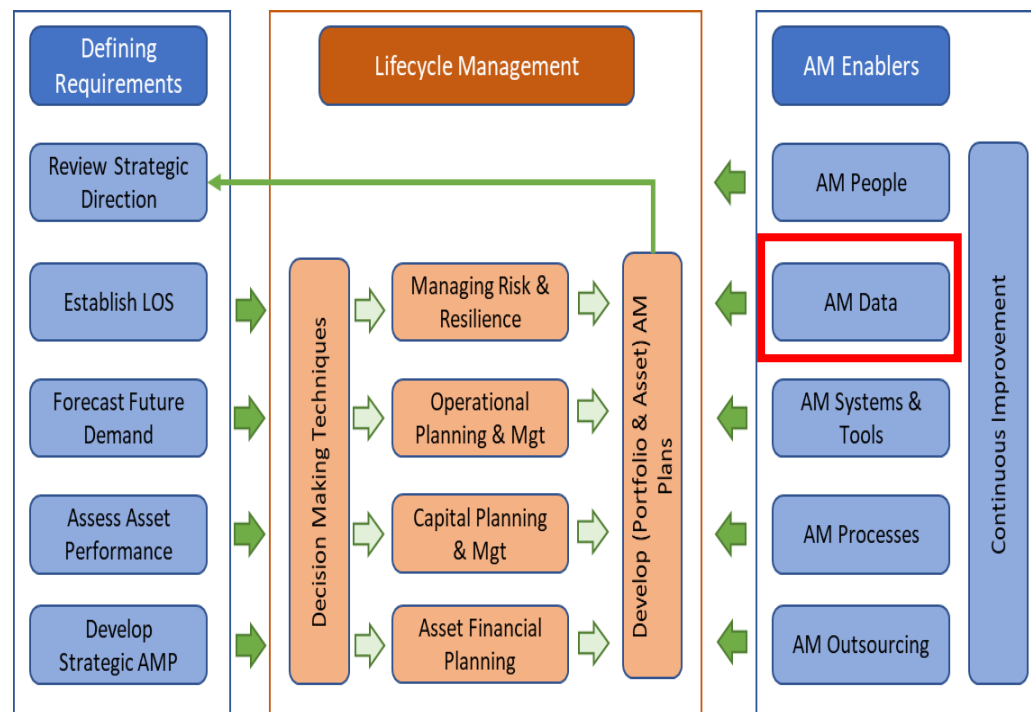# Road Asset Management (RAM)

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The Asset Register

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- What is the asset register?

- What to collect?

- When to collect it?

- How to validate it?

- Information Quality Levels?

- Data management

Data is an Asset in its Own Right

- The data in the asset data systems represent a significant investment in time and money

- Asset data are used for a variety of tasks throughout the road authority and its supply chain
  - Once collected and entered into a system, the original purpose of that data collection is often lost – everyone assumes it is fit-for-their-purpose.

What is the data used for/Why collect it?

- Network performance reporting
- Scheme Identification
- Risk Management
- Works Planning
- Scheme Design
- Valuation of the Asset

ASSET INFORMATION GUIDELINES
Guidelines for the Management of Asset Information
Web Version 1.3 May 2009

"Have consistently high quality asset data for use in operational, financial and engineering decision making and planning processes across the road authority."

What are "High Quality" data?

Data are of high quality "if they are fit for their intended uses in operations, decision making and planning"

(***J.M. Juran***).

What Is the Asset Register Data

- Inventory
  - What type of asset?
  - Identifier

- Location
  - Where is it?

- Construction
 - What materials is it made of?
  - When was it Constructed?

What to Collect?

- Some data is collected for all assets for day-to-day management, others can be collected when required for project design or specific studies
  - Important to have considered this as it is easy to end up collecting far more than is necessary

- Just because you can, doesn't mean you should!!

- Questions:
  - What inventory data do you currently collect across the different assets types?
  - Where is it stored?

How do we collect data?

- Historic asset data records

- Scheme asset data records

- Inspections
    - One off inspections to establish a base data set
    - Ongoing inspections to maintain the data set

- Visual Surveys

- Machine Surveys
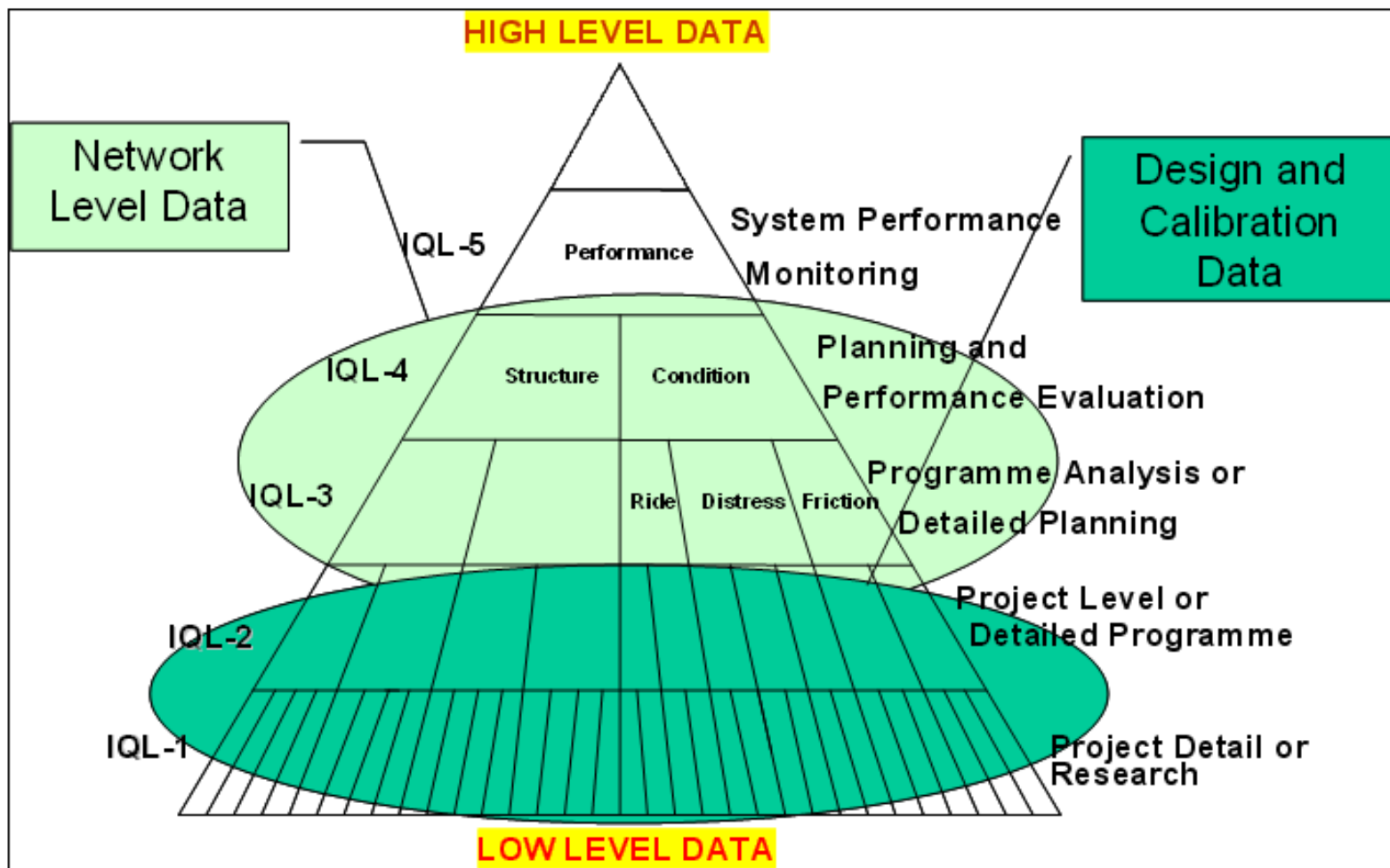
Can Vary IQL by Type or Frequency of Data Collection

- Example
  - FWD at 500m centres every 3 years for planning purposes = IQL 4
  - FWD at 25m centres for pavement design purposes = IQL 2
  - FWD at 5m centres every 2 years for long term pavement performance calibration sites = IQL 1

- Example
  - Visual inspection from a moving vehicle for low class roads = IQL 4
  - Machine based laser/photo based system for high class roads = IQL 1-2

- Need to work back from the information need to determine the means of collection
  - Just because you can collect IQL2 everywhere, doesn't mean you should.
  - One road authority collects pavement photos every 2m, manually processes every 5th photo for planning purposes, then processes the rest for those sites where works are likely required. Saves time and money, without significantly impacting the quality of the decisions being made.

Validation

- All data sets have a tendency to end up with errors over time
  - Data entry errors
  - Changes to the network not reflected in the data etc

- Need a process to validate the data
  - Could be 10% of the network per year
  - Two-way validation between the asset register and what is in the field

- The frequency of errors found through the validation process can then be used to improve business processes and also to guide estimates of overall data quality.

Data Management

- Often it is not until data is used, that its true weaknesses are observed

- There are many data sets around the world that haven't been maintained, and are now outdated and essentially worthless

- Data management is essential for any modern road authority.

Asset Data Maturity

Maturity Stage	Description	Typical Scenario
Acquisition	Data records are being obtained therefore the number of records is rapidly rising and the initial capital costs of collecting and storing data may be high.	Drainage
Consolidation	Data are mostly complete and undergoing refinement and consistency checks. Data attributes and requirements are still being defined, but costs have reduced from initial outlay.	Geotechnical
Maintenance	Data inventory are fit for purpose and routine updates are part of business as usual. Data costs have stabilised.	Pavements, Structures
Optimisation	Data inventory are fit for purpose and is being regularly reviewed for compliance with requirements and the benefits of all data collected. Costs may be reducing as maintenance processes become more developed and effective.	
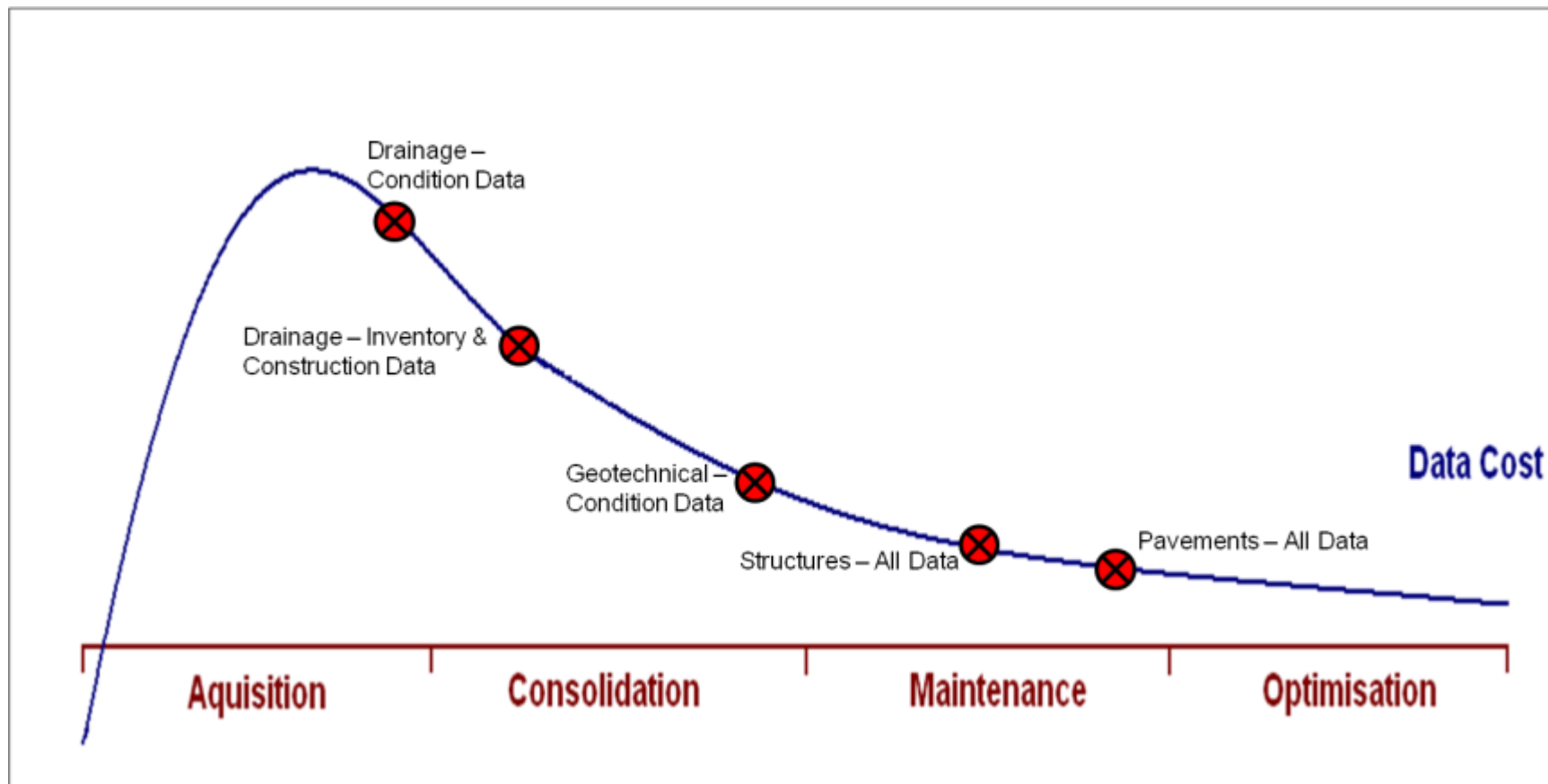
What is Data Governance?

- Data Governance is:
  - a system of decision rights and accountabilities for information (data) related processes,
  - executed according to agreed-upon models which describe who can take what actions with what information,
  - when,
  - under what circumstances,
  - and using what methods

The Data Governance Institute: The DGI Data Governance Framework

Executive Sponsor

- Executive sponsorship of the ADM processes and manual
- Executive responsibility for asset data quality
- Executive responsibility for internal and external publication of asset data
- Executive ownership of the strategic risks associated with asset data to the road authority

Senior Responsible Owner

- Senior management ownership of the ADM process
- Provide senior asset data stewardship
- Chair the Data Governance group
- Provide strategic direction for asset data management
- Ensures that the ADM process is meeting its objectives and is delivering the projected benefits
- Ensuring that reviews of the ADM process are carried out at appropriate stages
- Broker relationships with stakeholders within and outside the road authority
- Monitor and control progress of the ADM process and the maturity of the road authority in Data Governance

Data Governance Group

- Ownership of
  - the Asset Data Management (ADM) process
  - the Asset Data Management Manual (ADMM)
- Ensure that all business requirements for data are considered (Strategic, Tactical & Operational)
- Provide sign off for proposed asset data management projects
- Setting the asset data management strategic direction in the Agency
- Administration of the asset data management policy change control
- Setting access rights and approved uses of asset data within the Agency and its supply chain
- Setting access rights and approved uses of asset data to outside organisations and persons
- Setting required asset data quality levels
- Tracking
  - Asset data use
  - Asset data quality
- Assuring legal and organisational compliance
- Prioritising asset data projects

Questions for Discussion

- Do you have all the data sets you need for your business?
  - Is it of an acceptable quality?

- Do you have all the equipment needed to collect your inventory data?

- Do you validate your data sets?

- Do you have a data management manual and associated governance group?

- Have you considered where in your road authority each data item is used?

Questions

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