

JOHANNESBURG WATER:

SAP Integration for Holistic Infrastructure Asset Lifecycle Management

THE BUSINESS CHALLENGE.

A public utility like Johannesburg Water (JW) is an infrastructure intensive organisation that runs complex operations at multiple levels on a daily basis.

An Infrastructure Asset Lifecycle Management (IALM) system serves to sync all components of the asset life-cycle management process in a comprehensive and holistic manner. Without the proper systems in place, organisations are blind in terms of: what they own; where their assets are located in space; as well as what an asset's financial status, condition, maintenance needs, and useful life is.

When JW completed an audit of its information and planning systems with IMQS in 2010, the results were confronting. The company was hamstrung by disparate systems that created information 'silos' between departments, leading to a lack of transparency across the organisation. The result: skewed planning data, duplication of work, inaccurate reporting, and no central repository of reliable information.

Without a standardised data collection process, information on the company's physical assets was often captured incorrectly, wasn't geo-referenced, and was entered inconsistently in the company's multiple management, planning and financial systems. This led to scenarios where, for example, recently repaired assets – such as water pipes – would be replaced as part of a neighborhood regeneration project because there was no single place where physical and financial progress was linked and tracked.

JW needed a solution that would not only eliminate these inefficiencies, but also put in place the structures that would help us lay a foundation for future progress. SAP modules such as Financial Accounting, Project System and Plant Management are integral to the IALM process. Modules are however not in sync with the various changes that happen throughout the whole of an asset's life – asset acquisition and project implementation, to maintenance.

CLIENT

With a distribution network spanning more than 11,000 kilometres across 100 reservoirs and water towers, Johannesburg Water operates one of South Africa's largest water and sanitation utilities, servicing more than 750,000 households and businesses and an estimated 3.8 million people each year.

- 2.7 million population
- 11 400 km Water Pipes
- 10 700 km Sewer Pipes
- 1 400 kl/d AADD

INDUSTRY

- Local Government
- SMART Governance
- Utilities

INTEGRATION

- SAP FI
- SAP PM
- SAP PS

BENEFITS

- One-world view of infrastructure assets
- Informed budgeting cycles
- Improved service delivery
- Spatially linked financial asset register
- Full compliancy - GRAP 17, PAS 55, ISO 55000

EOH IMQS's IALM specific knowledge, services and software addresses infrastructure related problems through a multidisciplinary approach focused on: standards; integration; facilitation and coordination. IMQS solutions align an organisation's asset management legislation and industry best practice including GRAP 17, PAS 55 and ISO 55000. Moreover IMQS integrates its own technical engineering knowledge and information to inform IALM specific solutions that support effective and timeous decision-making.

As part of a broader solution offered to Johannesburg Water, IMQS needed to overcome the challenge of SAP integration to the build a solid IALM system. Integration with SAP solutions enables comprehensive holistic asset lifecycle management and adds real value to an organisations daily operations.

THE SOLUTION.

In the case of JW, the holistic IMQS solution was built on three tiers of analysis: systems, process and data. From the onset of the project, a key challenge would be to integrate, align and sync SAP modules with the broader IALM system.

EOH IMQS rebuilt JW's asset register and created a consistent data capture and asset management workflow. With native integration to SAP built on top of a custom-developed GIS engine, IMQS provided a uniquely visual business intelligence solution for managing infrastructure assets throughout their lifecycle to JW.

The solution involved unbundling existing assets into separate components in IMQS, which would then be verified and pushed to JW's SAP register. Once the components were created in the SAP register, a corresponding line item was created in the SAP project management module, thereby reconciling one set of reliable data across the organisation. Raw data collected from multiple sources – including draft plans, operational manuals, visual verification, and household meter and maintenance databases – is analysed and captured into the IMQS GIS, then linked, along with demand factors such as usage rates, to the cadastral layout.

Complex assets are unbundled into components which have a significant cost attached to them and considerable difference in useful lives, and therefore needs to be depreciated separately as required by the accounting standards. The unbundling is done within IMQS and then authorised before it is pushed to the SAP register. Once the components had been created in the SAP register, a corresponding equipment item is also be created in the SAP PM



Module. These components enable JW to plan its maintenance activities to a detailed and informed level. The creation of the components take place at a technical level and are linked to a main asset.

Using IMQS, JW can track and manage an asset through its lifecycle – from planning through to derecognition and better monitor asset performance and cost of operations. The IMQS solution provides predictive insight into an asset's future utility.

THE ACHIEVED BENEFITS.

SAP solutions are integral nodes in IALM system. The two-way integration of IMQS and SAP not only aligns JW's business processes to the financial accounting system processes, but provides the systems capability to link financial information to technical asset information.

JW can make more informed decisions on the maintenance of its assets and the associated costs, as information is now more reliable and relevant. It also creates a consistent process for recording transactions and eliminates the potential for human error. The result is a company-wide 'single view' of the asset register, leading to informed decision-making for budgeting, maintenance, consumption, planning and engineering activities.

Since implementing the IMQS solution, Johannesburg Water's asset register grew from 600,000 line items to over 2.2 million line items, increasing the residual value of its assets five-fold. This allows the company to re-evaluate its revenue base, improving its budgeting and forecasting and creating an accountable planning system for future works. With its assets linked to a regularly updated geo-referenced spatial framework, the company has also become more responsive to actual conditions on the ground, able to better prioritise emergency works and reprioritise maintenance and upgrades as required.

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