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WORLD-CLASS INFRASTRUCTURE ASSET MANAGEMENT SOLUTIONS MADE IN SA

IMQS



Forming part of the NEXTEC Group of Companies, IMQS is a specialist software and engineering services provider with a solid track record for implementing intelligent infrastructure asset management (AM) programmes within municipalities. *IMIESA* speaks to IMQS's Rob Knight, CEO, and Rob Childs, Executive: Professional Advisory & Support Services, about what AM means in practice.

"IMQS enables asset-intensive organisations to leverage ongoing information communications technology (ICT) innovation, coupled with expert advisory and support services, to deliver tangible performance improvements," explains Knight.

"The backbone of our offering is our proprietary GIS-centric software, which is 100% developed by IMQS; is benchmarked against the best available globally; and forms a vital part of the AM toolbox," Knight continues.

"For each client, we first design the data model so it delivers the information required to reliably monitor the nature, extent, and status of the portfolio, and at an appropriate level of detail. Then – once we've mapped out every asset – its precise location, health and performance is recorded at a frequency appropriate to its use via IMQS's intuitive GIS Web-interface, which is automatically integrated with IMQS's digital asset register."

Within the NEXTEC Group, IMQS forms part of the Infrastructure Consulting Division, which includes GLS Consulting (GLS) and JOAT. GLS is an expert in the analysis, planning and management of water distribution, sewer, and electricity reticulation systems, while JOAT is a leading specialist in water systems' optimisation.

"The founders of GLS started IMQS as a digital front-end to their engineering businesses. This was the foundation for the continued evolution of the current IMQS AM business model, moving from desktop software to the web and now the cloud," Knight explains.

Today, IMQS employs some 100 specialist personnel, interacting with around 70 AM clients, the bulk of which are municipalities. IMQS works across all infrastructure asset classes – like water, wastewater, roads, electricity, and buildings – to provide an integrated and holistic AM model.

"Over the past 15 years, we've worked directly with more than 120 municipalities. We've also started to engage more at a provincial level. A current example is the Western Cape Department of Transport and Public Works, where our scope includes schools, hospitals, and provincial buildings," says Knight.

AM defined

But what is AM? Essentially, it is about using a systematic methodology to optimise the value of assets to achieve the best and most cost-effective result over their life cycle, which in the case of public infrastructure is service delivery. Based on global experience, key aspects of management practice that are required are reflected in SANS 55001: 2014, though the way these are applied need a keen appreciation of the objectives and the operational context.

Staying current with the latest AM trends, Childs is a World Partners in Asset Management (WPIAM) board member, as well as a council member of the Southern African Asset Management Association (SAAMA).

One of the key developments is the South African Qualifications Authority's (SAQA's) recognition of the AM Global Certification Scheme (GCS) recently launched by SAAMA in partnership with WPIAM. There are three designations, namely Certified Senior Principal in AM (CSAM™), Certified Practitioner in AM (CPAM™), and Certified Technical Specialist in AM (CTAM™).

"This is a major step forward as it recognises AM as a profession that makes a key contribution worldwide in getting the

infrastructure delivered that we need as a society - across a wide range of industries and sectors, public and private," says Childs.

For the bulk of municipalities struggling with ailing infrastructure, Childs says that improving AM practice is the key to restoring balance to the blend of operations, maintenance, upgrades and new works. To function effectively though, AM programme implementation requires an in-depth education process at all levels within organisations and the infrastructure processes must integrate effectively with enterprise resource planning systems, especially in terms of financial accounting and management.

"One of the greatest threats to effective AM is poor procurement practice. This is especially the case where municipalities pursue maintenance initiatives without effective planning and prioritisation. Expenditure can then occur in a fragmented/siloed way with the risk of major cost overrun and wastage implications. Procurement managers must keep life-cycle cost optimisation top of mind," stresses Childs.

Plan, Build, Operate and Assess

IMQS's AM methodology is systematic, virtual, and structured on a Plan, Build, Operate and Assess approach, supported by the applicable software module(s).

At the heart of the IMQS platform is the IMQS Project Control System (PCS), which enables users to centralise all project-related data on one easy-to-use and spatially enabled platform for all applicable asset classes.

PCS's two core benefits are:

- dynamic tracking and management of capital and operational projects in line with life-cycle asset management criteria
- effective oversight, with a clear audit trail.

An example of how this works in practice is the City of Tshwane, which has hundreds of projects ongoing, worth billions of rand. "Attached to each of those projects we have recorded completion certificates, invoices, etc., so it's a transparent system that greatly minimises the risk of irregular expenditure," Knight explains.

It all starts with a plan

Planning is not a once-off event, but an ongoing process of understanding and influencing demand, designing for a future state while, in parallel, assessing the current network's condition and need to upgrade or renew assets. IMQS provides

specialist advisory services on strategic and tactical decision support tools and solutions for the design, modelling, and prioritisation of activities.

All municipalities are required to draw up and implement Integrated Development Plans, informed by future spatial development frameworks and plans for ongoing maintenance – the upgrading and expansion of infrastructure forming the backbone. An example would be plans to respond to forecasted water and wastewater treatment demand over a 5-, 10- and 15-year horizon.

IMQS's mandate is often to provide a roadmap for the improvement of management practice relating to an organisation's AM, which starts with an 'as is' assessment of management practice. It's a test at any point in time about the skills and capability of a client to manage their assets. "Based on that, we provide a plan to improve those capabilities over time," says Knight.

Pursuit of the roadmap inter alia enables the efficient application and management of capital for existing and new infrastructure works. And indeed, visible competency and corporate commitment in this area, in itself, can elevate the ability to access capital funding.

Maintenance Management

For repairs, IMQS's geospatial, mSCOA compliant Maintenance Management software package, which links directly to the municipality's AM register, proves invaluable. The programme integrates, automates, and unifies all maintenance-related data sources, processes, and reporting. It also makes municipal engineering tasks easier in terms of key aspects like incident logging and scheduling.

An example is the issuing of a works order for an intervention like a burst pipe or pothole repair.

Maintenance Management ensures that the correct tools, trained technical personnel, repair instructions, infrastructure locations, and materials are assigned the first time, significantly reducing cost overruns, like overtime, as well as rework. The same cost-saving principle applies to planned future work.

More niched software tools include IMQS's Road Infrastructure Management System and its subset, the Pavement Management Module (PMS). They provide a clearly defined set of procedures for collecting and analysing relevant data so that maintenance and management needs for entire road networks can be identified, alternative treatments assessed, prioritised, and budgeted for.

Another allied product is IMQS's Wayleave software, which enables effective planning where multiple works are planned for the same section, e.g. a new pipeline, fibre optic cabling and a road

IMQS ASSET MANAGEMENT ADVISORY AND SUPPORT SERVICES

- Organisational Asset Management Framework and Competency Development Roadmaps
- Asset Management Objectives, Performance, Risk and Financial Management Strategies
- Prioritisation and Budgeting
- Integrated Strategic and Sector Asset Management Plans
- Strategic optimisation of maintenance management
- Financial Asset Management and Accounting

reseat. The first prize would be to complete all three jobs at the same time.

Rustenburg

From a case study perspective, Rustenburg Local Municipality is an example of an AM success story. IMQS started to roll out its programme with the municipality some three years ago. "We started from scratch, focusing initially on water and sanitation infrastructure in partnership with GLS to establish a digital representation of their networks. Today, they are one of the biggest users of our Maintenance Management system, which has been integrated into their call centre," Childs explains, adding that Rustenburg is now also a DBSA pilot study in terms of the latter's asset care programme, and part of a potential national initiative.

"The final piece of the AM puzzle is the ongoing assessment of data quality. That enables decisions on where improved or enhanced data acquisition opportunities can add value, as well as influencing the selection of new technologies to further enhance life-cycle cost optimisation," adds Knight.

South Africa shows the way

Within the AM world, South Africa is recognised as a trailblazer, with leaders like IMQS continuing to refine its techniques as new Internet of Things tools become available.

"South Africa faces major infrastructure challenges and opportunities and, in this respect, effective AM certainly serves as a positive catalyst for socio-economic growth," Knight concludes.

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