



A GIS Powered Smart Utility



OZRI Conference 2011

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Agenda

- Power and Water Corporation, Northern Territory
- The Asset Management Capability Project
- Benefits of Integrating Maximo and ESRI
- The Solution
- Demonstration



David Burbidge and Jimmy Bouhoris, Power Networks

Services

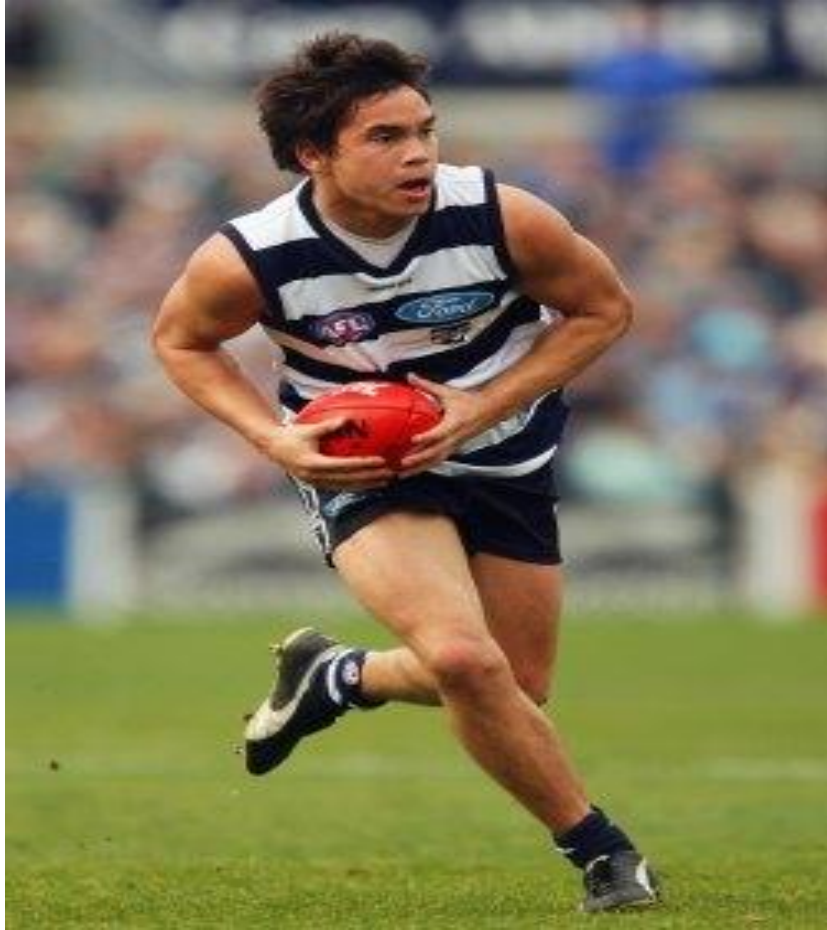


Delivery of energy, water and sewerage services to 80,000 customers (pop. 230,000) across 1.3 million square kilometres of central desert and tropical north at the top end of Australia

Electricity Network	Regulated by the Utilities Commissioner
Electricity Generation	Open to competition
Water and Sewerage	Monopoly licences
Retail electricity	Full Retail Contestability (FRC)
Indigenous Essential Services (not-for-profit subsidiary)	'Fee for service' agreement with Territory Housing
Gasgo Pty Ltd (wholly owned subsidiary)	Gas supplies for electricity generation

Northern Territory Exports





Northern Territory favourite sons

What is the Asset Management Capability (AMC) Project ?

Business objectives

1. To facilitate the development of asset management capabilities, knowledge and culture across the Corporation
2. To deliver the supporting processes and systems
3. To educate and mentor PWC staff

Project strategies

1. Implement an integrated solution for asset and geographic information management
2. Deliver process redesign, data migration, training and change management to ensure that the new solution is fully embraced and utilised
3. Minimal customisations of COTS to better leverage standard business processes, maintenance services and market innovation
4. Integrated with the financial and other corporate systems supported by a robust technical and services infrastructure
5. Employ an enterprise-wide approach to information the - automation and control to ensure data is collected once for multiple purposes - a 'single source of truth'

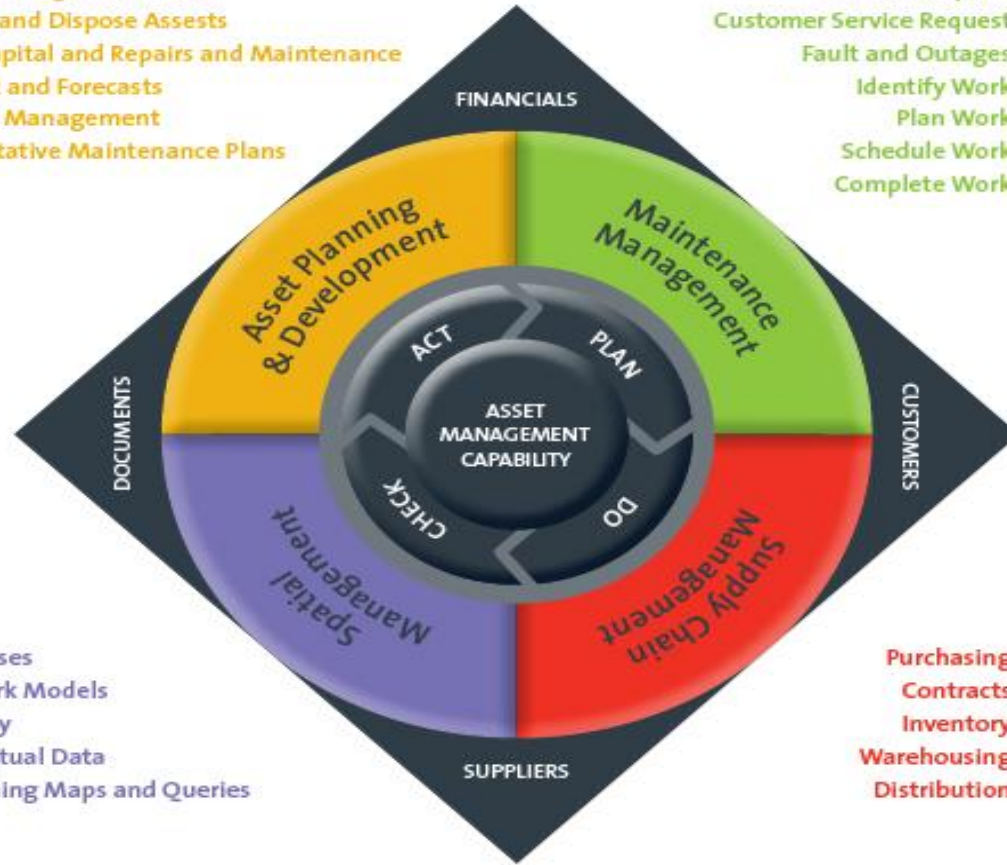
Why do we need better capability?

- We need to run a more **efficient** business to meet future demands
 - Continual capital growth demands more productive work management
 - Increasing customer expectation demands better reliability and responsiveness
- We need to consistently use more **effective** processes to serve our customers better
 - Better planning and scheduling to get the job done right, first-time
 - Track faults and outages through to service restoration and provide regulatory reporting
 - Critical feedback from the field to improve maintenance data and planning
- We need greater **evidence** to underpin future economic decisions
 - Better information on asset condition, performance, risks and life-cycle costs
 - Structured asset planning to provide more robust capital and R&M investment
- We need our affairs in order: as an essential services provider, we are subject to economic, environmental and financial **oversight** by stakeholders
- We need modern systems that automate, control and streamline processes and support **continuous improvement** initiatives

Our Business Processes

Asset Management Plans
Create and Dispose Assests
Plan Capital and Repairs and Maintenance
Budget and Forecasts
Project Management
Preventative Maintenance Plans

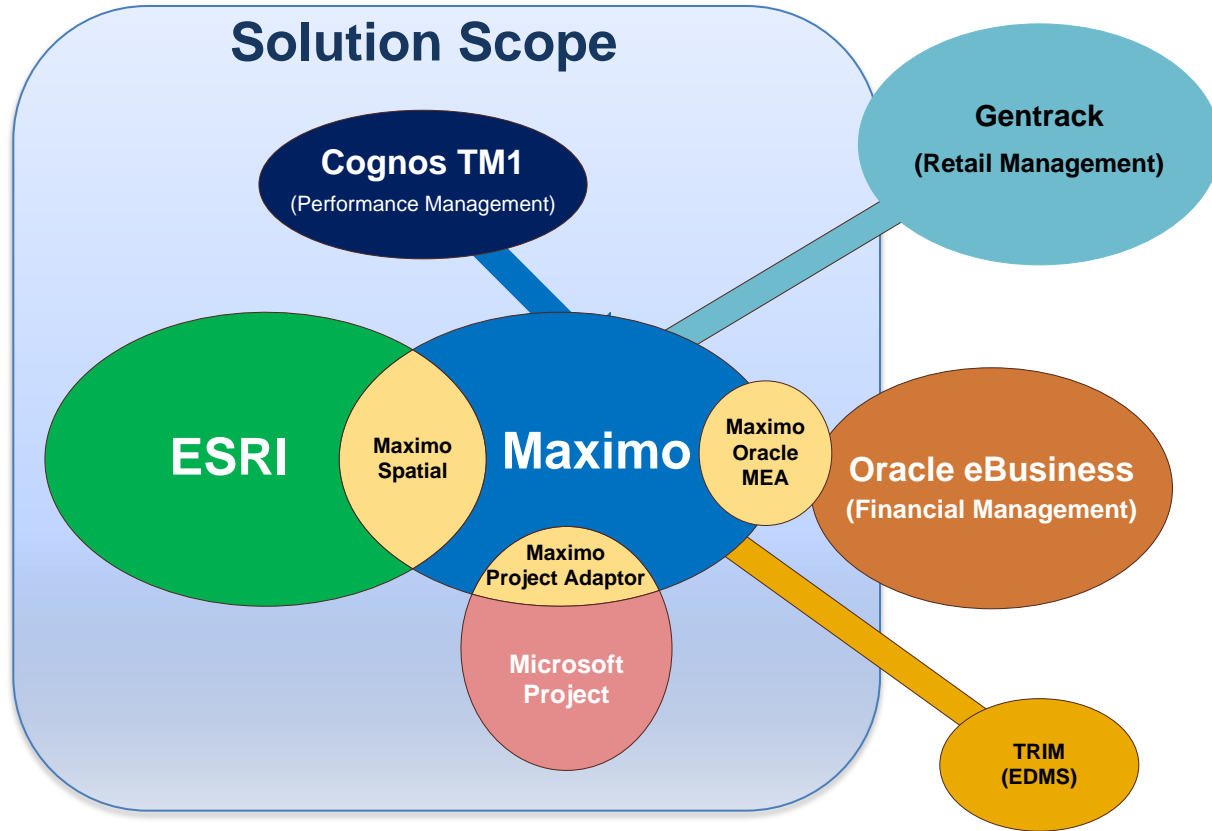
Internal Request
Customer Service Request
Fault and Outages
Identify Work
Plan Work
Schedule Work
Complete Work



Addresses
Network Models
Imagery
Contextual Data
Publishing Maps and Queries

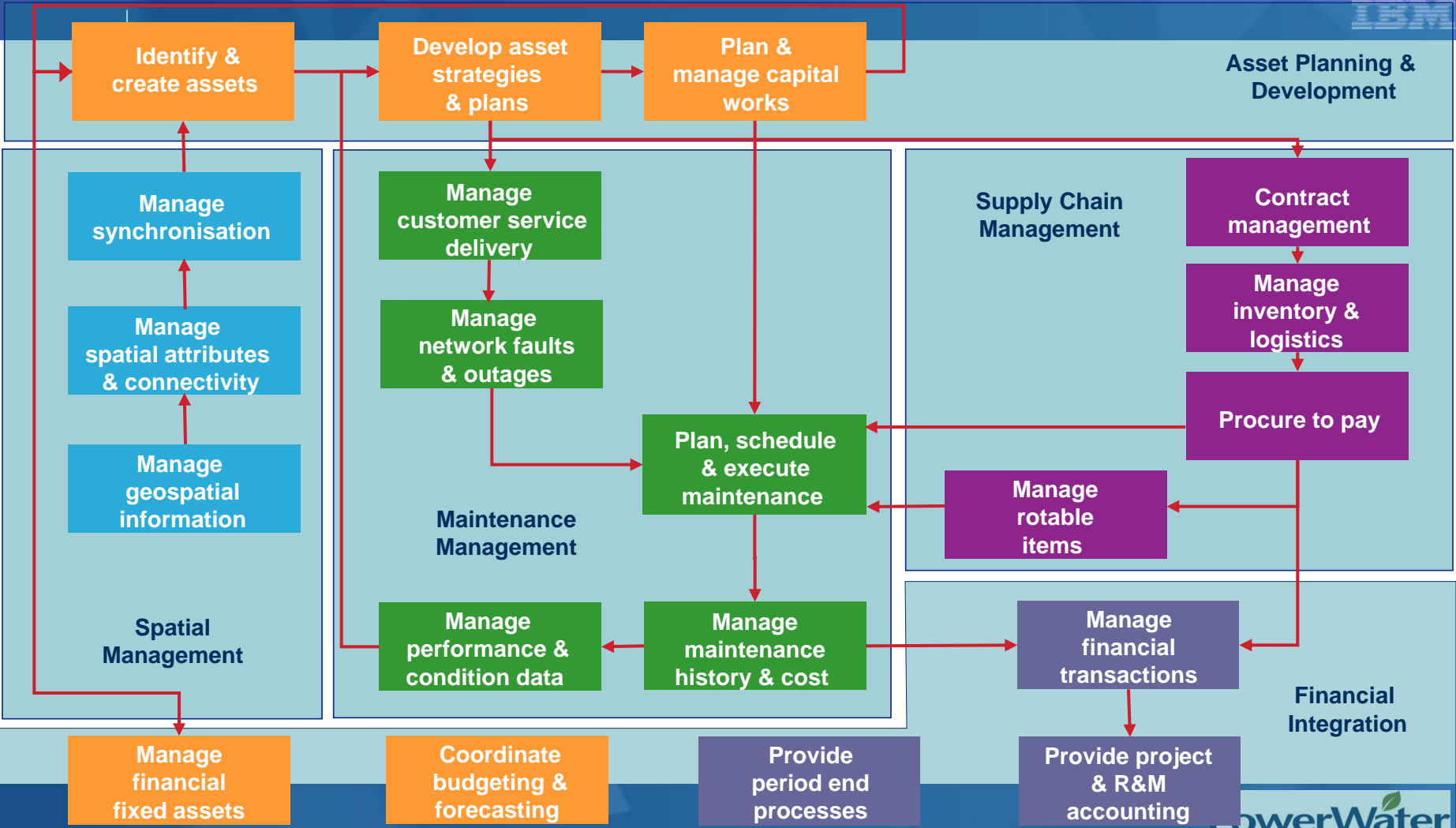
Purchasing
Contracts
Inventory
Warehousing
Distribution

The Solution



How do utilities use a GIS ?

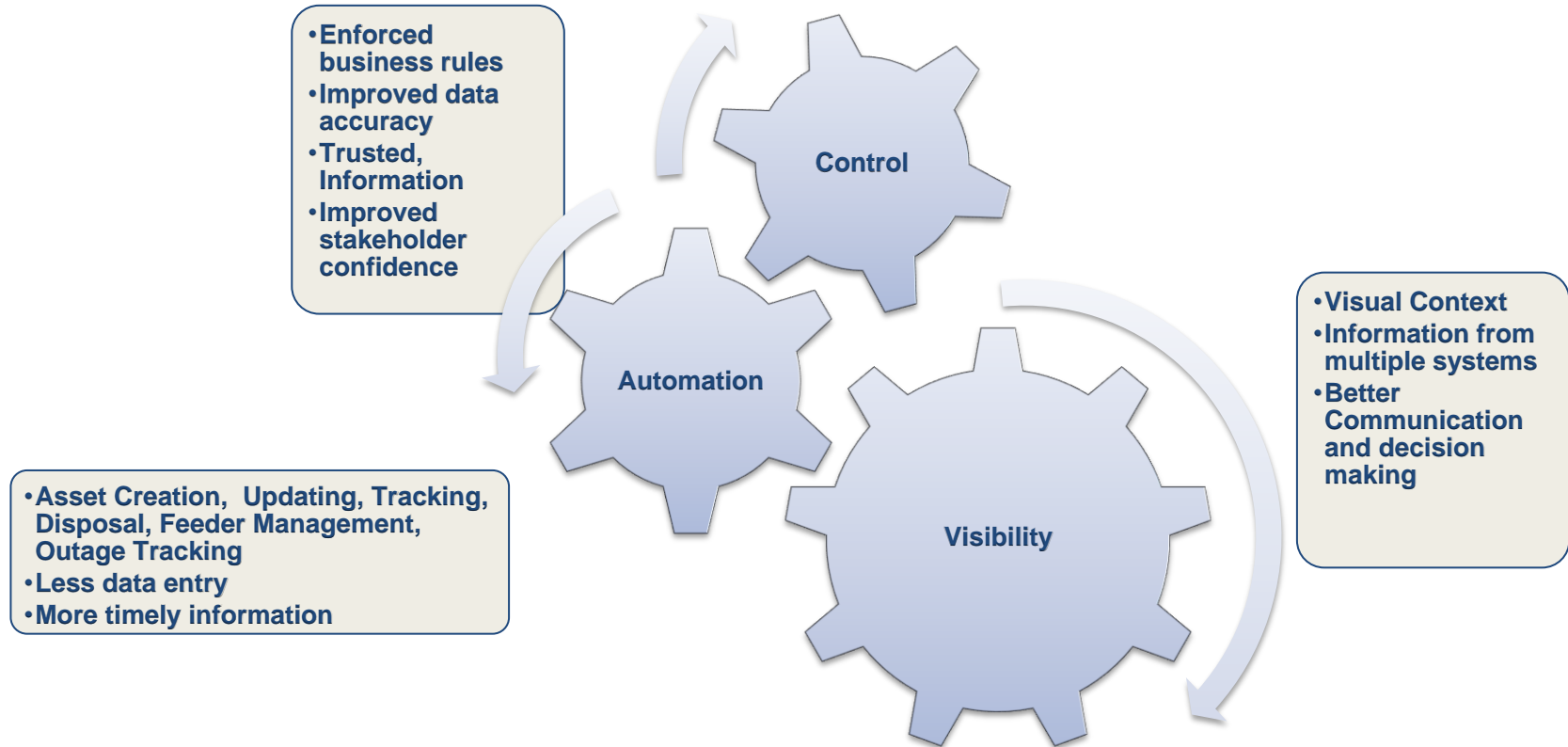
- ESRI suite – ArcGIS, desktop products, ESRI mobile and Dekho
 - Locate our assets and work locations
 - Imagery, parcel and address data - Geocoding
 - Understand physical relationships – proximity, distance from a land mark
 - Collect inspection and audit data
 - Identify trends and predict future events
- Network connectivity based on Telvent's ArcFM product set
 - a set of business rules to manage the different characteristics of power, water, sewer and communication models in the ESRI geodatabase
 - Maximo “understands” Network Manager
 - E.g. trace a water main between valves to identify shut-off block
 - Other Telvent products – Responder (OMS) and Distributed Management System (DMS)



Changes to support new systems

- All assets in Maximo – including facilities (power stations, pump stations, tanks and bores), network assets, both linear (conductors, cables and pipes) and point (valves and switches)
- All work in Maximo - including capital projects, preventative, corrective and breakdown maintenance, customer requests and faults
- All locations for assets and works are represented spatially in ESRI and in Maximo
- Technical and configuration data synchronised between Maximo and ESRI OR dynamically accessed on request
- Standardised fault and outage management processes

Benefits of Integrating Maximo to ESRI



AMC Project Benefits

- **Provide more complete and accurate information on asset performance and condition**
 - Improve data completeness and integrity between AMS and GIS
 - Provide better access to equipment condition information and status
 - Improve decision-making on work priorities
 - Improve compliance with scheduled preventive maintenance and inspection tasks
- **Improve efficiency and utilisation of PWC's trades work force and contractors**
 - Reduce waiting time for parts, materials or access
 - Provide a more forward-looking schedule to balance work demands with available resources
 - Increase visibility of contract spend and performance
 - More planned maintenance; less reactive maintenance
- **Simplify the integration between the asset management and financial system**
 - Eliminate data duplication, delay and reconciliation issues
 - Increase confidence in the accuracy of data
 - Provide greater visibility of procurement transactions

...in the longer-term, this will improve network and system reliability