# CORPORATE PROFILE

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# Infrastructure Management Solutions

IMQS is a specialised infrastructure asset management company providing professional services and niche web-based software solutions. We have provided proven Infrastructure Asset Management (IAM) Solutions & Services to over 60 government and private organisations locally and internationally.

## Snapshot of IMQS

- Established in 1995
- Develops modular infrastructure asset management software solutions which deliver tangible benefits through several mechanisms including:
- Contributes towards continuous improvement in asset management practices
- Contributes to improving the execution of cost-effective lifecycle management strategies
- Provides a holistic and integrated view of IAM data across multiple IAM classifications (Roads Stormwater, Electricity, Water, Sanitation, Buildings and Property and Solid Waste).
- Role-based software solutions for engineers, administrators, auditors and more
- Offers comprehensive and granular reporting across strategic, management and operational functions
- Advanced geo-spatial capabilities
- Increased compliance including compliance with GRAP, GAMAP and mSCOA
- Employs specialised engineering and financial skills to continually develop & improve systems

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Maximise the value derived from your organisation's investments in infrastructure through IMQS's proven and comprehensive Infrastructure Asset Lifecycle Management solutions.

# Infrastructure Asset Management.

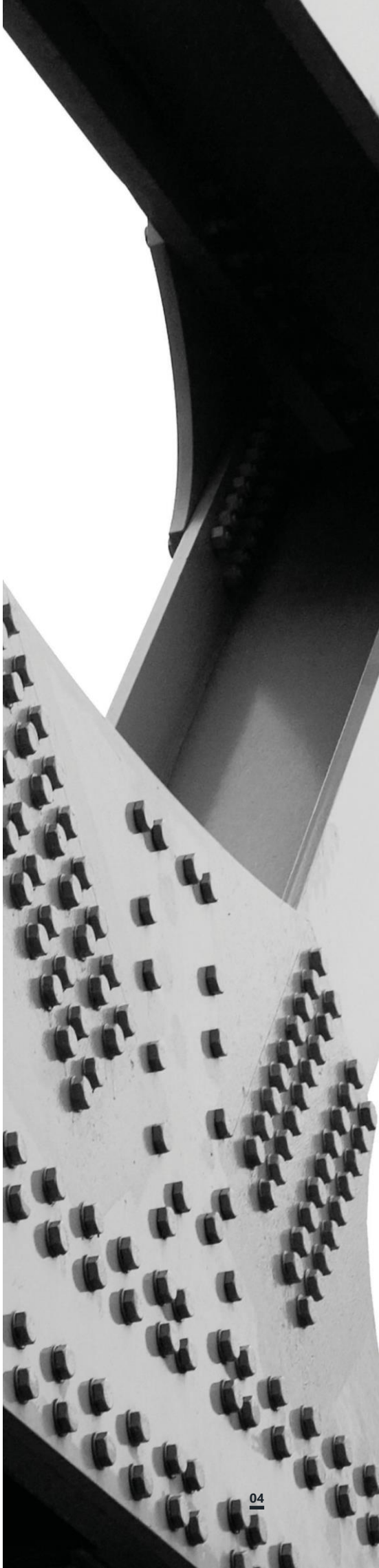
## A difficult challenge that can cause significant loss or create significant value.

One of the primary objectives of governments and private organisations responsible for vast infrastructure networks is to maximise the value from capital and operational expenditure and minimise costs relating to the infrastructure.

Many government and private organisations face challenges with the ability to collect, reference, filter, manipulate and deliver the right reporting data to the right roles at the right time.

## The result of inadequate infrastructure asset management can lead to a range ofproblems including:

- Inability to track assets and proactively identify issues
- Inability to understand demand, availability and capacity requirements (e.g. of electricity, water, roads etc.)
- Inability to schedule and perform the required deployment, refurbishment, expansion, management & maintenance functions
- Infrastructure not managed and maintained in line with standards and best practices
- Infrastructure degradation over time and can no longerfulfill the required demands
- Infrastructure starts to fail and is permanently damaged. Services cannot be delivered, and revenue generated from infrastructure decreases.
- Minimum required returns on investment not achieved and unnecessary expenditure needs to be made to replace or repair failed infrastructure.



# IMQS Professional Services.

## Effective and efficient long-term management of public infrastructure underpins socio-economic developmentand societal wellbeing.

Countries rely onlarge investments in infrastructure assets that are managed at different scales to achieve: strategic goals, deliverservices, bolster industry, ensure public safety and support the livelihood of communities.

Within this environment, public organisations are often simultaneously faced with juggling limited financial and human resources. These resources need to be directed in the most effective manner at: operating, maintaining and renewing infrastructure; addressing backlogs; and comprehensively dealing with changes in demand.

Over the last 30 years, in the wake of large-scale infrastructure-related catastrophes, global standards, such as ISO55001, have come to define key elements of the science of infrastructure asset management. Guided by these best practices,organisations who wish to demonstrate effective governance to stakeholders, or improve their performance, need to be able to assess their asset-management practices, as well as the performance of the infrastructure, and put progressive plans in place to address gaps.

The need therefore arises for the establishment of an integrated

and resilient management framework from a strategic level, through to tactical and operational levels.These systems should be built in a way that is appropriate to the operational environment and speak to the strategic needs of the organisation. An important outcome of this integrated management landscape is the constructive steering of short, medium and long-term decision-making based on bestpractice and access to reliable and accurate information.

# The Solution

IMQS provides services that help asset-intensive organisations establish infrastructure management frameworks and systems as a key enabler to achieve their strategic objectives. Our team combines software, asset management, financial, engineering, data management and analytics expertise to set a robust and progressive management and technical platform for ongoing improvement in service delivery. Software solutions and services are often employed by clients as a key catalyst to drive improvement in management processes, as well as enabling improvements in the quality of data that underpins decision-making. A data management strategy is core to ensuring that relevant data is established that supports effective decision-making throughout the organisation and is able to be scaled to accommodate changes in needs, technology advances and the evolution of practice maturity. Work on improving data is often tackled in parallel to applying a structured approach to improving, and integrating, the infrastructure management framework (looking at people, process, and technology aspects). Our goal is to constructively support the establishment of context-relevant management frameworks, in line with best practice, that enable asset-intensive organisations address their strategic objectives and operational needs effectively.

## The resulting management framework and information enable clients to:

- Construct a comprehensive, scalable and representative view of an organisation’s infrastructure managementlandscape
- Guide decision-making with regards to capital and operational
- expenditureInform strategic, tactical and operational management
- and planning Inform risk, performance, and financial management
- Inform effective project and maintenance management
- Enhance organisation-wide communication and understanding of infrastructure management needs andobjectives.
- Enhance statutory reporting capabilities and stakeholder communication

# Core Service Line

| TYPE OF CORE SERVICE | KEY ELEMENT OF CORE SERVICES |
|---|---|
| ASSET REGISTER | • Establishment and<br>• evaluationInfrastructure<br>• valuation Verification<br>• Compliance with accounting standards |
| ASSET MANAGEMENT FRAMEWORK | • Asset and system performance management<br>• Data management systems and processes<br>• Infrastructure risk management systems<br>• Infrastructure funding strategies<br>• Establishment and operation of an Asset Management<br>• OfficeEstablishment and operation of a Project Management Office |
| DATA ANALYTICS | • Data improvement plans<br>• Asset data models<br>• Life cycle modelling<br>• Failure mode data interpretation<br>• Data management policy, procedures, and standards<br>• Data services “alphanumeric & spatial / GIS |
| MAINTENANCE MANAGEMENT | • Improvement strategy<br>• developmentResource and budget<br>• optimisation Annual planning |

| TYPE OF CORE SERVICE | KEY ELEMENT OF CORE SERVICES |
| --- | --- |
|  ASSET MANAGEMENT PLANS | • Asset Management Plans covering all engineering and building sectors<br>• Service delivery backlog studies<br>• Strategic Asset Management Plans<br>• Maturity development |
|  ASSET MANAGEMENT POLICY | • Financial asset<br>• management Physical asset<br>• management Integrated<br>asset management |
|  ASSET MANAGEMENTPRACTICES IMPROVEMENT | • Maturity assessment<br>• Needs determination, prioritisation, and improvement planning<br>• Change management planning and implementation |
|  TRAINING | • Awareness<br>• Baseline AM competency<br>• Advanced AM techniques |
|  PROJECT AND PROGRAMME MANAGEMENT | • Internal management and control of projects<br>• Establishment of PMUs and support |

# Key Skills

## ENGINEERING

- Lifecycle modelling, needs determination, prioritisation,response optimisation, strategic and tactical planning, practice maturity development

## DATA MANAGEMENT

- Data establishment (desktop and field), controls, assimilation, interpretation, optimisation, spatial andalphanumeric reporting

## ACCOUNTING

- Financial and Management Accounting

## PROJECT MANAGEMENT

- Systems, processes, services integration, implementation

## SYSTEM ANALYSIS

- Information system assessments, solutioning

# Conclusion

Asset-intensive organisations rely on vast networks of expensive infrastructure assets to achieve strategic goals within financially constrained environments. IMQS provides an integrated professionaladvice and support service for organisations committed to optimising the management of their infrastructure. The goal is to build a
context-specific management framework in line with global best practice, supported by robust data management, that speaks directly toan organisation's strategic objectives and operational needs. These management frameworks, and their supporting data, help organisationsfocus on doing the right things in the right manner to ensure cost effective, optimised and sustainable management of their infrastructure.

In so doing, IMQS strives to achieve its goal of performing a meaningful role in supporting societal well-being, development andgrowth.

# Our Solutions.

The consequences of not managing infrastructure assets - proactively - can lead to unnecessary costs, infrastructure failure as well as health and safety issues.

To address the various problems that Infrastructure Asset Management presents, IMQS offers a modular set of solutions operating independently or in an integrated manner.

A summary of the various modules, categorised by infrastructure type, are as follows:

| INFRASTRUCTURE TYPE | KEY CAPABILITIES & FEATURES |
|---|---|
|  ENERGY | • Plan more effectively and proactively for existing and future energy demands<br>• Report on results produced during a master planning process<br>• Interfaces with treasury or other meter reading databases<br>• View / present utilisation, revenue, electricity demand / loss data on an area-by-area basis |
|  ROADS | • Web-based, spatially enabled Pavement Management System<br>• Monitor road networks<br>• Communicate information and maintenance needs<br>• Identify, quantify and prioritise maintenance and rehabilitation needs<br>• Analyse and model the condition of road segments |
|  WATER | • Transition from a purely supply-based focus to a proactive demand management focus<br>• Improve the ability to reduce expenditure on new infrastructure because demand management initiatives can be effectively implemented<br>• Develop plans to progressively ensure efficient, affordable, economical, and sustainable provision of water and sanitation services. |

| INFRASTRUCTURE TYPE | KEY CAPABILITIES & FEATURES |
|---|---|
| SOLID WASTE | • Web-based, spatially enabled Solid Waste Management Service Infrastructure application<br>• Capture base data related to Solid Waste Management site infrastructure<br>• View fixed assets contained within the Solid Waste Management sites<br>• Document linking, searching and retrieval |
| PROPERTY & BUILDINGS | • GIS based viewer and reporting tool<br>• Technical site assessment<br>• Financial modules |
| SEWER PLANNING | • Development of Water and Sewer Master Plans<br>• Population of water and sewer models' databases<br>• Sewer tariffs can also be billed according to water consumption<br>• Calculate the income and tariffs for sewage discharge |
| STORMWATER | • Web-based, spatially enabled Storm Water Management System<br>• Provides data necessary for improving safety and reducing damage<br>• Optimise funding towards storm water management<br>• Prioritise problem areas, risks management and projects |

# The infrastructure asset management modules are supported by two key infrastructure functions summarised below:

| FUNCTION | KEY CAPABILITIES & FEATURES |
|---|---|
|  <br>ASSET MANAGEMENT | • Provides a structured approach for the development, coordination and control of activities relating to infrastructure assets by an organisation over the lifecycle of its assets<br>• Access and integrate asset management data seamlessly<br>• Supports the identification and management of risks throughout the lifecycle of infrastructure assets |
|  <br>PROJECT CONTROL SYSTEM | • Allows infrastructure projects to be planned and managed with excellence<br>• Provides the following minimum functions:<br>- Project Creation<br>- Project Planning<br>- Program Management<br>- Spatial Representation<br>- Budget Management<br>- Project Reporting<br>• Provide complete control over costs and effective<br>• monitoringIncrease real-time visibility into key performance indicators<br>• Ensure compliance with corporate governance, laws and regulations<br>• Provide best of breed ‘construction project’ functionality |

# Why IMQS?

The solutions offered by IMQS have been developed in careful consultation with engineers and experts in their field to ensure that what is delivered to our valued clients is practical, relevant and effective.

# IMQS has a proven track record of delivering tangible value in the followingways:

- Increase the value derived from your investment in infrastructure assets
- Contribute to improving the execution of cost-effective lifecycle management strategies
- Customers do not have to invest in ‘everything’. Solutions can be delivered in a modular and iterative manner.
- Contributes towards continuous improvement in asset management practices
- Allows relevant roles in your organisation to capture, view and manage valuation and financial asset data.
- Provides data essential for effective risk management
- Caters for incident management and demand forecasting functions
- Provides a holistic and integrated view of asset management data across multiple IAM classifications(Roads, Water, and Solid Waste etc.)
- Graphically represent asset management information
- Incorporates GIS capabilities
- Offers comprehensive and granular reporting across strategic, management and operational functions
- Caters for manipulation of external data to provide knowledge across various types of assets and information.
- Compliant with legislative and standards requirements including GRAP and ISO 55000.

# References.

## The table below represents a number ofcurrent IMQS projects and contracts:

| CLIENT | CONTRACT / PROJECT |
|---|---|
| CITY OF CAPE TOWN | • Water Reticulation & Sewer Management<br>• Water Demand Management<br>• Pavement Management |
| NELSON MANDELA METROPOLITAN MUNICIPALITY | • Pavement Management<br>• Stormwater Management |
| CITY OF TSHWANE | • Water Reticulation & Sewer Management,<br>• Water Demand Management<br>• Pavement<br>• ManagementIndigent<br>• Management<br>Telemetry<br>• Maintenance Management |
| JOHANNESBURG WATER | • Infrastructure Asset Management solution integrated with SAP<br>• GIS business processes and data exchange<br>• Seamless Exchange of data between all core systems for facilitating the update of the Asset Register |
| EKURHULENI METROPOLITAN MUNICIPALITY | • Design, develop and provide end-to-end Infrastructure Asset Management system<br>• Includes all 36 modules within the IMQS system. |

# Technologies Fact Sheet

## SOFTWARE ARCHITECTURE

- At its core, the IMQS Web Platform has a large set of generic functionalities
- The configurability and sharing of functions creates a specialised software platform
- Each product is can integrate and scale, making it easy to adapt as the number of users increase
- As a cloud-based platform, primary access is gained through a browser-based client, making it easy to deploy and access from any location
- Additional functionality of tablet-based apps enables in-field work completion with immediate access to data updates, thereby improving productivity

## AGILE METHODOLOGY

- Agile Software Development refers to a group of methodologies that promotes development iterations, open collaboration and process adaptability throughout the lifecycle project
- Projects are done in small increments and with minimal planning, thereby reducing overall risk and increasing adaptability to client requirement changes
- Stakeholder involvement and daily project updates within different teams encourages individual accountability and transparency in each project's progress