

# **SMART MUNICIPALITY PROPOSAL**

## **TO**

# **COOPERATIVE GOVERNANCE and TRADITIONAL AFFAIRS (CoGTA)**

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# 1 Executive Summary

Artificial Intelligence (AI) is helping local governments to operate more efficiently through accelerating service delivery, monitoring and measuring of objectives and targets, automating and simplifying routine administrative tasks and performing sophisticated data analysis to help public officials make more informed decisions.

There are several use cases for AI in local government such as strategic objective monitoring and project management, financial management, smart services management, road condition management, urban planning and development, public safety and law enforcement, education and workforce development, community engagement, healthcare and social services, environmental monitoring and management, emergency response and disaster management, traffic management and transportation and citizen services.

The CoGTA District Development Model (DDM) has been designed and implemented to specifically address problems with service delivery by allowing all spheres of government, from local municipalities to national government, to work together collaboratively and effectively. The DDM provides oversight through assisting local municipalities to plan, budget and implement projects and programmes more effectively. It aids municipalities to monitor, measure and manage capably and productively.

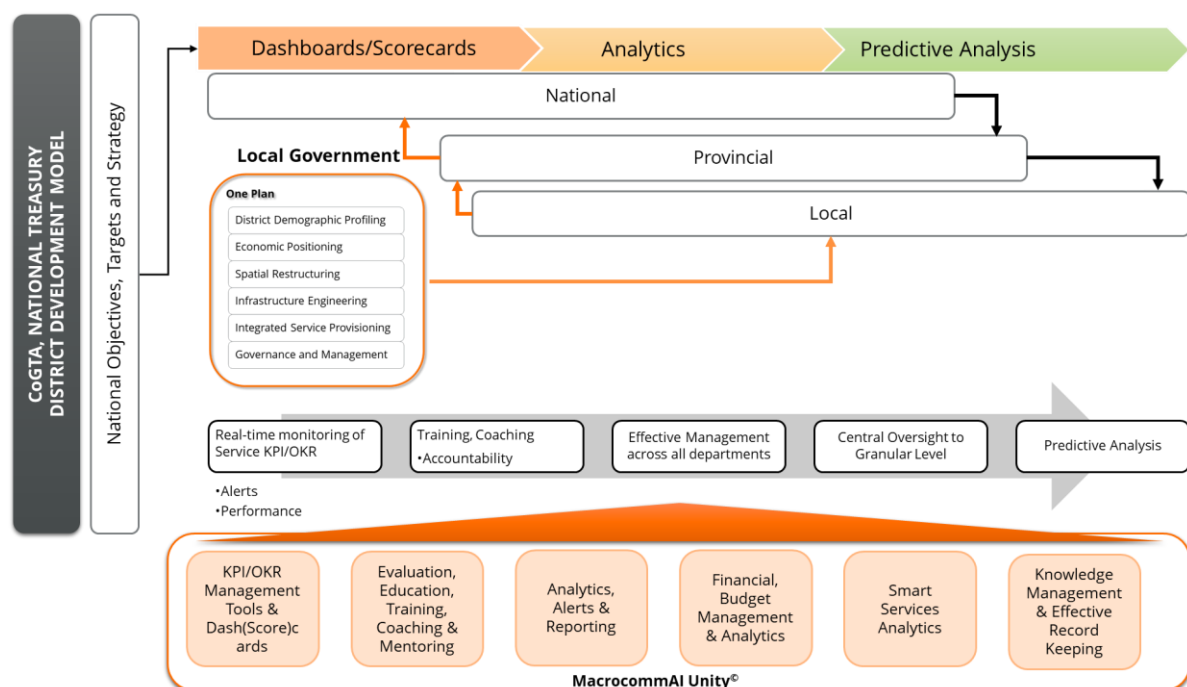


Figure 1: MacrocommAI Unity® supports the government's DDM and One Plan for governance and service delivery oversight

MacrocommAI Unity© enables and facilitates the needs of the DDM as its tools and platform monitor and measure the delivery across all spheres of government; promoting working together in an efficient manner through the use of analytics and predictive

analytics dashboards and scorecards. This synergy allows for a standardisation of technology by facilitating the different software platforms information to be accessible across departments, providing real-time dashboard updates for pro-active management and maintenance of government services for high-quality service delivery, and enabling effective knowledge management and record keeping.

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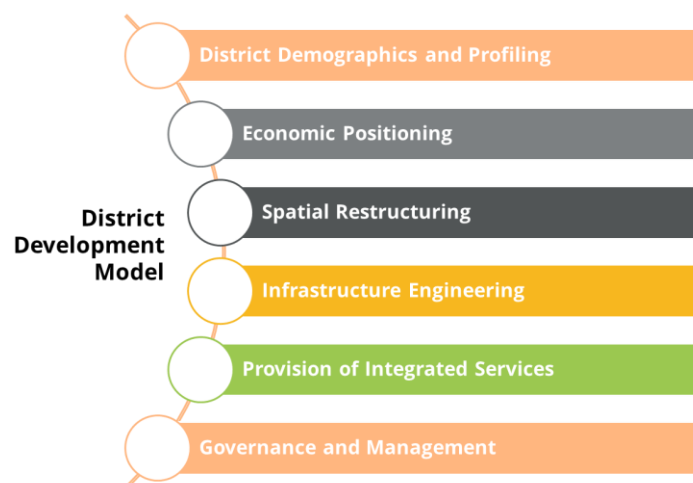
## 2 Introduction

The Department of Cooperative Governance and Traditional Affairs (CoGTA) Department has the unenviable role to lead local government through enabling municipalities to deliver on services of the pre-determined and agreed quality and standard, ensure good governance, build institutional resilience and administrative capability. The primary tool to drive delivery of national government's objectives and targets for South Africa is the District Development Model.

MacrocommAI Unity® leverages core machine and deep learning technologies, data integration and real-time analytics which enable automation of dashboards, scorecards, alerts through centralising data for analytics and predictive modelling to promote service delivery efficacy, cost reductions and informed decision making. This facilitation of strong operations and processes to manage the local government infrastructure and services to meet socio-economic needs of its citizens offers the DDM the oversight required.

In 2019, the District Development Model (DDM) and its One Plan was initiated. The DDM has the primary responsibility to direct and improve integrated planning and delivery across the three spheres of government.

The Government of National Unity (GNU) has emphasised the need for every municipality to work effectively to regain public trust and fulfil government's constitutional obligations. The DDM is to actively oversee, guide and champion integrated planning which has been identified as a critical strategy for remove silos and foster collaboration across government and society through 6 (six) transformative principles to guide and inform each Local Government's One Plan.



*Figure 2: District Development Model (DDM) Transformative Principles that inform each Local Government's One Plan*

The Local Government's Integrated Development Plan (IDP) and the DDM One Plan are interrelated. The IDP sets out the long-term goals, strategies and projects for the local government (municipality level) whilst the DDM integrates these with the larger provincial and national government objectives. The IDP informs the local government's One Plan

with insight into the local needs and priorities. All these different plans and goals can be digitised and incorporated into the MacrocommAI Unity® platform allowing for integrity in measuring, monitoring, actioning and reporting across all government spheres.

### 3 Problem Statement

Local government (municipalities) faces a growing crisis of governance and service delivery characterised by financial mismanagement, corruption, infrastructure decay, poor service delivery, lack of urban planning, technical and institutional capabilities, and growing public distrust and frustration. These persistent ills and increasing risks undermine their ability to meet their constitutional mandate, threatening social cohesion and widening inequalities.

The primary issues municipalities are having to tackle head-on are:

- |  |                                     |  |   |
|--|-------------------------------------|--|---|
| • Financial Mismanagement & Instability      | • Governance and Corruption         | • Service Delivery Failures            | • Lack of Capacity and Skills               |
| • Aging and Poorly Maintained Infrastructure | • Urbanization and Housing Pressure | • Social Unrest and Community Protests | • Climate and Environmental Vulnerabilities |

The DDM aids municipalities in address these issues through integrated, cooperative governance at the local government level, oversight and direct guidance.

The DDM adds to the complexity of governance structures, duplication and bureaucracy for the provincial and local government bodies which creates barriers for adoption and implementation. Stakeholders struggle with the DDM hubs mandates, roles and responsibilities, and their inability to measure its performance, and value contribution.



Figure 3: The three (3) spheres of government and how the DDM has been envisaged to build a central repository and standard across these

This impacts the budgetary requirements for the DDM as the potential for corruption exists, and the fear that monies for various key projects will be diverted disempowering local governments to achieve their commitments to their constituencies.

The lack of capacity and technical skills within municipalities hinders the delivery of quality services, and the lack of accountability and oversight often lead to mismanagement and can result in corruption.

The local government systemic service delivery failure has left many communities without reliable access to water, sanitation, electricity, and waste management.

For the DDM to achieve its goals of improved service delivery, integrated planning, and sustainable development, it must address these critical challenges. This will require a robust artificial intelligence platform to facilitate integrated governance through dashboards, scorecards, analytics and predictive modelling.

There are 161 municipalities that are at medium risk of instability and financial distress; representing 63% of South Africa's local government. This is high vulnerability especially if we consider that only 61 (24%) are deemed stable. The other 196 municipalities status of distressed and medium risk require government oversight to monitor, support and assist to prevent further decline and inability to serve their citizens. These municipalities have financial and local government mismanagement, poor financial planning and governance, and lack service delivery.

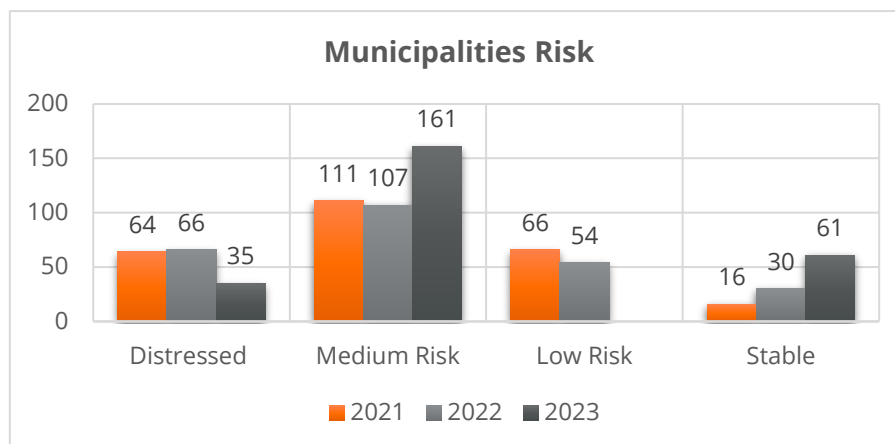


Figure 4: Whilst more municipalities are being reflected as stable and distressed are decreasing, the majority of municipalities are medium risks. Source: DCoG Strategic Plan for 2025-2030

## 4 MacrocommAI Unity<sup>®</sup> Solution

MacrocommAI Unity<sup>®</sup> is a modularised AI solution that provides all three (3) spheres of government to collaborate more effectively and efficiently through the use of analytics and predictive analytics dashboards and scorecards, providing a standardisation of technology by facilitating the different software platforms information to be accessible across departments and enabling effective knowledge management and record keeping.

## MacrocommAI Unity<sup>®</sup>

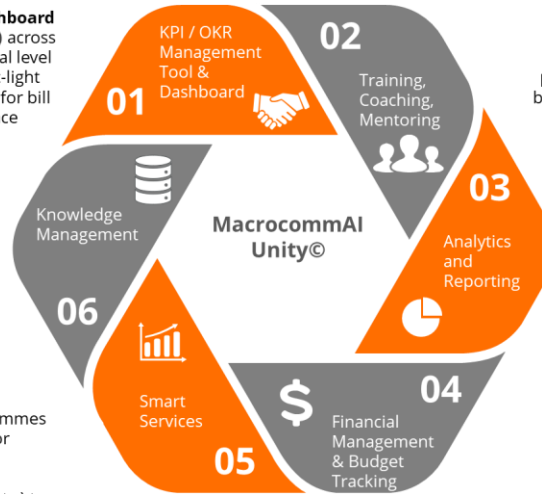
**KPI / OKR Management Tool & Dashboard**  
Performance Monitoring Scorecard(s) across local government rolling up to national level to ensure service delivery from traffic-light maintenance to queue management for bill payments across each set performance indicator for efficiencies and shared corporate service analysis.

**Knowledge Management and Effective Record Keeping**

The National Archives and Records Service record management can be enabled for all documents, policies, financials, emails, recorded meetings and other allowing for easy access from local to national government, and for analytics on the records kept with security levels.

**Smart Services Analytics**

Leveraging the smart services programmes and accessing this data and billing (for example Macrocomm Smart Utility Solutions for Municipalities or Traffic Management or Garbage Collection etc.) to provide analytics and predictive analysis for local to national government for effective monitoring, measuring and planning.



**Evaluation, Education, Training, Coaching and Mentoring**

Access training, education, assess performance, skill gaps, service delivery breaks, identify responsible staff to drive change and upskill for improved delivery; with identification of on-job mentors and coaches

**Analytics, Alerts and Reporting**

Driving analytics, reporting and predictive analysis of all data within the municipality systems facilitating the roll-up to a national level. The ability to set different alerts to inform immediate issues to be addressed

**Financial & Budget Management and Analytics**

Management of the financial and budget management segment, and if there are profitability / sustainability through integration with existing systems and providing analytics that enable effective monitoring at local to national government level

Figure 5: MacrocommAI Unity Platform Driving Integrated Solutions and Governance

CoGTA and the DDM have a need for smarter governance, enabled by real-time data, artificial intelligence, and systemic accountability to help rebuild public trust and meet the government's objectives for South Africa. Municipalities need a solution that transforms governance into a transparent, data-driven system, with early warning, shared accountability, and performance visibility at its core.

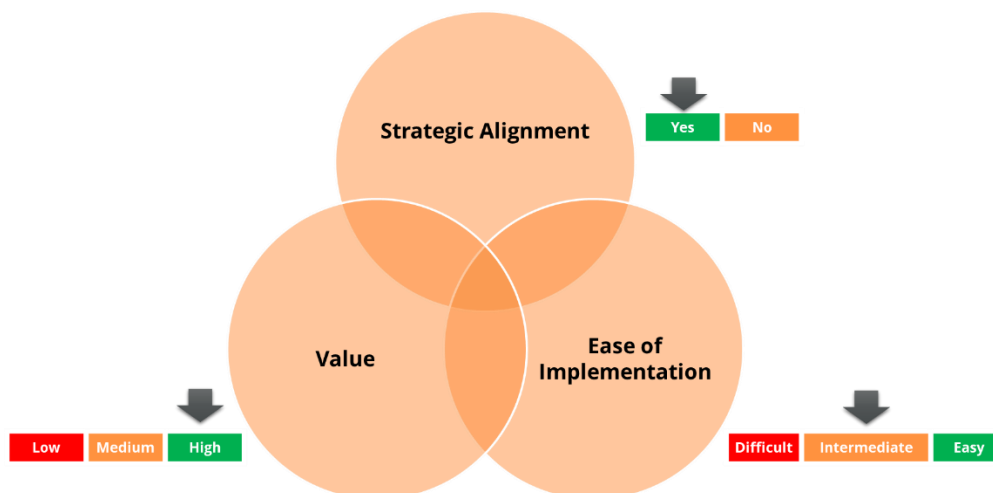


Figure 6 MacrocommAI Unity<sup>®</sup> offers service governance aligning with government strategy, offering high value and requiring a skilled team for an intermediate level implementation

MacrocommAI starts with financial, performance and service governance as the first step towards an AI Smart Municipality Solution by promoting higher productivity and enabling



citizen services. This AI Solution ensures strategic alignment with CoGTA and National Treasury objectives regarding the DDM, offers high value with ease of access to information, analytics, scorecards, dashboards and the ability to model using predictive analytics. MacrocommAI Unity® is an empowering solution that will aid the DDM to oversee, guide and direct municipalities to meet respective and national objectives and targets.

Once this governance structure is in place, it is easier to incorporate other AI Tools regarding key service delivery areas such as traffic management, health care, urban planning amongst key services due to the modular structure of MacrocommAI's Solutions.

MacrocommAI Unity© enables local-, provincial- and national government officials to monitor and measure for modernisation of the municipality, enhancements and streamlining of processes the identified key performance indicators (KPI's) such as:

- Services
  - *Waste collection* turnaround time, bin capacity, tonnage collected per route, fuel efficiency, missed pick up rate
  - *Road conditions*, visual condition index, pothole density, potholes repaired, road infrastructure damage (curbs, storm drains, traffic signs)
  - *Traffic light* queue length, near misses, cables stolen, uptime (active/inactive), repaired, malfunction frequency, delays, travel time
- Financial
  - Revenue earned from different utilities such as water, electricity; expenditure on different projects and key maintenance areas, and departmental costs; budget vs actual; debt and cashflow management.

The modular structure of MacrocommAI Unity© allows for the integration and incorporation of the different municipal software systems/tools such as the Potholefixgp or SAMRAS, SOLAR, Munsoft, EnerGov, MetVal, and CityView; which help them with financial management, property and revenue management, public works, and overall operational efficiency.

### MacrocommAI Unity®

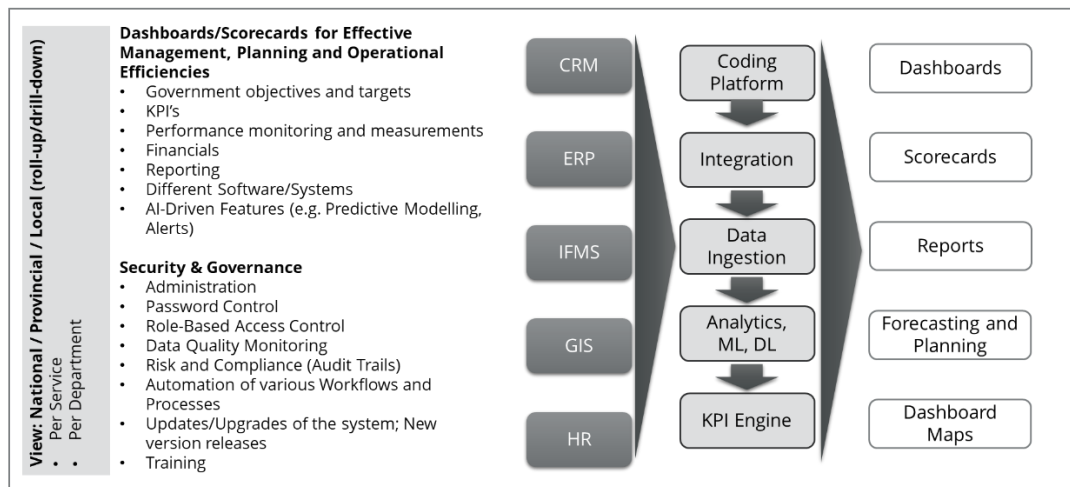


Figure 7: MacrocommAI Unity® - A simple overview of the blueprint

Once the core governance and oversight platform is deployed, the implementation is intermediate and requires a well-skilled team from government to help drive the set-up of MacrocommAI Unity®. The priority would be agreed for the incorporation which may be to start with the financial systems or operational efficiency systems (CityView).

## 4.1 Smart Municipalities Start with Service Governance Excellence

MacrocommAI offers a powerful AI-first approach to financial, performance and service governance that leverages AI algorithms to expedite routine processes saving government officials time and freeing them to focus on execution and analytics for streamlining and enhancing processes for service delivery.

Unity®, a real-time monitoring system that aligns municipal performance with national service delivery objectives, using data provides a tool of accountability and transformation that facilitates the rolling up to a national level for the much-needed collaboration and support across all government spheres.

CoGTA and the DDM through Unity® will be able to provide the required oversight to guide municipal activities, monitor implementation of policies, drive accountability to the community and ensure corrective action as mandated.

The Smart Municipality Solution uses a modular, scalable framework using foundational components designed to address specific gaps in governance; from aligning national KPIs with local outputs to monitoring citizen impact in real time. It aligns service delivery with measurable Key Performance Indicators (KPI) tied to national government priorities.

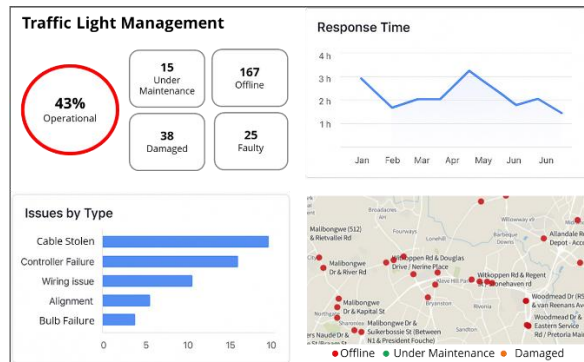
This is embedded within MacrocommAI's intelligent platform, which connects departments, tracks data in real time, and applies AI to highlight risks, trends, and performance outcomes. This turns fragmented operations into an intelligent, unified system of action, and enables the predictability modelling functionality for local

government and the DDM to prepare for various possible scenarios, making it a powerful aid to build future capability.

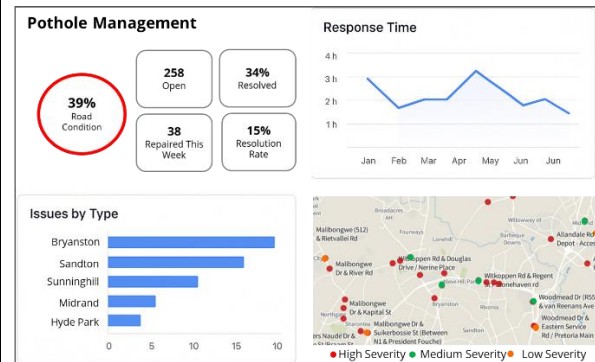
Each module component from dashboards and scorecards to alerts to anonymised metrics ensures that municipalities remain focused on delivery, not bureaucracy.

## Dashboard Examples: Service Delivery

### Traffic Light Management



### Road Condition - Pothole Management



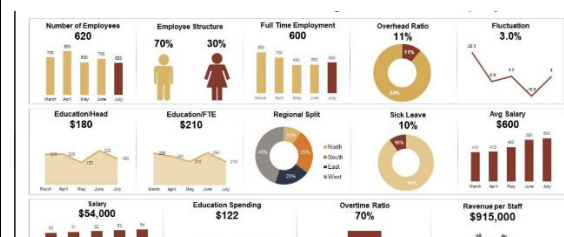
It enables DDM and National Treasury oversight without micromanagement, accountability without blame, and transparency without fear.

## Dashboard Examples: Finance and Human Resources

### Financial Dashboard



### HR KPI's



These dashboards and scorecards enable easy monitoring and can be viewed at a national level with the drilldown to local municipality levels allowing for the identification of risk areas and municipalities, and where national government needs to ensure budget allocation for larger reforming and modernising projects such as smart metering solutions.

## MacrocommAI Unity® Core Components

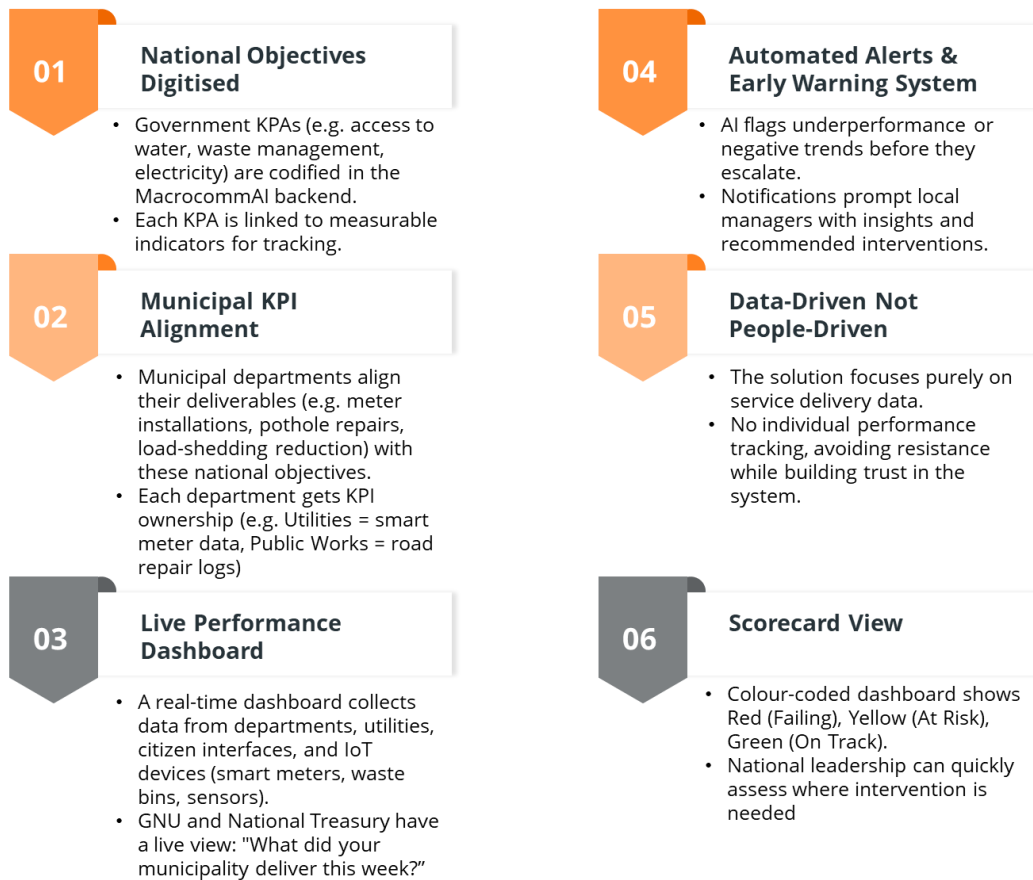


Figure 8: MacrocommAI Unity® Guiding Principle Components

These guiding principle components work together to provide a holistic, digital nervous system for municipal governance, giving both local managers and national authorities the tools to monitor, assess, and improve service delivery continuously.

The value of this solution isn't just technical, it's transformational. Municipalities that embrace MacrocommAI will gain the capacity to operate with precision, speed, cost effectiveness and transparency. This builds internal efficiency, improves public trust, and aligns every action with a measurable outcome.

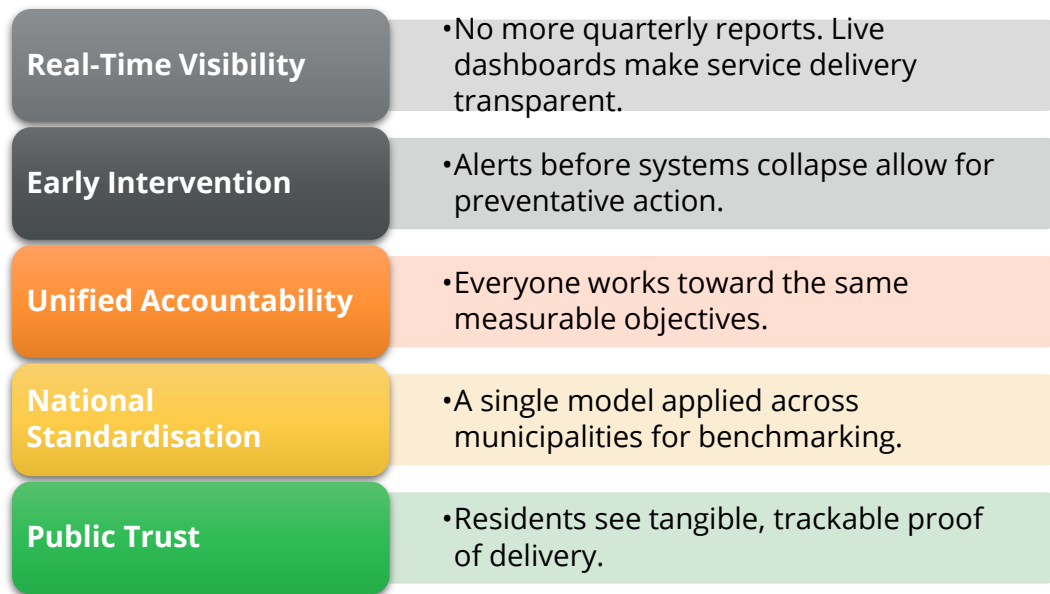


Figure 9: MacrocommAI Unity® Outcome Benefits

Ultimately, these benefits enable a shift from reactive service management to proactive service excellence, making it possible to restore credibility and improve lives, one well-governed municipality at a time.

## 5 Methodology

MacrocommAI is not just about being a use-case scenario solution rather we focus on Industrialised Intelligence that is grounded in an AI Centre of Excellence that is grounded in an intentional, government-wide operating model that focuses on the development of a strategic centre which is aligned to all constitutional obligations and local government objectives. This strategic centre is based upon three core pillars: technical capability for resilience and scalability, value fulfilment engine, and a robust risk and compliance structure.

### 5.1 Design the DDM AI Target Operating Model

To have a robust Target Operating Model (TOM), the following would need to be established: a data science team to work closely with CoGTA, National Treasury, DDM, SALGA and Local Government (as rolled out to each district or metropolitan area); a Centre of Excellence at DDM, and an AI Governance Council with senior stakeholders across government entities.

### 5.2 An AI Capabilities Assessment and Map

MacrocommAI will aid CoGTA, National Treasury, DDM, Provincial and Local Government to assess and align their capabilities.

### 5.3 Change Management and Communication Strategy

MacrocommAI will create clear, consistent and pertinent communication strategies to ensure that all stakeholders are informed of the benefits and impact of this solution.

### 5.4 AI Target Operating Model: Centralised Hybrid TOM

To facilitate and enable the DDM for CoGTA and National Treasury, an AI Centralised TOM is proposed with a hybrid of local government aligned hubs.

#### 5.4.1 *Centralised TOM*

The starting point would be to build the Centralised TOM strength to ensure governance oversight through a Centre of Excellence and a Portfolio Steering Committee that oversees the Planning (where all government priorities, objectives and KPI are set and managed), Building (solution development and project management) and Deployment (Where the solutions are implemented and maintained).

##### 5.4.1.1 *Benefits*

The benefits are effective long-term planning, strong oversight of finances and governance, best practice and centralised technology solutions, economies of scale, expertise development across government and cost effectiveness.

##### 5.4.1.2 *Downside*

The downside to be managed are the potential silos that may occur between the teams that plan, build and deploy, agility may be comprised, a one-size-fits-all approach across all local government and slower decision making due to steering portfolio protocols.

#### 5.4.2 *Hybrid Local Government (Geographically) Aligned TOM*

The second phase would be to add a sub-layer of local government aligned hubs where there is a local government portfolio steering committee that provides the required oversight and strategy to meet the needs, objectives and targets of that district or metropolitan area.

##### 5.4.2.1 *Benefits*

The benefit of building this hybrid alignment will be autonomy and agility regarding the local government requirements and allow for dedicated local teams to ensure that all service demands are met.

##### 5.4.2.2 *Downside*

The downside is that this level of AI capability and maturity will need to be developed with the required supporting processes, technology standards, demands collaboration and strong communication to prevent loss of synergy and unnecessary complexity.

This will require upskilling and cross-learning across each area, continual reinforcement of the bigger DDM AI Governance strategy, regular enforcement of standards to remove

siloed technology architecture and awareness that initially it will be costly but if well managed become cost effective and show returns.

#### *5.4.3 Implementation Approach Proposed*

Build the centralised operating model and parallel run the development of hybrid aligned (geographical) operation model with those local governments (municipalities) that are identified as being the most digitally inclined to adopt the Smart Municipality solution.

SALGA has identified Cape Town, Johannesburg, Tshwane, and eThekweni, as well as other districts and municipalities such as Dr Kenneth Kaunda, Gert Sibande, O.R. Tambo, Pixley ka Seme, Thabo Mofutsanyane, Umgungundlovu, Umzinyathi, and Vhembe as being digitally inclined municipalities.

## **6 Timeline From Design to Implement**

The timeline from Design to Implementation is assessed in a pre-audit assessment for final solutioning and project plan design.

The timeline will be broken into three core phases of deliverables for review of 90, 180 and 270 days.

## **7 MacrocommAI Overview**

Macrocomm Group is a leading IoT Company focussing on smart solutions driving connected intelligence and driving upskilling to prepare South Africa for the Fifth Industrial Revolution; the inclusion of people to ensure smart delivery across government and re-earning public trust.

## **8 Conclusion**

The Smart Municipality Solution, powered by MacrocommAI Unity®, is not just a system upgrade, it's a shift in service and governance culture. Unity® placing data, AI capabilities and People at the centre of public accountability, empowering local governments, all spheres of government and the DDM, to perform better, respond faster, and serve smarter to meet the national objectives and public needs.

Together with CoGTA, MacrocommAI Unity® can redefine what "good governance" looks like in South Africa and prove that municipalities can deliver and be managed effectively, as well as rewin public trust.