

Southern Africa
Revenue Protection
Association

Leveraging on Data to enhance business operations



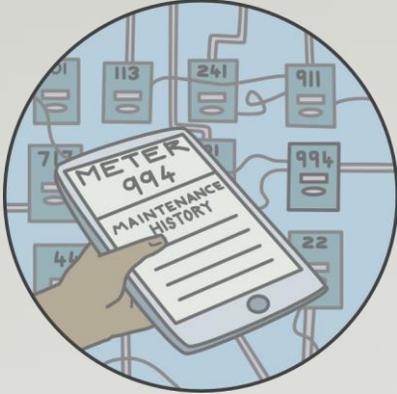
Problem Statement



Pressure mounting on South African municipalities to provide service deliveries within the boundaries of limited resources.



Key Challenges in Utility Environment



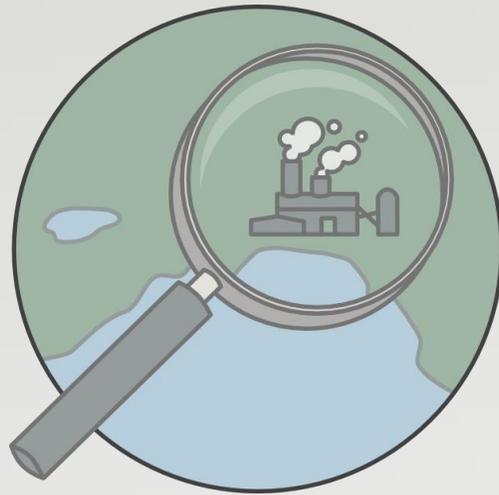
External Challenges such as slow economic growth, **non-payments, urbanisation, theft** and vandalism, political instability continue to dominate budget allocations



Internal inefficiencies – Employee costs, process inefficiencies, **data integrity, technology mismanagement**, high staff turnover adds to total losses.

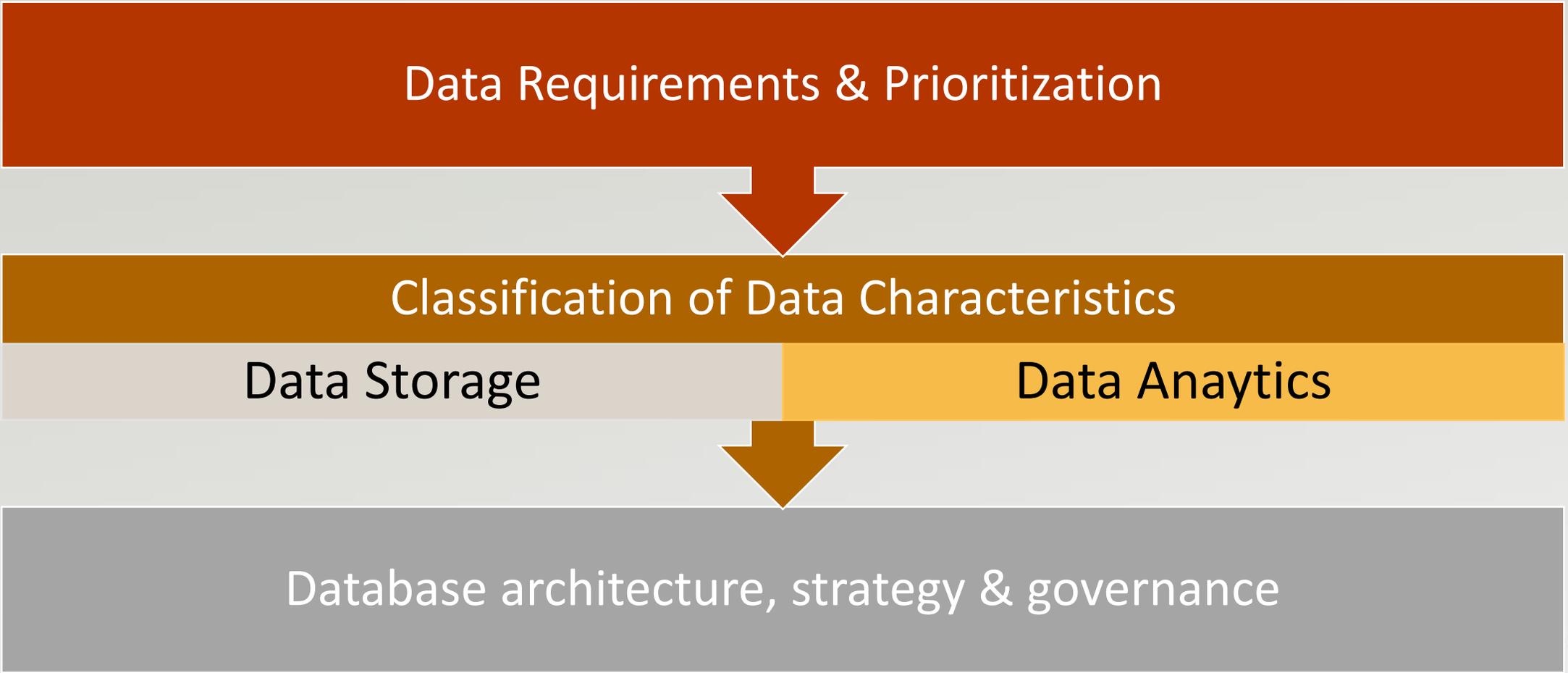


*What does data operations management strategy include and is it **THE** solution?*



Database Operations Management Strategy

Data Requirements & Prioritization



Classification of Data Characteristics

Data Storage

Data Analytics

Database architecture, strategy & governance

Database Operations Management Strategy (Contd.)

Data requirement and prioritization

- Profile, subscription, behavioural, interaction, market research data

Classification of Data

- Data segment, data storage, data latency, data lifespan

Data Storage

- Cloud based (private or public)

Data Analytics

- Improve decision making, saves costs, enhance business process etc.
- Input Layer- Action optimization- Service Delivery

Data Architecture

- Inter-relationship between business processes
- Governance =data assets are formally managed throughout the enterprise.



Challenges in implementation of data strategy

Lack of Supportive capabilities

Right Data

- **Unable to Identify, combine, and manage** multiple sources of data
- **View & Analyse** data from multiple sources
- IT support on **legacy structures**
- **Identify problematic areas** and define data needs
- **Synchronize & merge** data- prevent overlaps

Right Time

- Unable to shorten **time period** between data requested to actual receipt of data
- Unable to prevent **delay in service requested to actual delivery** of service
- Unable to identify **frequency delays** in the business process
- Unable to **prioritize data** opportunities

Right Skill

- Unable to **transform skills** within the organization
- Need to **hire additional skill** sets
- Lack of **stakeholder engagement** in development of tools & interfaces

Decide & Act

- Unable to build analytics using data models
- Unable to discover, diagnose, predict and prescribe **outcomes**
- Lack of **data driven decisions**

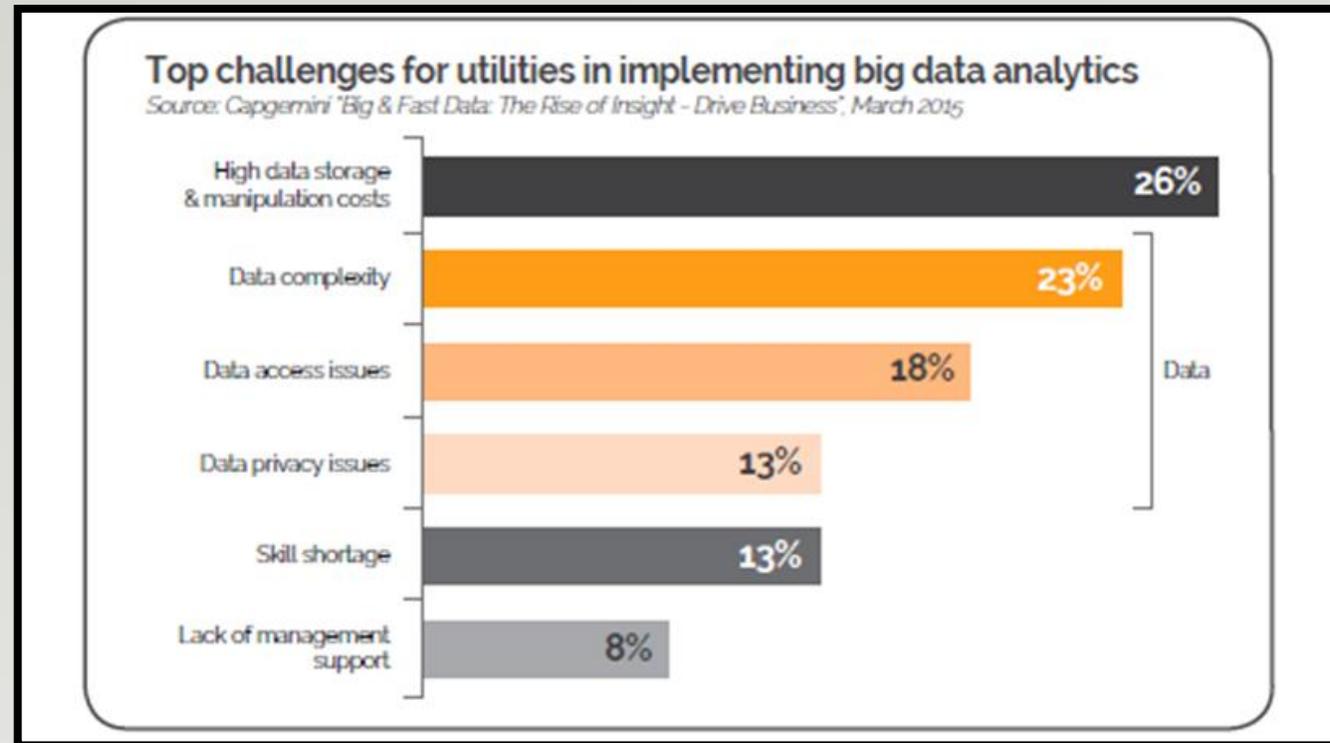


Challenges in implementation of data strategy (contd.)

➤ Data Costs

➤ Data Complexity

➤ Skill shortage



Source: - Capgemini "Big & fast Data: The Real Insight – Drive Business March 2015



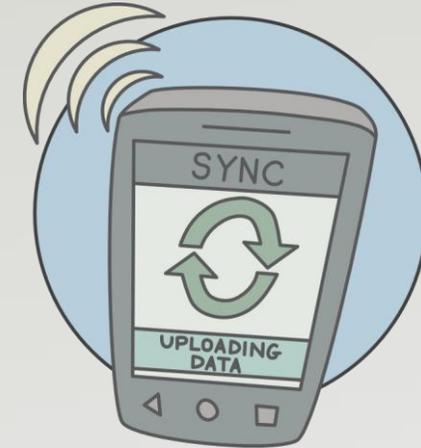
*How can utilities leverage on **data** to improve efficiency & enhance business operations?*



Identify **NEED** to define your **WANT**



✓ Higher Revenue



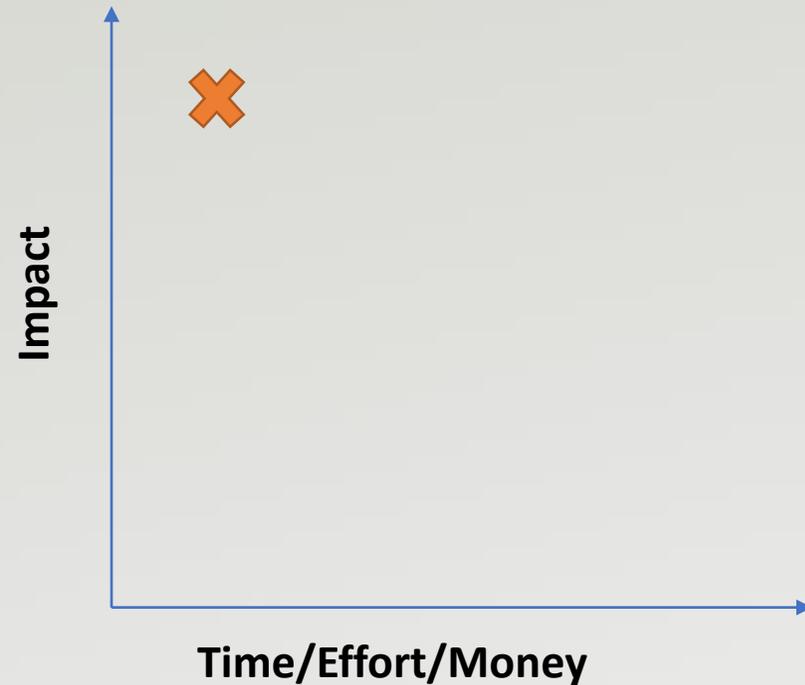
✓ Identify the **NEED FOR DATA**

**Focus on critical areas of
revenue generation**



Adopt a quick win approach

High Impact and low on time/effort and most importantly money.



Case Study: - Minimising revenue leakages in utilities

Non-technical loss due to in-accurate meter reads

Single Phase 60A Residential Conventional						
Account Number	Meter Number	Meter Number Found	Reading Date	Reading (Kwh)	Physical Address	QC Status
200200000	CCCC60000	CCCC60000	2018/01/20	61621,00	XXX	Accepted
200200000	CCCC60000	CCCC60000	2018/02/19	61814,00	XXX	Accepted
200200000	CCCC60000	CCCC60000	2018/03/21	619648,00	XXX	Accepted

Domestic Meter Read Input data error: - Before decimal digits = 6 instead of 5

Based on 2017/18 tariff for Single phase 60A

Incorrect Usage (in kWh)				557834 kWh
	Max. Size	Usage	Tariff(c/kwh)	Amount (ZAR)
Block 1	500	500	110,65	553,25
Block 2	1000	500	126,98	634,9
Block 3	2000	1000	136,35	681,75
Block 4	3000	1000	143,86	719,3
Block 5	300000	554834	150,91	754,55
Sub-total				3343,75
DSM Levy (c/kwh)			2	11146,68
Service Charge				114,57
Capacity Charge				337,52
Total charge for the month				R14 942,52
Average Tariff (c/kwh)				0,03

Incorrect Bill Amount

Based on 2017/18 tariff for Single phase 60A

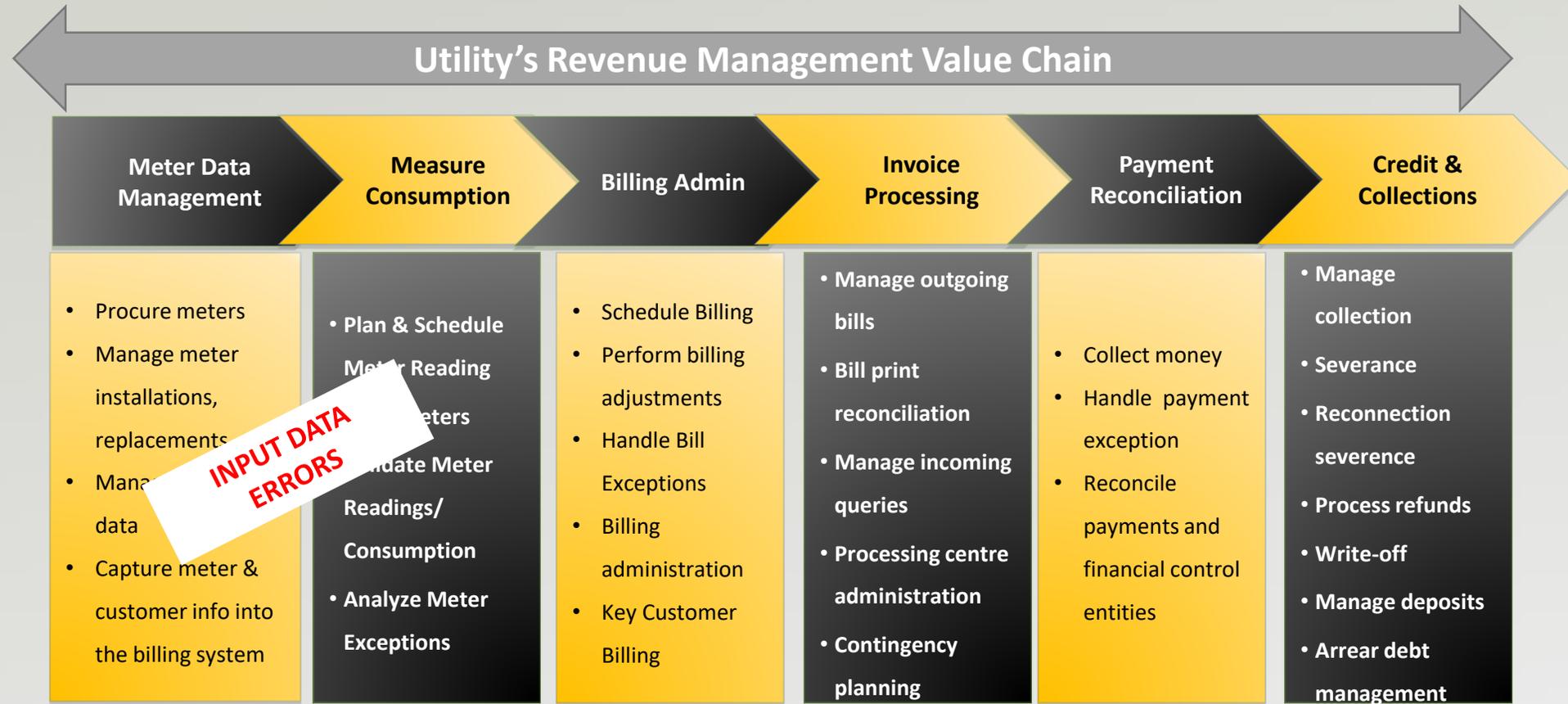
Correct Usage (in kWh)				134 kWh
	Max. Size	Usage	Tariff(c/kwh)	Amount (ZAR)
Block 1	500	134	110,65	148,271
Block 2	1000		126,98	
Block 3	2000		136,35	
Block 4	3000		143,86	
Block 5	300000		150,91	
Sub-total				148,271
DSM Levy (c/kwh)			2	
Service Charge				114,57
Capacity Charge				337,52
Total charge for the month				R600,36
Average Tariff (c/kwh)				4,48

Correct Bill Amount



Source: Meter Reading Data from one of the leading SA utilities

Case study: - Background



- ✓ Utility's operating cost increased by almost 11% year on year from 2014 to 2017.
- ✓ In contrast revenue increased by ~ 6%.
- ✓ Key initiatives were required to curb further revenue loss.



Case Study - Solution:- Step 1

Step 1: - Used a cloud based tools to capture correct consumption data

26 Steven Road
Dainfern, Johannesburg
2195

Confirming your location...

L88A 22916 13456

Last read: 22-12-2017
Read by: Jacob Gitswart
Previous reading(kVA): 120 345 890
Previous reading(kWh): 120 345,8
Current reading(kWh): 120 533,2

Tap to switch to camera & take picture
Swipe up to add a note

Add KVA Reading

Note Exception Submit Read

kWh

5 7 6 9 9

Confirm image reading cause our machine is not that clever yet

57699.8

1 2 3
4 5 6
7 8 9
. 0 <

Confirm Manual Input

Auto-confirmation of GPS location

Image recognition for read capture

- Built in QA checks;
- ✓ Image capturing data input validation
- ✓ Location validation



Case Study - Solution:- Step 2

Step 2: - Efficient Workforce Management

The screenshot displays the WEBILL Workforce Management interface. The left sidebar contains navigation options: Dashboard, Utilities, Contracts, Cycles, Workforce, File Mapping, Instructions, Quality Control, and Reports. The main area is titled 'Team Zones' and features a search bar, a 'Show All Zones' checkbox, and a table of 'Teams with Zones'. A map of Johannesburg shows a green polygon labeled 'Piet's Zone 1' with a pop-up showing its area (23 043 m²), 11 sites, and 16 devices. Other teams listed include Sannie's Team (3678 km²), Suzi's Team (678 km²), George's Team, and Tuli's Team.

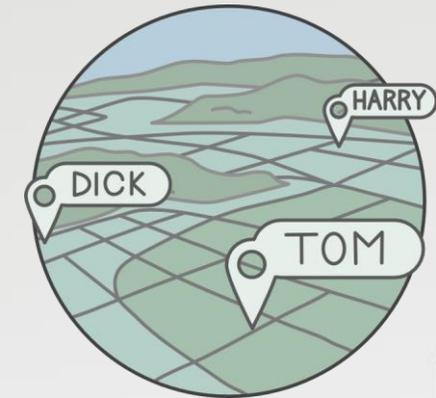
Zone Name	Area in km ²
<input checked="" type="checkbox"/> Piet's Zone 1	1345
<input type="checkbox"/> Piet's Zone 2	745
<input type="checkbox"/> Piet's Zone 3	446

Team	Area (km ²)
3 Piet's Team	2678
4 Sannie's Team	3678
1 Suzi's Team	678

Team	Area (km ²)
George's Team	-
Tuli's Team	-

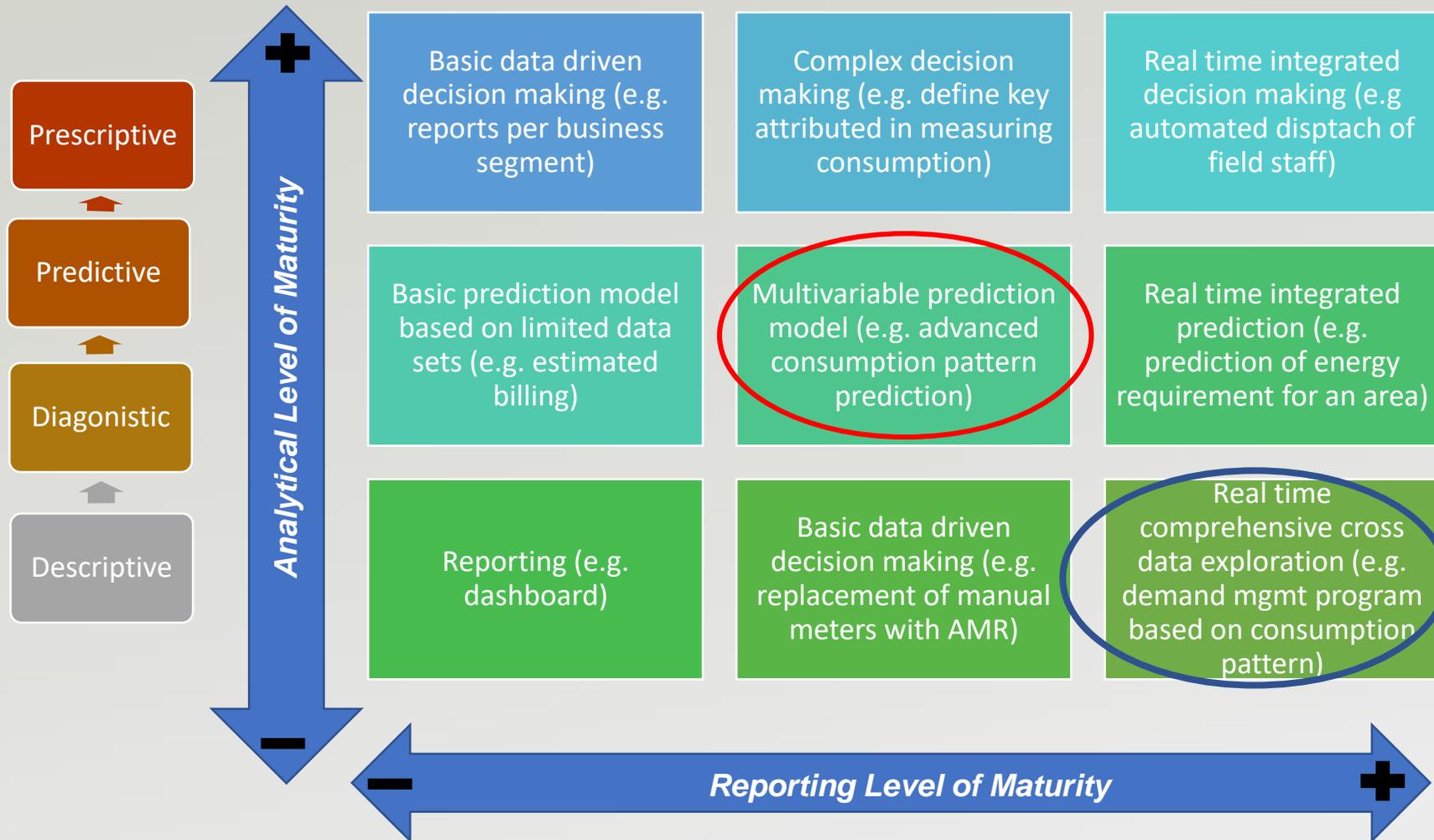
✓ Effective workforce management by allocating areas for each team.

✓ Location check QA enabled to capture correct GPS co-ordinates for each site.



Case Study - Solution:- Step 3

Step 3: - Data Usage - Multi-variable data analytics to define estimation model



Case Study - Solution:- Step 4

Step 4: - Data Analytics - Estimation model variables for predicting consumption pattern of consumers

Variable	Old Model	New Model
Location	●	
Average Reads	●	
Weather	●	
Month of the year	●	
Peak and off-peak period consumption pattern		●
Leaks		●
Size of the property		●
Type of measuring device (manual, smart)		●
Energy type (solar, coal, gas etc)		●
Utility Pricing		●
Customer demographics		●

Data Analytics – to predict consumption pattern

Key benefits;

- ✓ Accuracy in **consumption pattern** predictions
- ✓ Accuracy in **billing** calculation
- ✓ Enables forecasting **utility demand**
- ✓ Improves **service delivery**
- ✓ Enables development of **demand side management programs**

Overall cost reductions, improving data reliability and promoting customer engagement



Case Study 2: - Analytics for Outage Management Process

Variable	Old Model	New Model
Equipment type	●	
Region	●	
Weather	●	
Repair status	●	●
Spread of outage		●
Hour of day		●
Customers affected		●
Day of week		●
Concurrent incidents		●
Month of year		●
Type of faults		●
Frequency of outages		●
Area most impacted		●
Supply segments for the area		●
Location of outage management fleet (GPS)		●
Source of power supply/ distribution to the area		●

Data Analytics to improve outage response time

Adding GPS Location data for service fleet;

- ✓ **Schedule & dispatch service fleet to correct location**
- ✓ **Improved outage response time**

Linking Customer complaints data;

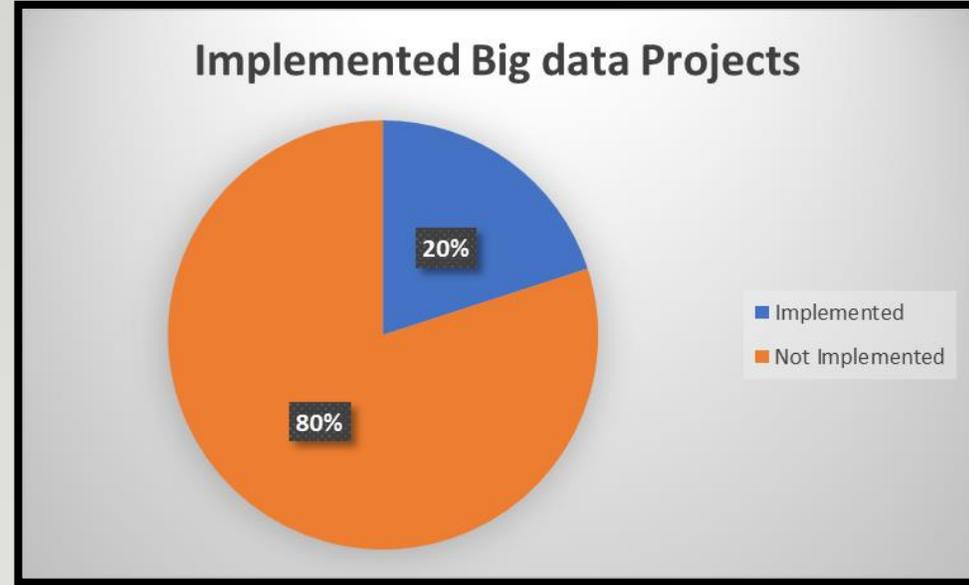
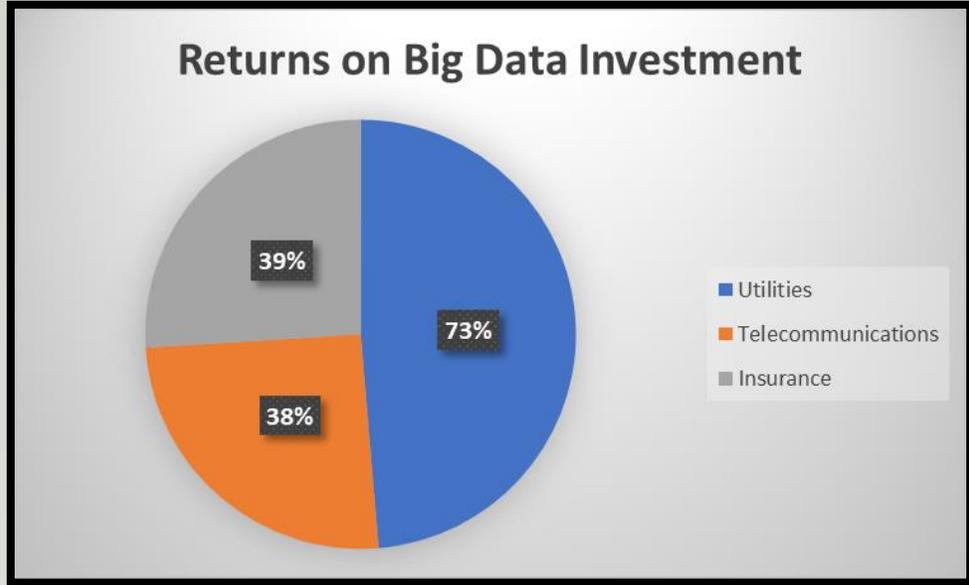
- ✓ **Able to identify areas experiencing maximum outages, their frequency and response time**
- ✓ **Be able to predict expected restoration time (ETR) for customers more accurately**

Overall cost reductions, improving data reliability and promoting customer engagement



Conclusion

Utilities have wealth of data and aware of returns on big data investments.



PWC Survey Results;

- ✓ 87% of SA companies plan to introduce **new digital products** and data- based services over the next five years;
- ✓ 83% of SA respondents expect **data analytics** will have a significant influence on their **decision-making processes** in five years' time;
- ✓ Only 10% of local respondents rate the **maturity of their data analytics capabilities** as advanced.
- ✓ In South Africa, the current **level of digitization and integration** is expected to rise from 27% to 64% within the next five years.



Thank You!!!!

