

DDM Impact Simulator

Project Concept

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Virtual meeting: IID Seminar



science & innovation

Department:
Science and Innovation
REPUBLIC OF SOUTH AFRICA



CSIR
Touching lives through innovation

Project team

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The problem

- SA invests R'billions every year in development initiatives
- The whole seems to remain less than the sum of the parts – poverty, unemployment and inequality largely persists
- Investments are:
 - Uncoordinated from an interdependency point of view
 - Spatial and temporal mis-aligned
 - Wrong place, wrong time
 - Wrong place, right time
 - Right place, wrong time
 - Right place, right time!

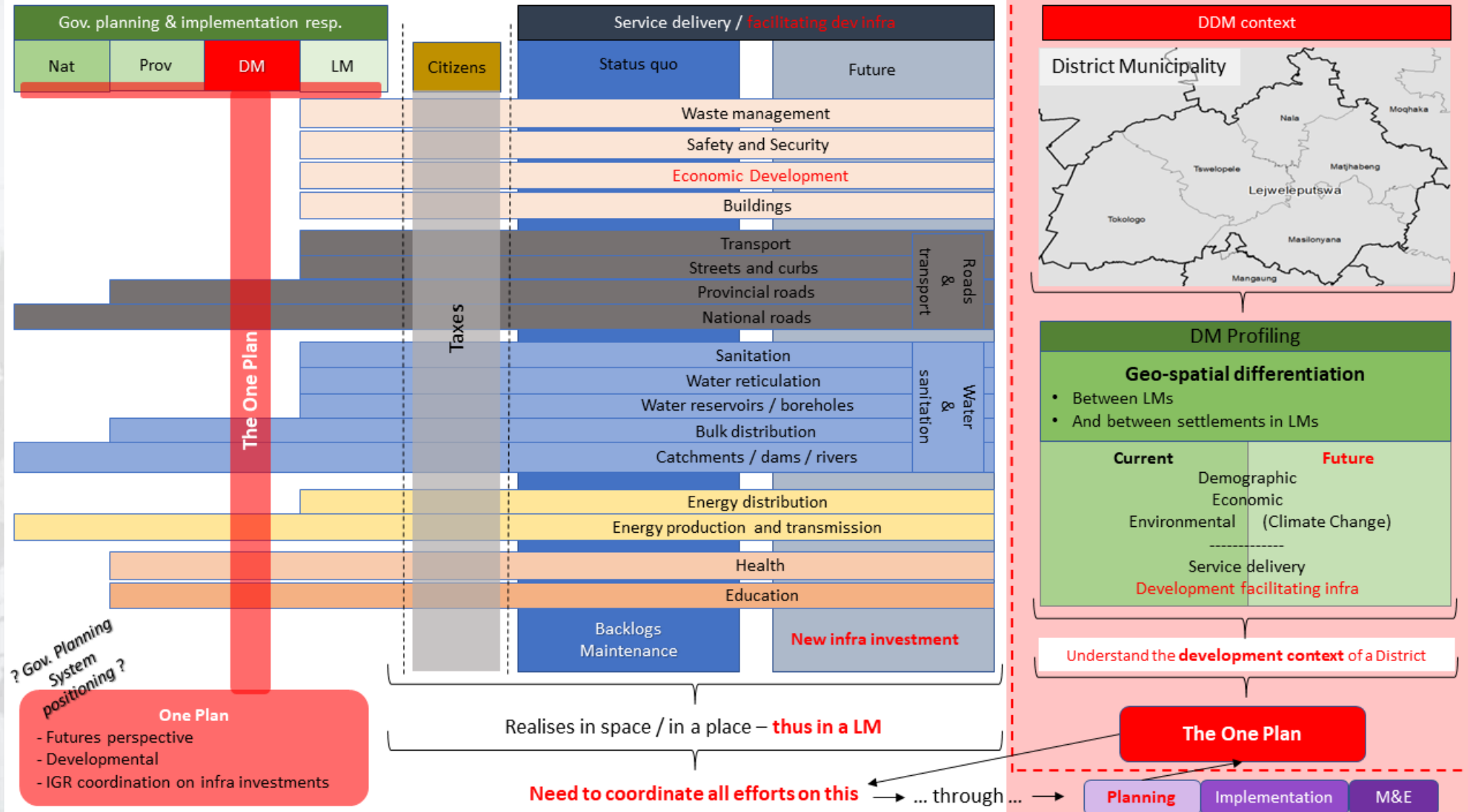
Background and objective

- An element of the DDM is to capture the intervention commitments
 - investment through projects to stimulate growth and development
- Objective is to develop a geo-spatial platform to simulate the impact of existing and planned DDM projects on:
 - socio-economic circumstances;
 - economic growth and development including job creation (short and longer term) and skills development;
 - and basic service delivery like access to water, energy, sanitation, roads, education and health care.
- The DDM impact simulator will **primarily use the DSI DDM interventions** which are collected through **various surveys in the DSI's DDM impact areas**



District development model

Follow the **red** for unique contribution



One plan pillars



- A. Managing urbanisation, growth and development;
- B. Determining and/or supporting local economic drivers;
- C. Determining and managing spatial form, land release and land development;
- D. Determining infrastructure investment requirements and ensure long-term infrastructure adequacy to support integrated human settlements, economic activity and provision of basic services, community and social services;
- E. Institutionalize long term planning whilst addressing 'burning' short term issues

The idea in a nutshell

- Compare the **current state** of a DM to **what it may be** if all the DDM investments realise



DDM initiatives / investments / interventions

Baseline information

Baseline profiling data needs

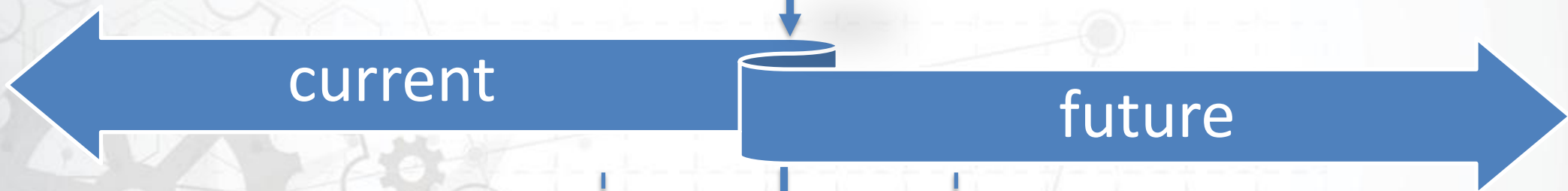
- housing provision and delivery
- access to basic services
- bulk service provision (water, electricity, ICT, and roads)
- basic education and skills development
- employment
- economic production (GDP)
- critical social infrastructure and services (health, education, social grants, etc.)
- (social progress e.g., crime statistics – not easy to model)

Interventions to be captured and impact modelled

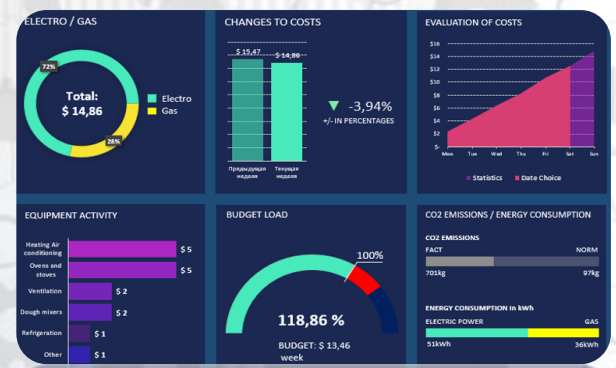
- skills development,
- employment creation,
- economic activity and/or opportunities
- access to basic services
- access to social infrastructure
- (societal impact – still needs some further thinking)

Simulation process

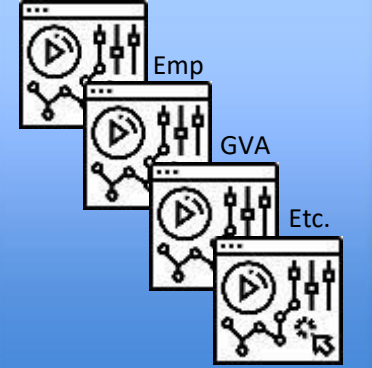
DDM interventions



As-is



Skills

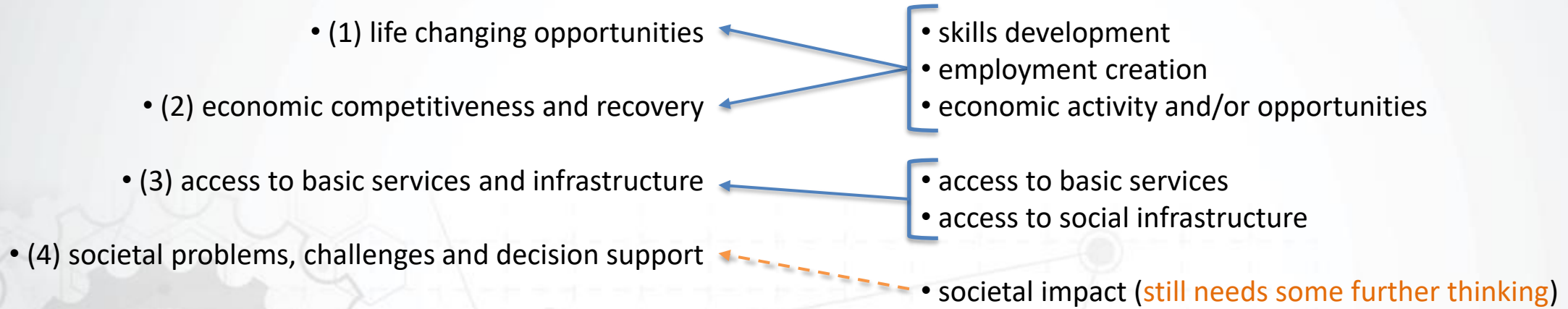


What-may-be



Prediction models

DSI impact areas >> DDM modelling



Impact Area (1) Life Changing Opportunities

- skills development;
- training, innovation leadership skills;
- entrepreneurship support;
- digital skills;
- incentives and support for tech start ups, innovation SMME's, cooperatives;
- support for unemployed youth, women
- youth innovation incentive schemes

Impact Area (2) Economic Competitiveness and Recovery

- local systems of innovation and production;
- circular economy;
- innovation for local economic development;
- innovation support for existing economic sectors such as mining, agriculture, tourism and manufacturing;
- support for new sources of growth;

Impact Area (3) Access to Basic Services and Infrastructure

- basic service delivery such as water, energy, human settlements, education, waste management, health and sanitation;
- innovation infrastructure;
- community innovation, science support centres;
- community broadband connectivity;
- Research infrastructure;
- support for new sources of growth;
- smart cities, smart settlements and neighbourhoods

Impact Area (4) Societal Problems, Challenges and Decision Support

- youth in drugs;
- environmental pollution and degradation;
- climate change and drought;
- safer cities and communities;
- social development;
- decision support tools;
- policy research

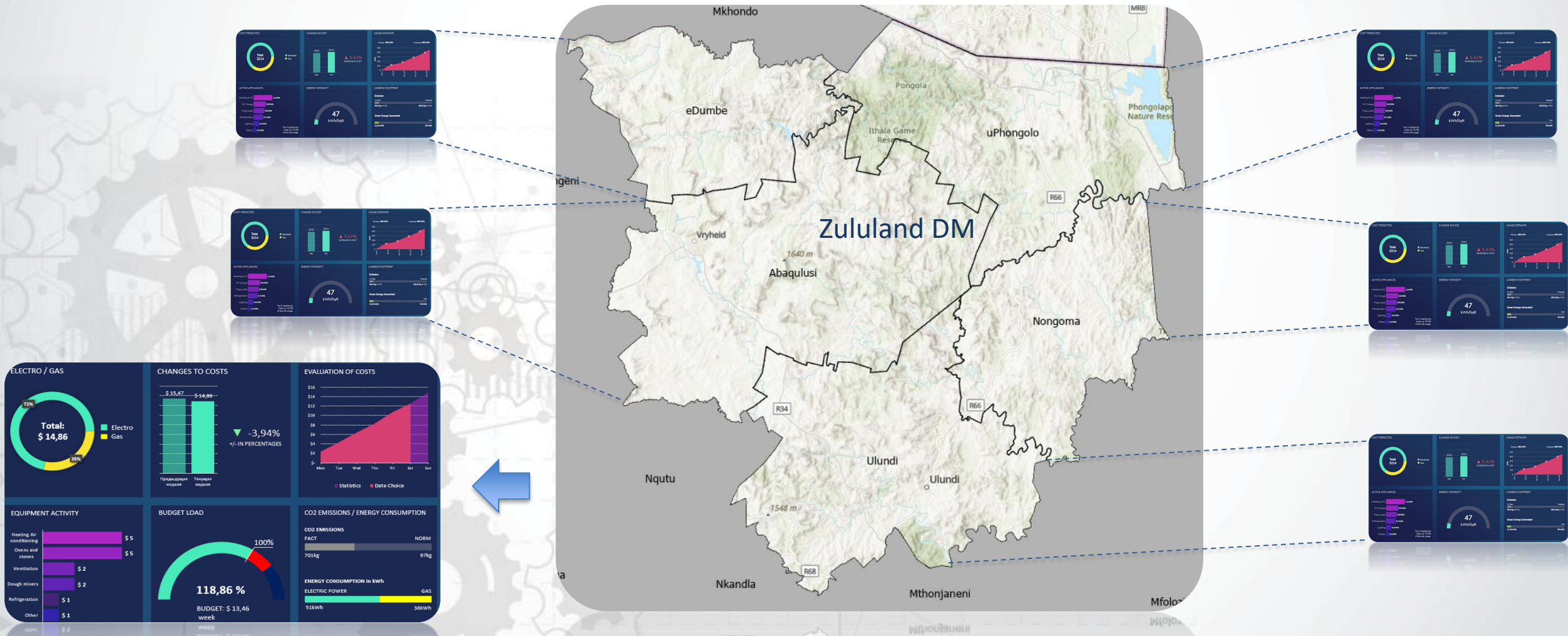
Suggested study areas

- Zululand
- Sedibeng
- West Rand



Analysis resolution

- Profiles and modelling outputs: municipal level of detail plus consolidated DM view



Where will the model add value

- DM or LMs can potentially use the model in their planning and implementation processes
 - Capture interventions in a database (spatially)
 - Evaluate the impact of current interventions
 - Can also evaluate alternatives (test based on scenarios)
 - get more insight on trade-offs
 - feed into longer term plans and prioritisation

Limitations of the model

- Need to manage expectations
 - Output resolution, LM-level
 - Modelling focus on a selection of variables (indicators)
 - predominantly economic development focus
- Start with specific case study areas

Stakeholders

- CoGTA
- Selected Districts
- Relevant Local Municipalities
- Sector departments (National and Provincial)

Process and deliverables

- **Stakeholder** selection and **engagements**;
- Model and associated **system specifications** – the system will not only be the model for running the simulation, but will also:
 - allow the capturing of data, including investment project data;
 - visualise the base line indicators as well as the simulation outputs;
 - draw certain reports for distribution
- **Base line indicator database**;
- **Life intervention database** (interactive interface to keep up to date) of DDM current and planned projects and/or initiatives;
- **Simulation model**
 - DM socialization of the model (use it)
 - Output reports on planning implications for LMs and DMs
 - Continues use: intervention data capture and impact modelling

The background is a dark blue gradient with various geometric shapes, including triangles and hexagons. On the left side, there are several interlocking gears of different sizes, some of which are semi-transparent. The word "END" is centered in the upper half of the image in a white, bold, sans-serif font.

END

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