

ΣUTARİ

INFRASTRUCTURE ASSET MANAGEMENT

A Framework for the improvement of Municipal Infrastructure Management

Chris von Holdt
October 2025



ENGINEERING
IMPACT



CONTENTS/AGENDA



Common municipal challenges

The implications of these challenges

Asset Management Best Practice

Institutional AM improvement plan case study & cross-cutting issues

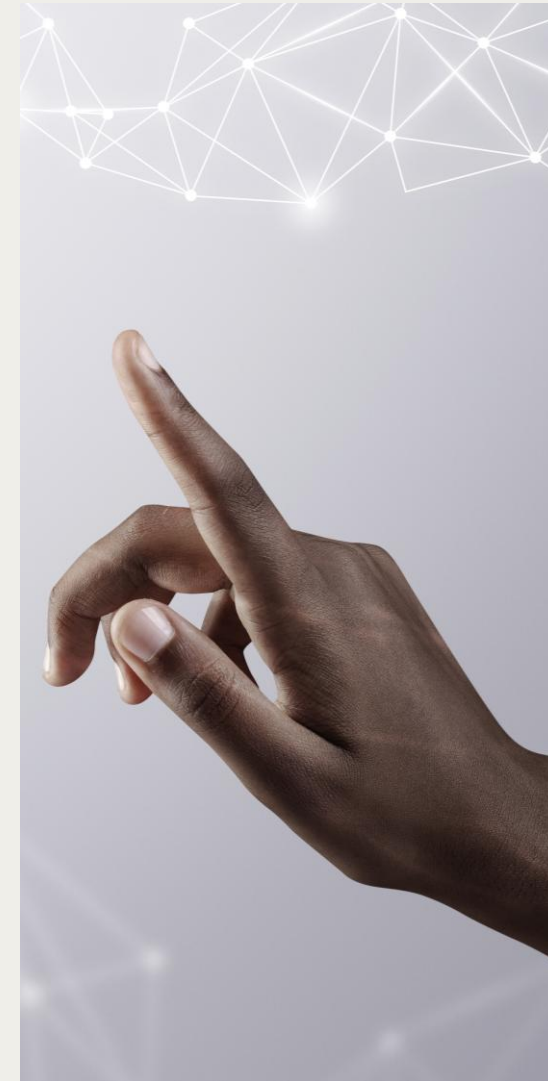
CIDMS readiness assessment case study

COMMON MUNICIPAL CHALLENGES



These are infrastructure management challenges that most municipalities face

- Infrastructure widely **distributed geographically**
- The infrastructure **asset base has aged**
- High need for **cross-subsidisation** across customer groups
- Historic differences in **levels of service** for different customer groups
- **Cross-subsidisation** across asset classes
- **Large and complex** organisations (corporate and extensive technical functions)
- Balancing investment in **social and economic** infrastructure
- Balancing the response to **short and long-term** needs
- Limited **financial** resources



THE IMPLICATIONS OF THESE CHALLENGES

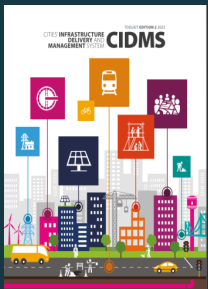
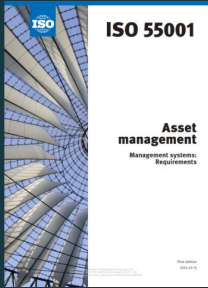
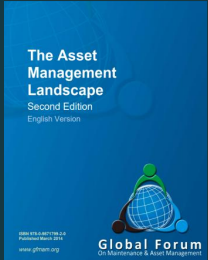
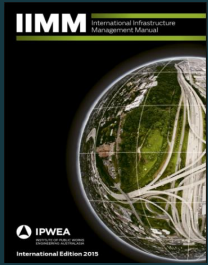
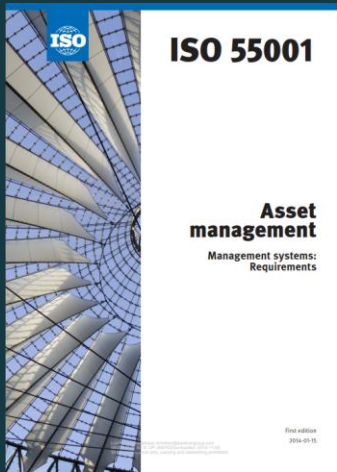
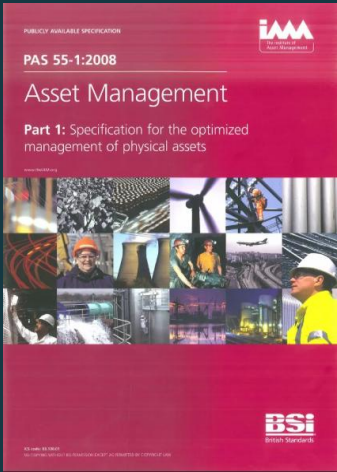
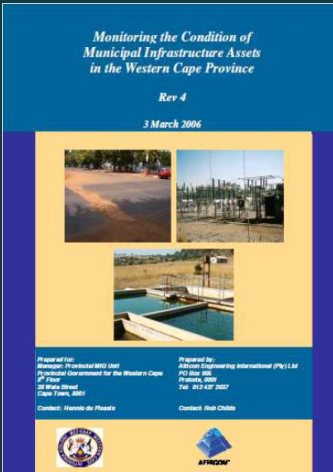


The challenges have a number of implications

1. Municipalities will face **increasing service failure risks** related to existing infrastructure
2. Existing infrastructure will **consume an increasing amount of resources** without increasing revenue
3. Municipalities will need to be **efficient and productive at reactive maintenance** to keep up with failures
4. Preventative maintenance and **renewal planning will become more important** to long-term sustainability
5. **Service performance measurement** will become more critical for governance and management control

Is your municipality ready and equipped to deal with these growing pressures?

INFRASTRUCTURE ASSET MANAGEMENT BEST PRACTICE



2000

2006

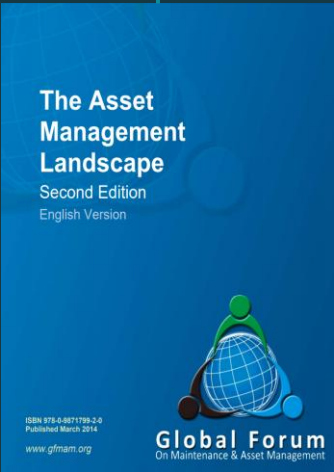
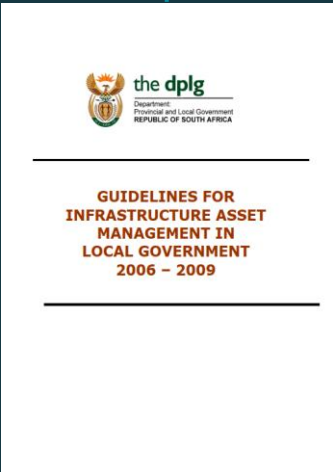
2008

2011

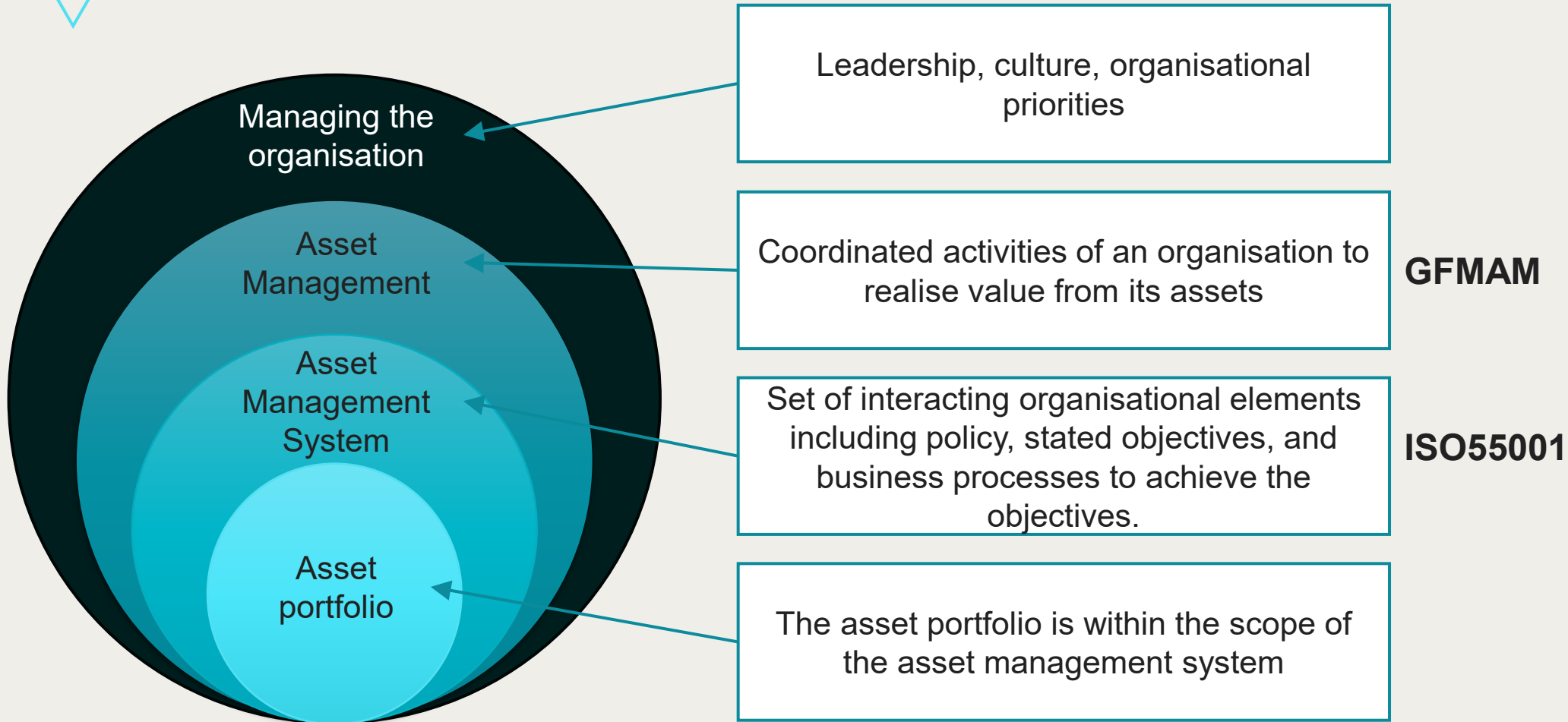
2014

2018

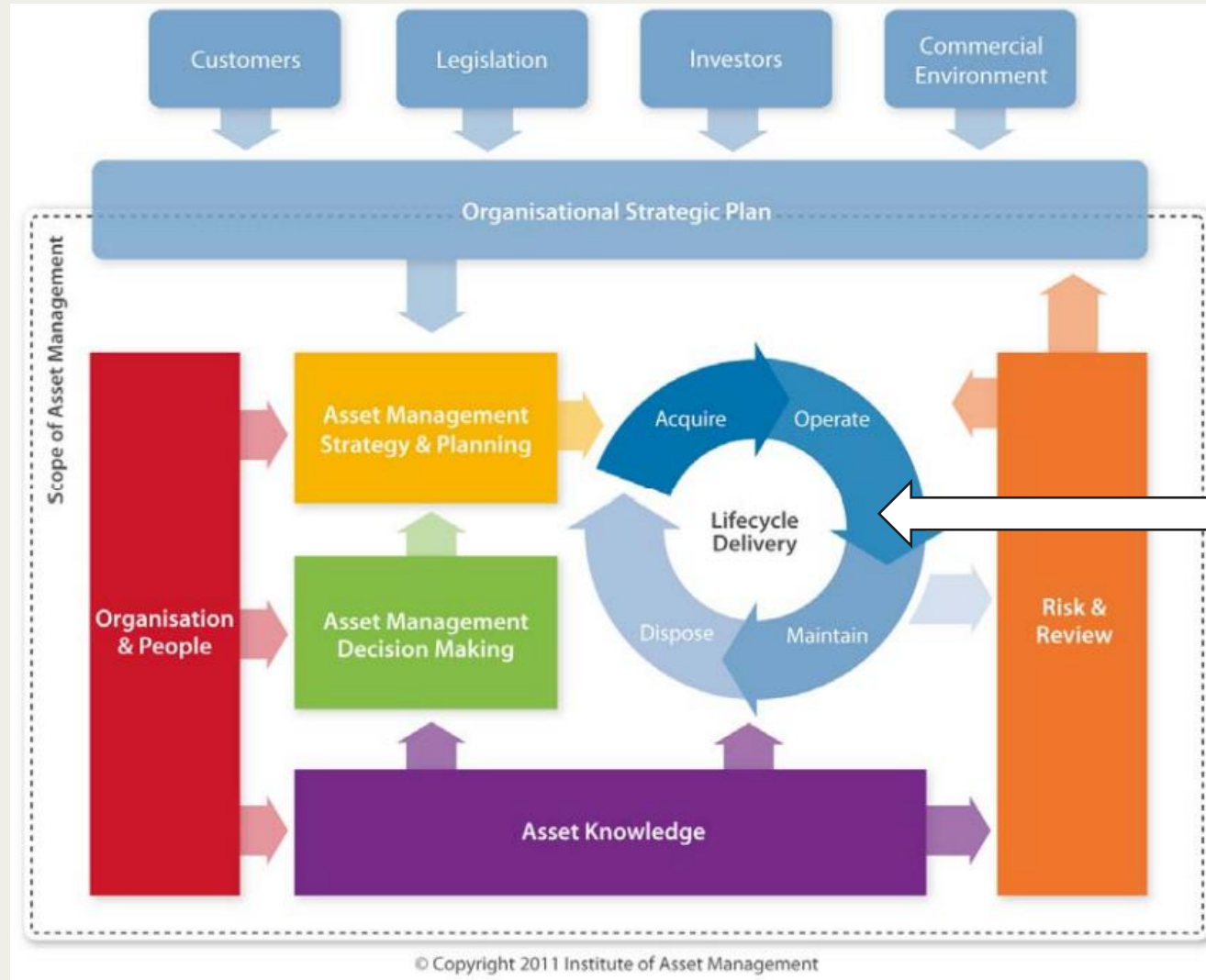
updated



ASSET MANAGEMENT & THE AM SYSTEM



ASSET MANAGEMENT / MANAGING ASSETS



Asset Management

- Management Science – *“the coordinated activity of an organisation to create value from assets”*
- Improvements implemented by management

Managing Assets

- Operational processes to effectively manage operational and maintenance works
- Improvements implemented by operational staff

CASE STUDY: ASSESSING ASSET MANAGEMENT MATURITY

GFMAM Framework IAM Maturity scale

5. Excellent

4. Optimising

3. Competent

2. Developing

1. Aware

0. Innocent

Target



MATURITY ASSESSMENT OUTCOMES



	1	2	3	4	5	6	
Subject Group	AM Strategy & planning	AM Decision-making	Lifecycle Delivery Activities	Asset Knowledge Enablers	Organisation & People Enablers	Risk, Review & Continual Improvement	AVERAGE
eThekwini Water & Sanitation	2.20	2.40	2.55	2.25	2.20	2.33	2.36
eThekwini Electricity	3.00	2.60	2.73	2.50	2.80	2.89	2.77
City Fleet	2.20	2.60	2.36	2.00	2.60	2.22	2.33
Human Settlements	2.20	1.60	2.32	2.00	1.90	2.33	2.13
uShaka Marine World	2.40	2.20	2.64	2.00	2.80	2.56	2.49
eThekwini Transport Authority	2.40	2.20	2.50	2.00	1.90	2.33	2.28
Cleansing & Solid Waste	2.20	2.20	2.45	2.00	2.40	2.22	2.28
Real Estate & Virginia Airport	2.10	1.80	2.20	2.13	2.00	2.11	2.08
Information Management Unit	2.21	2.20	2.77	2.13	2.20	2.50	2.41
CES Cluster	2.35	2.25	2.39	2.00	2.25	2.25	2.25
International Convention Centre	2.75	2.85	3.36	2.13	3.15	2.97	2.87
Engineering	2.06	2.43	2.67	2.43	2.49	2.45	2.47
Supply Chain Management	2.30	2.00	2.67	2.38	2.30	2.44	2.39
Chief Strategy Office	2.45	2.55	2.85	2.50	2.40	2.69	2.57
AVERAGE	2.34	2.28	2.60	2.18	2.39	2.45	2.41



MATURITY ASSESSMENT OUTCOMES



Municipality	AM Strategy & Planning	AM Decision-Making	Lifecycle Delivery Activities	Asset Knowledge Enablers	Organisation & People Enablers	Risk, Review & Continual Improvement	Average
6 munics in one WC district	1.89	2.11	2.39	1.93	2.80	2.33	2.2
WC LM	1.40	2.00	2.10	2.00	2.80	1.90	2.0
NC LM (City)	1.00	1.00	1.20	1.00	1.40	1.30	1.2
WC LM	1.60	1.40	2.10	1.00	2.60	2.30	1.8
FS LM	1.40	1.40	1.50	1.50	2.00	1.10	1.5
KZN LM	2.00	1.00	1.10	1.00	1.20	1.20	1.3
KZN LM (City)	1.60	0.60	1.30	1.50	1.40	0.90	1.2
Ethekwini Metro	2.34	2.28	2.60	2.18	2.39	2.45	2.4
Average	1.65	1.47	1.79	1.51	2.07	1.69	1.70

CROSS CUTTING ISSUES (ACROSS ALL MUNICIPALITIES)



STRATEGY & PLANNING

1. Strategic objectives not cascading through to activities and resource allocation on the ground
2. Service performance to customers is not informing and influencing strategic decision making and budgeting at the City level
3. Its not clear what the asset management objectives are
4. The budget process is not aligning fund allocation with lifecycle needs



AM DECISION MAKING

1. No framework to make defensible decisions on maintenance and renewal spending
2. No O&M decision-making framework to guide decisions on prioritising O&M activities
3. Poor project planning (scoping, costing and delivery readiness) having a negative knock-on effect on budgeting and delivery
4. Lack of project prioritisation process to cope with the situation where the needs are greater than the available funding

CROSS CUTTING ISSUES



LIFECYCLE DELIVERY

1. Lack of a consistent process to manage the physical blueprint including plans, project mgmt information, as-builts, operational manuals, spatial data, and asset history
2. No consistent way to contract different types of resources in different situations
3. Multitude of SCM process issues impacting the ability to deliver to plan
4. Lack of a standardised framework for project delivery
5. Reactive instead of preventative



ASSET INFORMATION

1. Lack of data standards to guide teams with managing data in a standardised way
2. Manual and inefficient workflow processes
3. Lack of management information that provides visibility of performance
4. Lack of integration between information systems to support AM business processes

CROSS CUTTING ISSUES



ORGANISATION & PEOPLE

1. Asset Management is not well understood, particularly with strategic decision makers
2. Need for change management at multiple organisational levels
3. A variety of technical training needs (including AM training)
4. Focus on compliance
5. High rate of loss of institutional knowledge



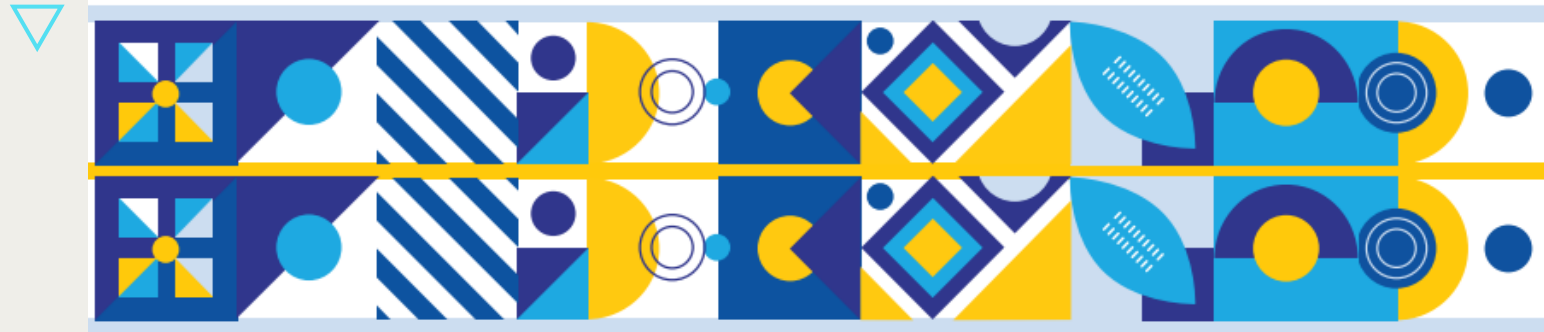
RISK & REVIEW

1. The Performance Management Framework currently does not support the continuous improvement of asset management practices
2. Service delivery performance, Asset Management System performance, and the performance of the assets are not effectively measured
3. Engagement with stakeholders to communicate how we are performing against their needs is very limited

CASE STUDY: ETHEKWINI WHOLE-OF-CITY IMPROVEMENT PLAN

Workstream	Programme Nr	Programme Description
WS 1 AM Policy and Strategy	Programme 1	Develop AM Foundation Docs
	Programme 2	Update the AM Policy
	Programme 3	Develop a Roadmap that links Planning and Budgeting
	Programme 4	Develop a change management process to drive implementation raising AM leadership and awareness
WS 2 AM Decision Making	Programme 5	Develop the Capital projects decision-making framework (full Lifecycle)
	Programme 6	Develop the Operational projects decision-making framework (full Lifecycle)
WS 3 Lifecycle Delivery	Programme 7	Unlock delivery issues (short, medium & long term)
WS 4 Asset Knowledge	Programme 8	Development of the optimal dashboard content
	Programme 9	Develop AM data and system performance standards
	Programme 10	Develop an AM data and information integration schema
WS5 Organization & People	Programme 11	Develop a communication campaign driving internal and external communication for the projects
	Programme 12	Develop and implement a revised training framework (competency framework)
WS6 Risk & Review	Programme 13	Develop the performance management baseline
	Programme 14	Review and amend existing performance management framework

CHANGE MANAGEMENT



Benefits of Asset Management

for



ADMINISTRATIVE AND POLITICAL LEADERSHIP:

- 1 Effective delivery on strategy and mandate.
- 2 Better visibility of the issues on the ground, business risks and the project pipeline.
- 3 Empowered to make coherent decision and take action.
- 4 More accountability, through tracking and monitoring processes.
- 5 Have a fact-based story to engage the public on services being delivered, further improving transparency and building trust.

Good asset management practices allow administrative and political leadership to deliver better services to the public.



MUNICIPAL OFFICIALS:

- 1 There is clear oversight of budgeting cycles, which leads to better money allocation and spending.
- 2 Better visibility of the project pipeline, to allow for clear structure and effective planning, leading to better quality of work and service delivery.
- 3 Positive tracking and monitoring of progress to ensure pre-emptive actions can be implemented.

Good asset management practices ensure that the municipal officials are empowered to deliver on the eThekweni Mandate.



THE PUBLIC:

- 1 Money is spent wisely to the benefit of the stakeholders living in the City.
- 2 Better management of risks by the City to ensure a better quality of life.
- 3 Continues upkeep of existing infrastructure to ensure sustainable growth of the City.
- 4 Integrated planning for the future.

Good asset management practices ensure that the communities are better served by the City.



MY ROLE IN OPERATION SIYENZA

ASSET MANAGEMENT IS A MAIN PRIORITY FOR EMM.

With your help, support and the implementation of the Asset Management plans we can effectively plan for the future.

DID YOU KNOW?

Operation Siyenza is the special delivery vehicle through which the Asset Management Plans will be brought to life in DML.



Good asset management practices ensure that we as EMM are empowered to deliver on our mandate to become the most liveable City by 2030.

THE ASSET MANAGEMENT PLANS WILL ENSURE:



I CAN CONTRIBUTE TO OPERATION SIYENZA BY:

- 1 Engaging with my leadership to better understand the impact of Operation Siyenza in my team.
- 2 Being curious about Operation Siyenza and seeking more information.
- 3 Showing up when information sessions are hosted, and information is shared.
- 4 Taking the time to understand the concept of Asset Management and how it benefits my day-to-day job.
- 5 Ensuring that when the processes, programmes and strategies I work with are updated, I will participate in the change process to understand the impacts of the changes.
- 6 Ensure that the Strategic Asset Management improvement plans are implemented in my place of work.

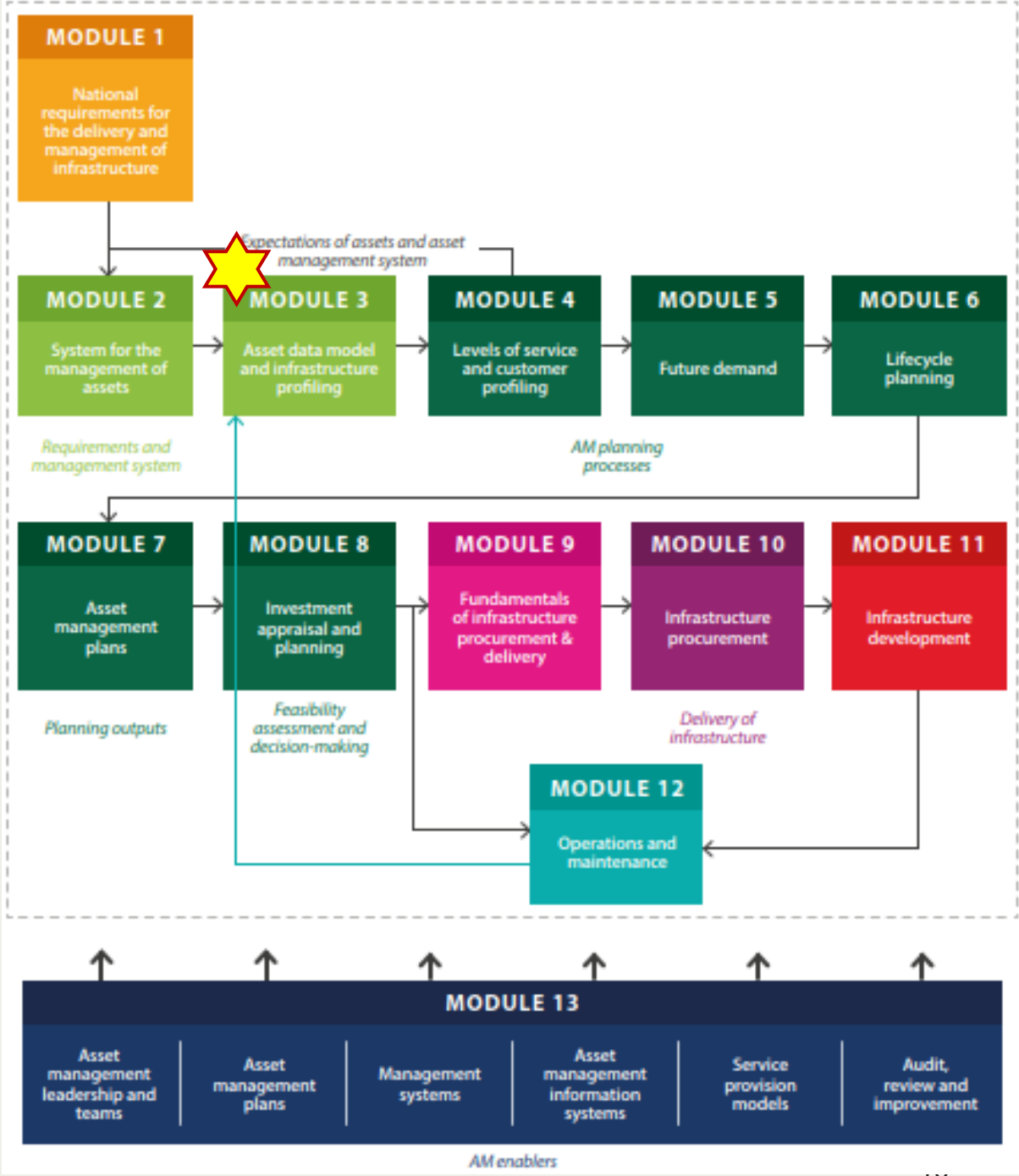
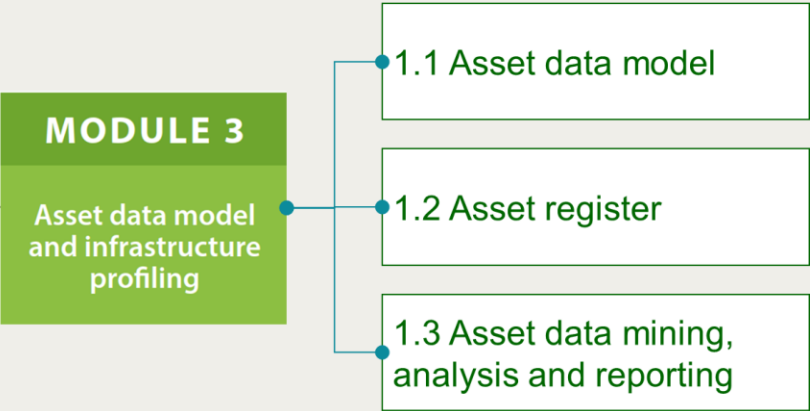
YOUR PARTICIPATION IN OPERATION SIYENZA, WILL REALISE BENEFITS AND CHANGES IN THE FOLLOWING IMPACT AREAS:



CIDMS READINESS ASSESSMENT



Annexure A
CIDMS Readiness
Assessment



CIDMS READINESS ASSESSMENT (MODULE 3)

Subcategory	Criteria	Asset Class #1	Asset Class #2	Asset Class #3	Asset Class #4	Asset Class #5
1.1 Asset Data Model	1.1.1 Asset Hierarchy	1.5: Managed	1.5: Managed	1.5: Managed	1: Performed	1.5: Managed
	1.1.2 Segmentation & grouping rule set	3.0: Established	2.5: Established	4.0: Predictable	0: Incomplete	2.5: Established
	1.1.3 Valuation model	2.5: Established	2.5: Established	4.0: Predictable	1: Performed	2.5: Established
	1.1.4 EULs and RVs	5.0: Optimising	5.0: Optimising	4.0: Predictable	1: Performed	1: Performed
	1.1.5 Unit rate and extent	3.5: Predictable	3.5: Predictable	Not applicable	1: Performed	4.0: Predictable
	1.1.6 Location data	2.5.: Established	1.5: Managed	Not applicable	1: Performed	1.5: Managed
	1.1.7 Extent data	3.5.: Predictable	4.0: Predictable	Not applicable	2.5: Established	4.0: Predictable
	1.1.8 Identification referencing (asset IDs)	4.0.: Predictable	4.0: Predictable	Not applicable	1: Performed	4.0: Predictable
	1.1.9 Condition	4.0.: Predictable	4.0: Predictable	Not applicable	1: Performed	4.0: Predictable
	1.1.10 Failure modes	5.0.: Optimising	5.0: Optimising	Not applicable	0: Incomplete	4.0: Predictable
	1.1.11 Criticality	5.0.: Optimising	5.0: Optimising	Not applicable	0: Incomplete	3.5: Predictable
	1.1.12 Risk of failure	5.0.: Optimising	5.0: Optimising	Not applicable	0: Incomplete	2.5: Established
	1.1.13 Data confidence	1.5: Managed	1.5: Managed	Not applicable	0: Incomplete	1.5: Managed
	1.1.14 Valuation data	4: Predictable	4: Predictable	Not applicable	0: Incomplete	1.5: Managed
1.2 Asset Register	1.2.1 One version of the truth	2.5: Established	2.5: Established	Not applicable	1: Performed	1.5: Managed
	1.2.2 Maintenance & updating of the FAR	2.5: Established	1.0: Performed	1.0: Performed	0: Incomplete	0: Incomplete
	1.2.3 FAR credibility	2.5: Established	2.5: Established	2.5: Established	2.5: Established	0: Incomplete
1.3 Asset data mining, analysis & reporting	1.3.1 Accounting & fin data analysis & reporting	2.5: Established	2.5: Established	2.5: Established	2.5: Established	0: Incomplete
	1.3.2 Infra data analysis and AM reporting	4.0: Predictable	4.0: Predictable	Not applicable	1.0: Performed	1.5: Managed

FINAL THOUGHTS / LESSONS LEARNT



1. You get what you measure
2. Conduct a whole-of-city diagnostic baseline
3. Lead through a centralised management structure
4. Put the essential building blocks in place to embed principles
5. Include support units, strategic units and operational units

Thank you

QUESTIONS?

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