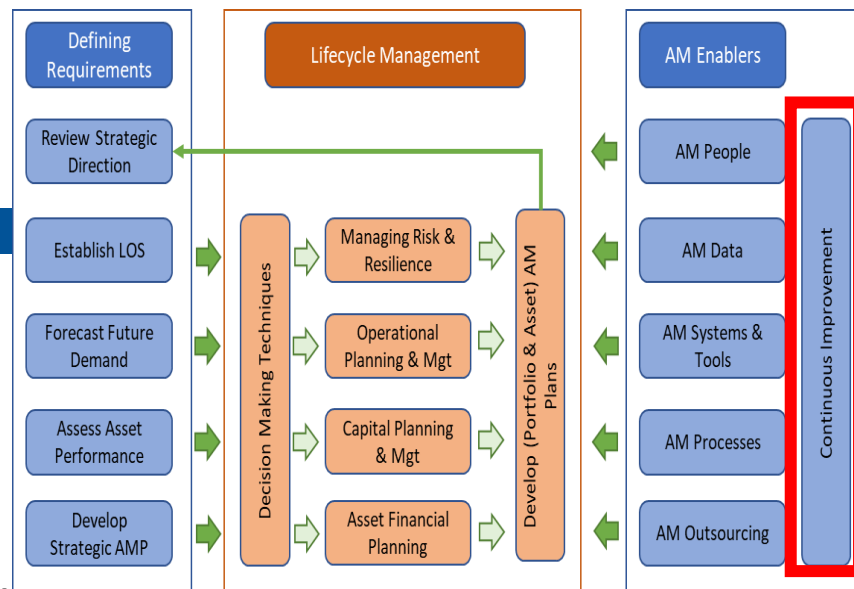
# Service Delivery

- How will you deliver the asset management and physical works?
  - In-house, or external?
- Strategic activities should be kept in-house, while lower level activities can benefit from full or partial outsourcing.
- Some contractual models (e.g. performance based maintenance contracts) have been shown to drive RAM initiatives.



# Improvement Plans

- Start simple, with the data you have, then improve
  - 5-10 years to become competent at RAM
- Don't delay starting RAM owing to any deficiencies in data or systems
  - Start and bring those improvements into the RAM processes
  - Use Maturity Assessments to help identify gaps
- Improvement actions should be prioritised and funded, and managed as a program in its own right
  - Assigned to the AM Team to deliver, but often using resources from across the road authority



# The Excel Template



# Questions

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