



a world class African city



City of Johannesburg

SMART CITY ENGAGEMENT WITH WORLD BANK / FMDV SESSION

8 MARCH 2017

- 1. Councillor Dr. Rabelani Dagada, PhD (elected public representative)
Member of the Mayoral Committee for Finance & Leader of Executive Business,
City of Johannesburg Metropolitan Council**
- 2. Mr. Lawrence Boya, Director: Smart City Programmes
City of Johannesburg Metropolitan Council**
- 3. Mr. Aubrey Mochela; General Manager for ICT (City Power Municipal Entity)
City of Johannesburg Metropolitan Council**

Programmes	Catalytic projects
Universal Access Programme	<ul style="list-style-type: none"> • Connectivity and e-learning through the City's broadband infrastructure programme
Smart Institution Programme	<ul style="list-style-type: none"> • Business Process Re-engineering, City's ICT wide enablement • Electronic Health Record System (additional project started in 2015)
I²OC	<ul style="list-style-type: none"> • Intelligent Integrated Operations Centre
Smart Technology Programme	<ul style="list-style-type: none"> • Delivery of smart meters (electricity, water) • Smart Transport
Smart Citizen Programme	<ul style="list-style-type: none"> • ICT literacy, e-learning • Citizen engagement platforms • Smart Parks (additional project started in 2016)

The approved Smart City Strategy defined the following broad outcomes to be realised by 2021 :

- Improved social development (e.g. through the provision of internet access in places of learning);
- **Service delivery efficiency** (e.g. via smart-metering for water and electricity services, e-services, and widespread access to broadband);
- **Better decision-making** (e.g. through the integration of city-wide data into a single view – allowing for holistic planning, preventative actions and improved responses in the context of areas such as safety and mobility);
- **An increase in economic activity** (e.g. through providing the necessary technology and connectivity for businesses and entrepreneurs to thrive);
- **Active citizen participation and engagement** (e.g. through a ‘single city wide’ user-friendly Joburg mobile as well as web application) and
- The creation of a **sustainable and liveable environment** (e.g. via technological options that improve resource use, and that allow for planning aligned to urban trends and pressures).





MANDATE

City of Johannesburg Policy Drivers



ELECTORAL MANDATE

- Creating more opportunities and jobs
- Making local government responsive
- Providing better service delivery
- Stopping corruption
- Providing meaningful redress
- Making communities safer

TEN POINT PLAN

1. Recognition by the administrative leadership of the coalition government
2. Responsive and pro-poor government
3. Alignment of plans to achieve the 5% economic growth subsequently reducing unemployment
4. Create a professional public service
5. Corruption declared as public enemy number one
6. Revive the inner city
7. In 60 days produce a report on built houses
8. Fast track the hand over of title deeds
9. Pilot 24hr clinic
10. Business friendly city which attracts investors and entrepreneurs

STRATEGIC FRAMEWORK

- Promote economic development and investment activity
- Re-absorb the Municipal Entities to improve service delivery and responsiveness
- Encourage urban regeneration in key urban nodes
- Resolve billing system problems
- Upgrade informal settlements
- Improve service delivery performance and service delivery culture
- Improve residents safety by improving safety officer numbers to required standard
- Reform public transportation model

▪ Translating the New Strategic Agenda into implementation plans the following Priorities have been “Agreed upon”

Promote Economic Development and Investment
– GVA 5% BY 2021

- Increase Infrastructure development to 20% of Budget
- Urban Regeneration of Key Nodes in particular the Inner City, Randburg, etc
- Small and medium business growth
- Promote informal sector growth as a path to small business
- Promote Broadband and free wifi access
- Reduce unemployment to 20% from 39%
- Skills development

Improve service delivery ---> Performance and culture

- Improve services to business and residents
 - Water, electricity cost and reliability
 - Planning, zoning and building plans
- Waste collection
- Enhance adherence to set standards
- Improve by law enforcement

Improve Public safety

- Expand use of modern Technology --> IIOC
- Reduce Crime with a focus on Key nodes (Inner City) and House burglary, petty crimes
- Improve visible policing - Ward based approach

Responsive government (Citizen, customer, business friendly)

- Community based planning and execution (health, JMPD, infrastructure and services)
- Customer and citizen centric care
- Expanded social cohesion programme (migrant desk, civic training)
- Development of Urban Culture (Public Space, Use awareness, etc)
- Increase billing responsiveness to challenges
- Customer and citizen focused communication and engagement

Pro-poor Development and Meaningful Redress including income and spatial income inequality and efficient and effective transport (Public and Freight)

- Formalise informal settlements
- Electrify informal settlements
- Inner city and other key nodes
- Corridor Development and social housing
- Corridor development underpinned by good public transport backbone for mixed use, mixed income development
- Increased densities, increase access to food, reduced spending on travel resulting in more disposable income
- Reduced cost/ capita of infrastructure

Good Clean Governance with focus on eliminating corruption

- Anti Corruption Programme
- Review, consider and absorb Municipal Entities
- Professional Public Service Programme
- Customer Service - Centric culture development

Preserving our resources for Future generations

- Water conservation and enhanced water collection and utilization for economic and consumption
- Use of alternate forms of green energy - gas and renewable
- Elimination of water and air pollution such that water ways available for recreation and air free of particulates and bad gasses.
- Address electricity shortages

Enhancing Financial Sustainability

- Financial prudence
- Implementation of the Financial Development Plan
- Attainment of a Clean Audit
- Improve billing inefficiencies
- Retain investor confidence

Smart City and Innovation

- Address digital divide --> access and capability
- E- services
- Improved capability for communication and engagement
- Enhanced social media and inter-active communication with enhanced support systems

SMART CITY PLANNED OUTCOME

Planned outcomes	Ambitions 2021
Development of smart infrastructure	Interoperable ICT architecture & platform adopted across the city Common data governance implemented: overview of available data; data access; data sharing & re-use; data interoperability Citywide ICT enablement of interoperable infrastructure On-boarding & integration of multiple domains & entities into the IOC .
Enhanced institutionalized technological competency	Smart Institution implemented Establishment of good processes and practices Better decision-making (e.g. through the integration of city-wide data into a single view – allowing for holistic planning, preventative actions and improved responses in the context of areas such as safety and mobility). In house Data Analytics, Monitoring & Evaluation Asset management & e-maintenance
Smart service delivery efficiency and productivity Citizen services	Citizen engagement driven innovation (living lab) Smart Delivery and management of Electricity, Water, Billing & Payment, Digital Policing, Social Benefits, Waste Public Safety incl. preventive City wide e-health patient records interoperable with national MoH Integration and centralisation of Public Safety information at the IOC leading to enhanced crime prevention.
Enhance citizens' active involvement and engagement.	Universal access in the entire city of Johannesburg Integrated bi-directional citizen engagement (one stop shop) allow seamless online interaction via e-services, with enhanced feedback.
Improved social development	Providing Digital Advantage to the Citizens. Provision of internet access in places of learning Online access to education enhances changes for (self) learning and employability for the youth.



TECHNICAL

CITY OF JOBURG SMART CITY JOURNEY



“Johannesburg is a world class city that makes decisions and governs through technologically enhanced engagement with its citizens who have universal access to services and information where socio economic development and efficient service delivery is at its core.”

Smart City Case Study Relevant for CoJ

NEW YORK 311 CITIZEN SERVICES CENTRE



Brought 120 citizen agencies under one new service centre - 311



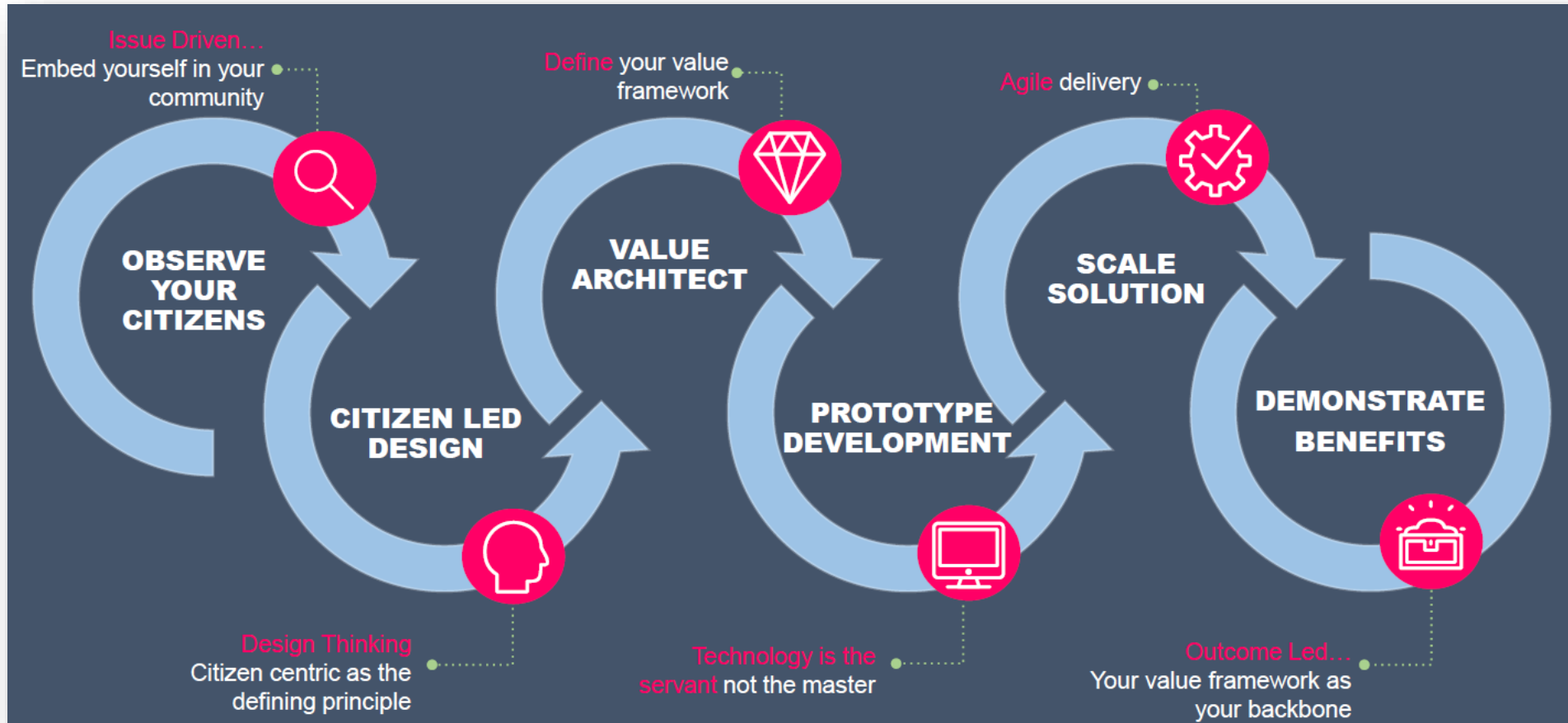
Handles 15 million calls daily, reducing 911 burden



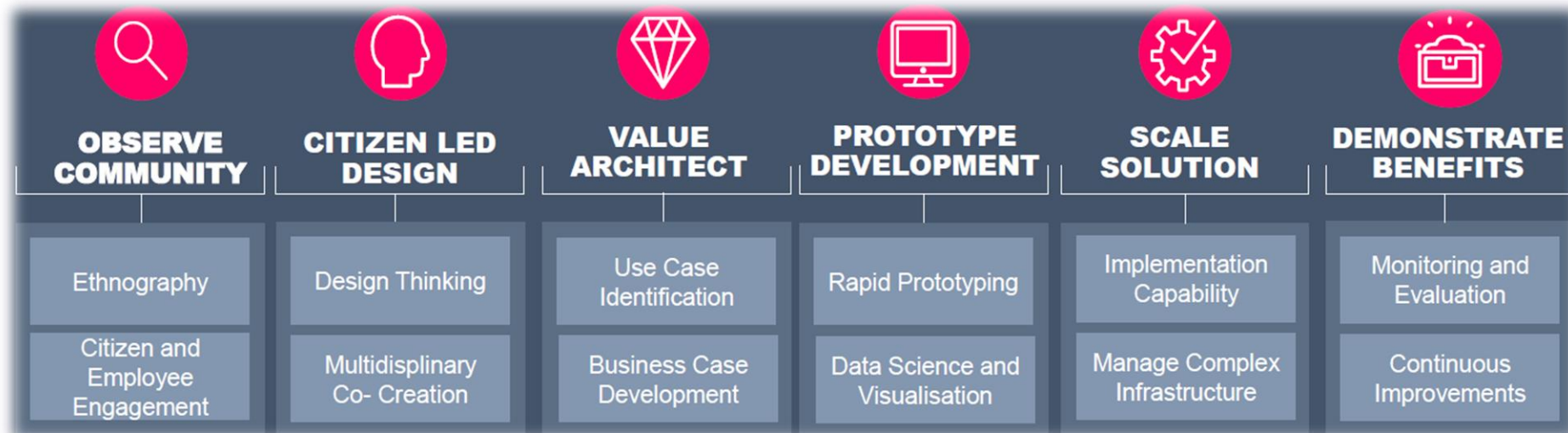
“One Stop Shop” with analytics capabilities to prioritise city issues

The consolidation of the City Entities can fast track the implementation of a solid and robust Integrated Operations Centre powered by strong Analytics Platform enabling a Digital Smart City

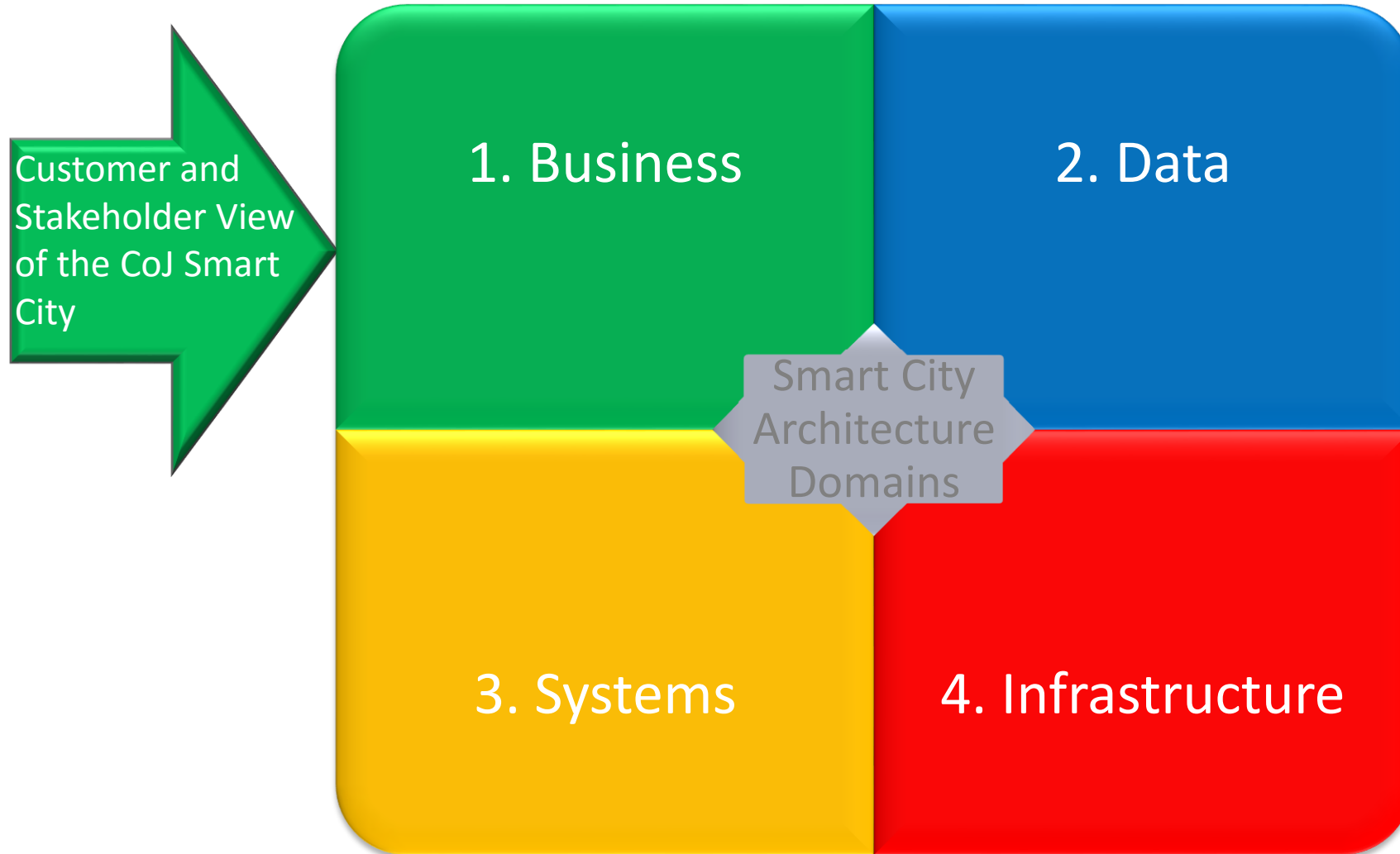
Smart City Thinking Know what problem to solve



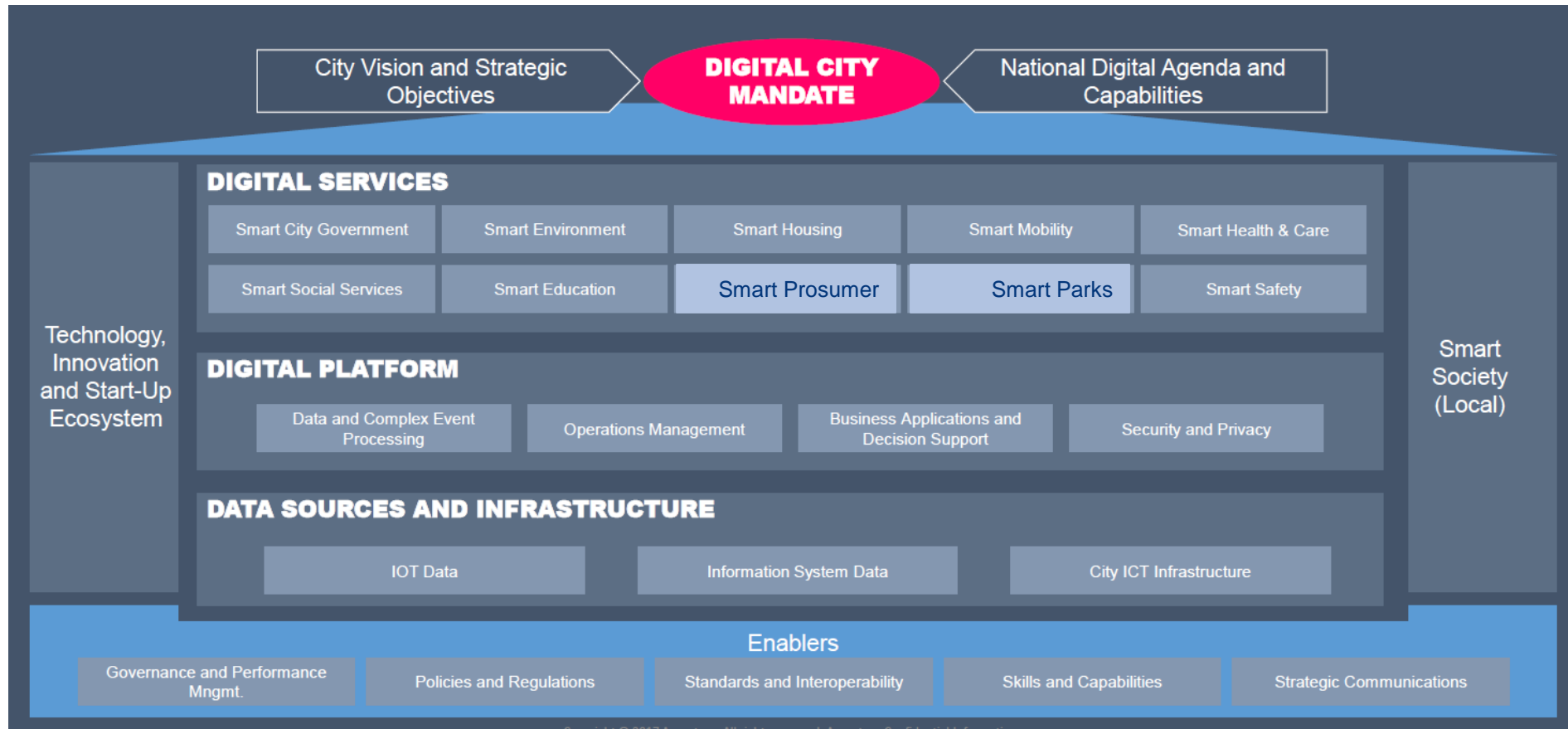
Smart Approach To solving the known problem



CoJ Smart City Enterprise Architecture Approach



CoJ Smart City Enterprise Architecture



Smart City Case Study

(numbers shows rankings on the dimensions)		Innovation City	Quality of Life	Social and Environmental sustainability	Digital Governance	Key Initiatives
1	Vienna	3	1	4	12	Energy Vision 2050; Roadmap 2020 and Action Plan 2012-2015
2	Toronto	11	15	9	2	Smart Commute And Business Analytics Centre
3	Paris	5	29	10	20	Transport: Velib and AutoLib
4	New York	1	44	3	6	Smarter Neighbourhoods
5	London	7	38	11	9	Smart City Research Centre
6	Tokyo	25	44	Above Average	23	Smart town Suburb Pilot; Smart Mobility
7	Berlin	13	16	8	21	Vehicle-to-grid
8	Copenhagen	8	9	1	18	Energy: Cleantech Innovation
9	Hong Kong	14	70	Above Average	5	Smart Card Technologies
10	Barcelona	56	40	Above Average	45	Living Lab for Smart City Innovation

CoJ Smart City Projects

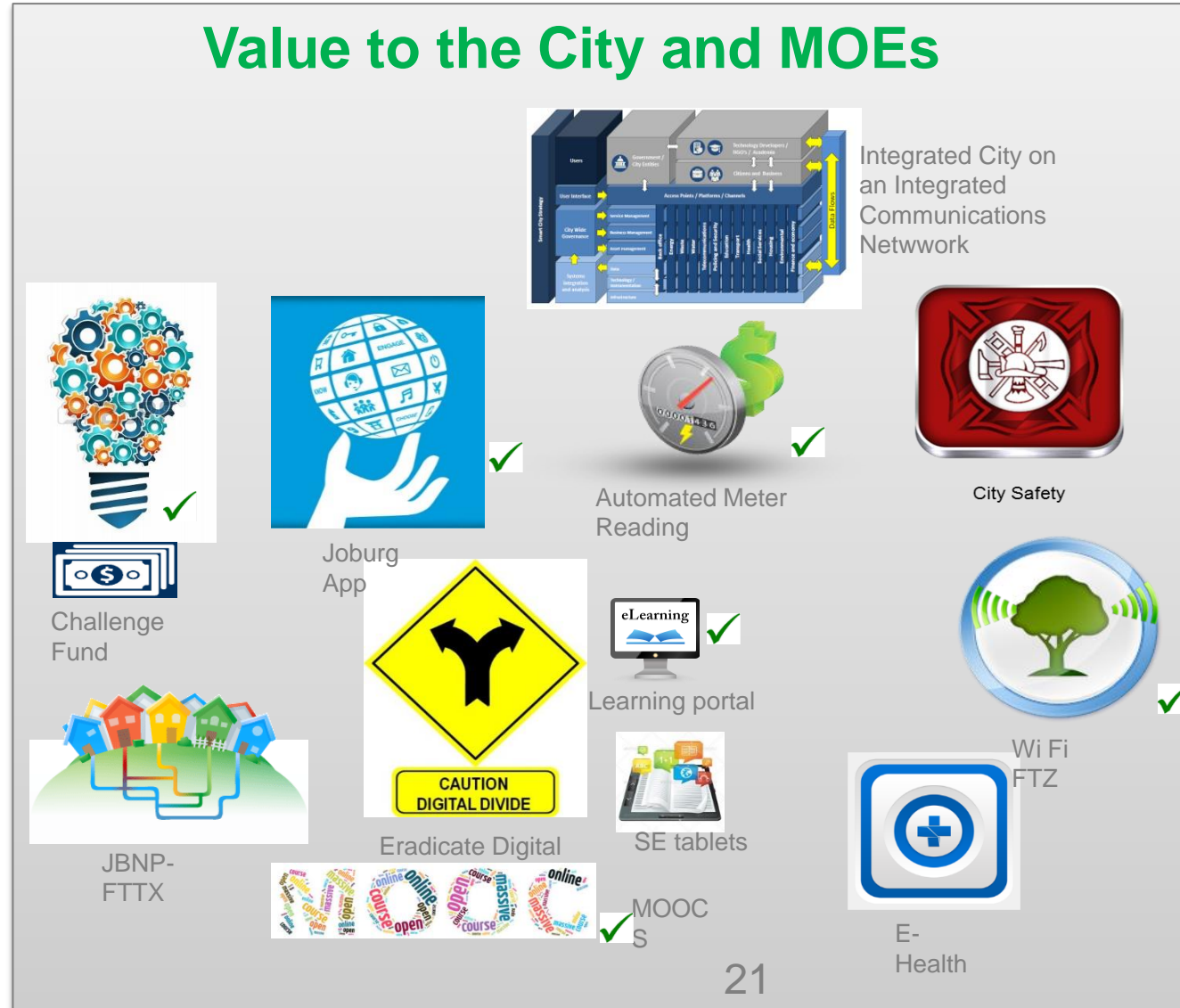
CoJ Entity	Project	Smart City Value Proposition
1. CoJ Core (GCSS)	Unified Comms	Connectivity - Innovation City
	WiFi	Connectivity - Digital Governance
	Maru a Jozi	Mobility – Digital Governance
2. Dept of Health	eHealth Record	Digital Governance
3. Dept of Comm Dev	eLearning	Social Sustainability
	Open Varsity	Social Sustainability
4. JRA	Traffic Management	Quality of Life
	Find and Fix	Digital Governance
5. City Parks / Zoo	Digital Parks	Quality of Life
6. City Power	Smart Meters	Digital Governance
7. Dept of Safety	I ² OC	Digital Governance

Johannesburg Broadband Network

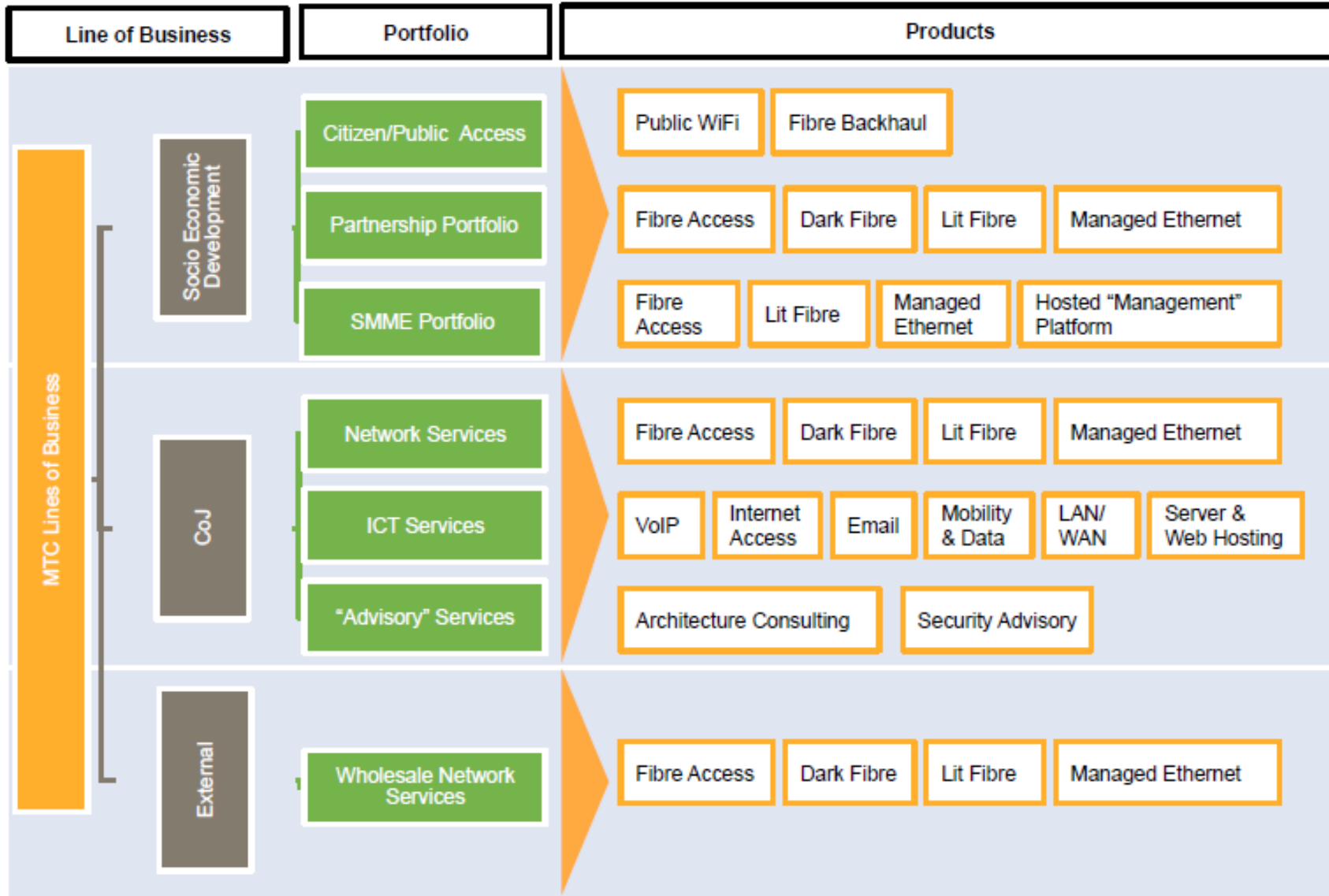
Economic Impact

- 2500 Jobs created
- 112M economic injection from jobs
- 195M spend on SMME's
- R2B economic injection from SMME spend
- 600M direct CoJ saving over project period
- 3%GVA increase over medium term
- Projection: R5.7B GVA increase over medium term

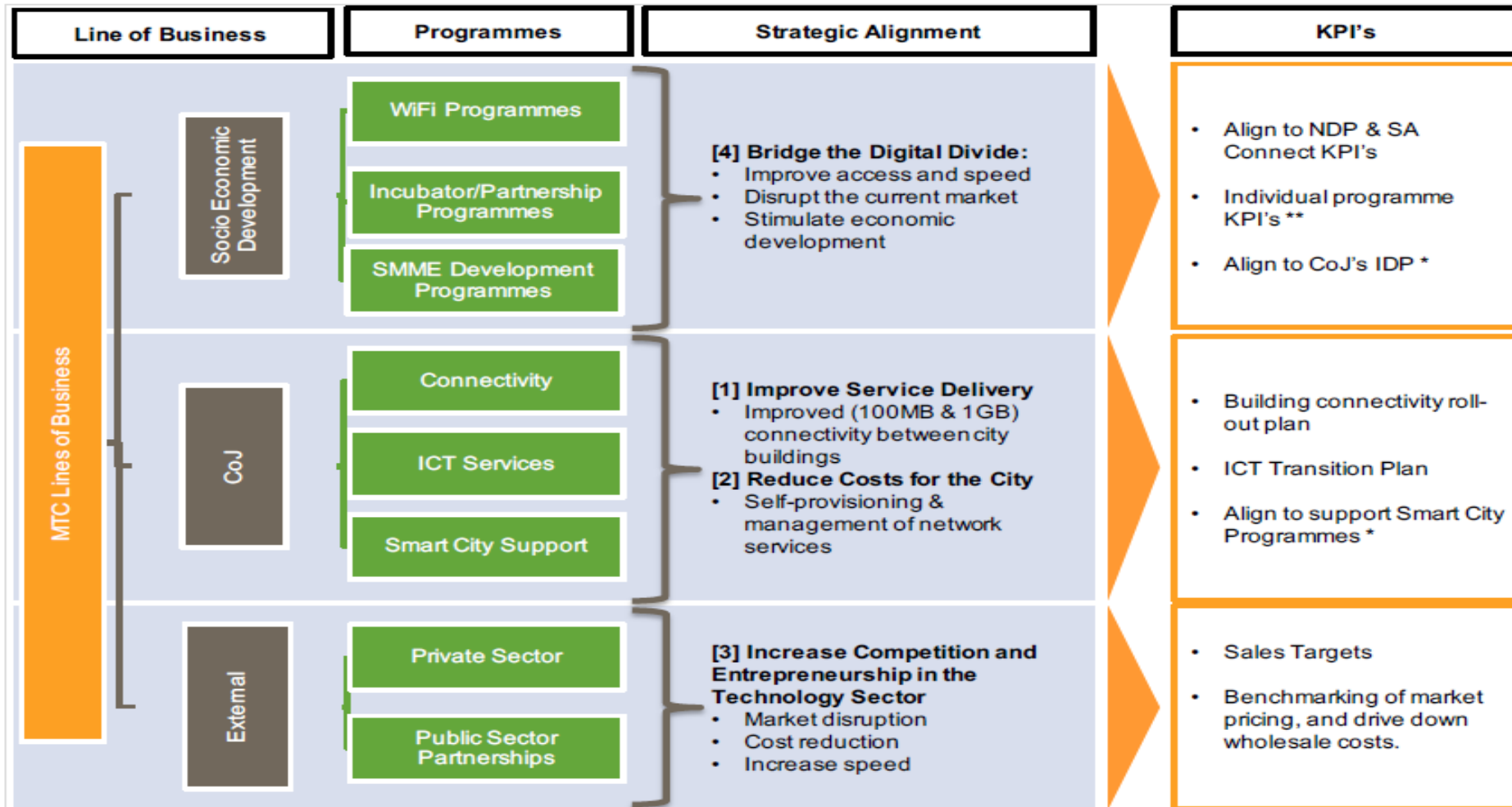
Value to the City and MOEs



Smart City Connectivity Services



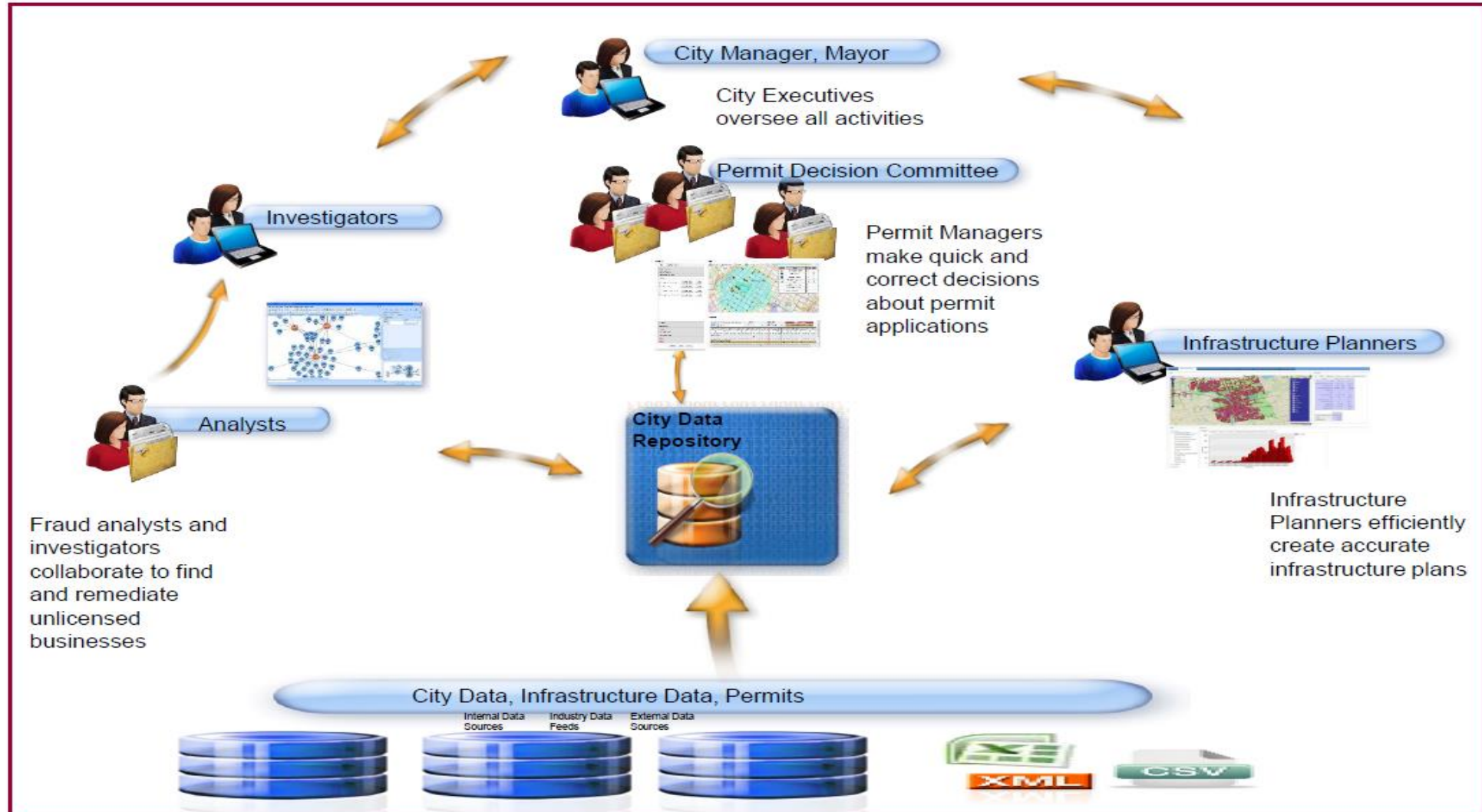
Connected City Strategic Alignment



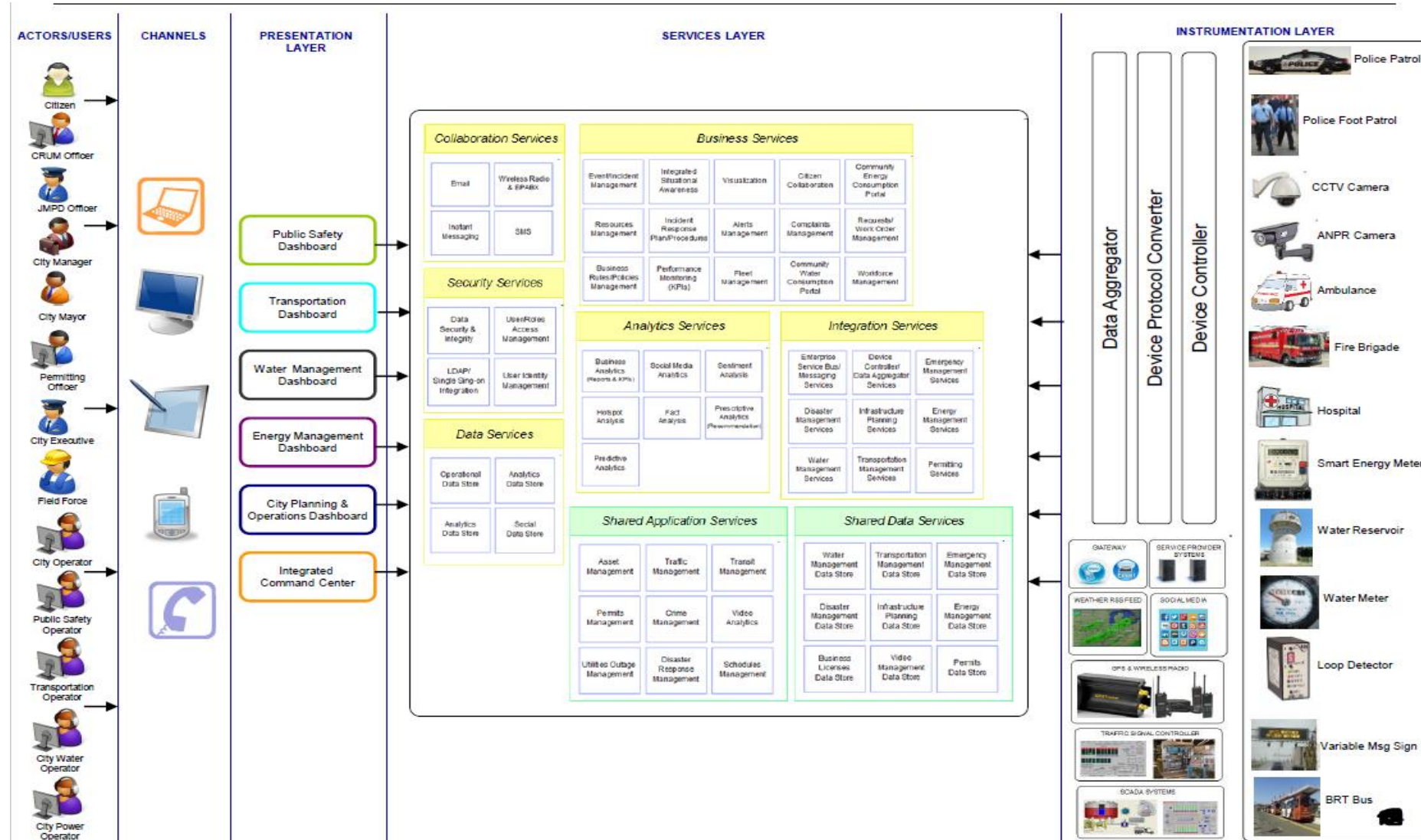
* KPI's to be developed with aligned to each programme.

** Individual business cases and KPI's to be developed as part of a feasibility assessment for each programme.

Smart City Integrated Operations Reporting & Analysis Workflow



Smart City Operations Services

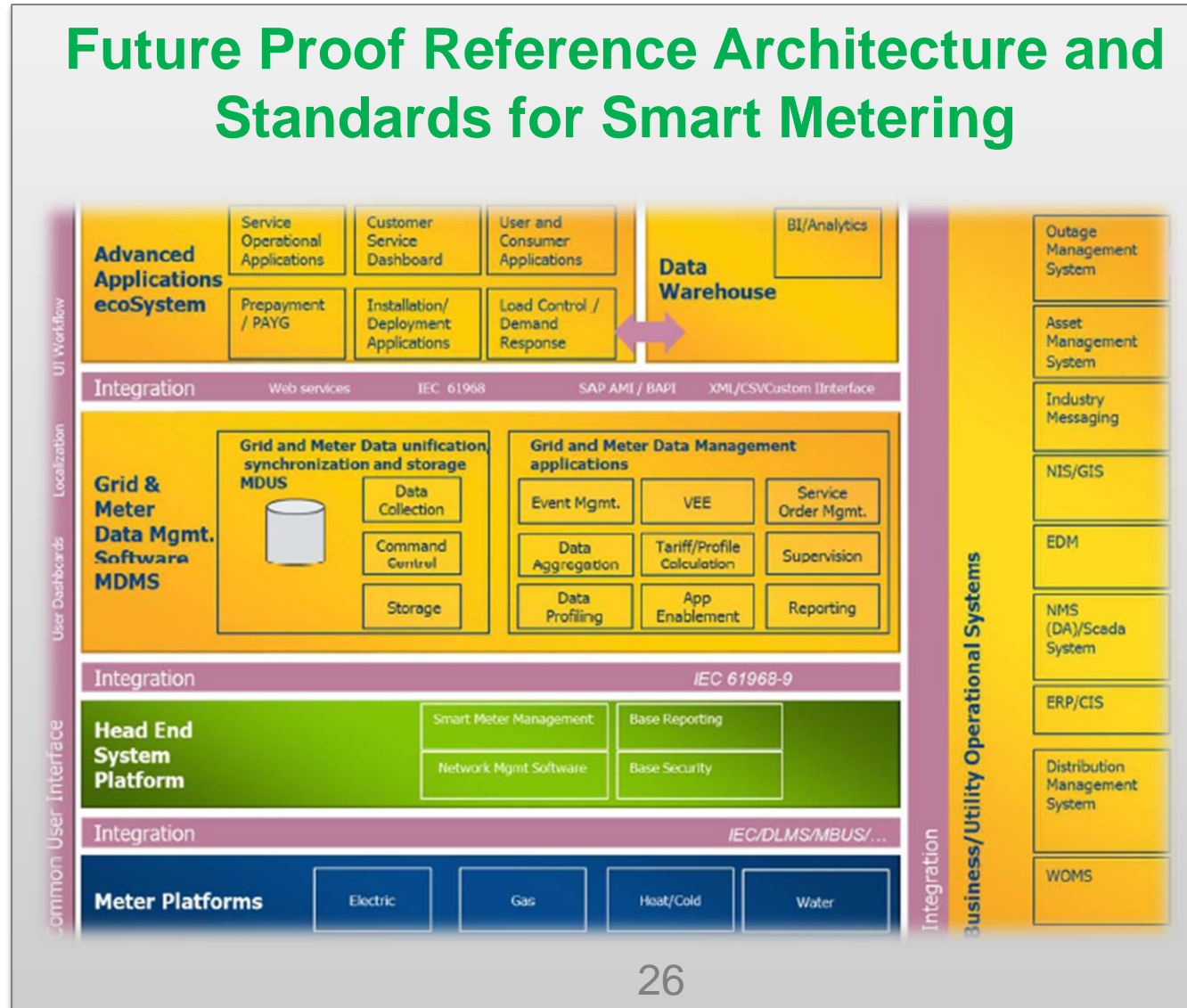


Smart Grid – Smart Metering Value to the City

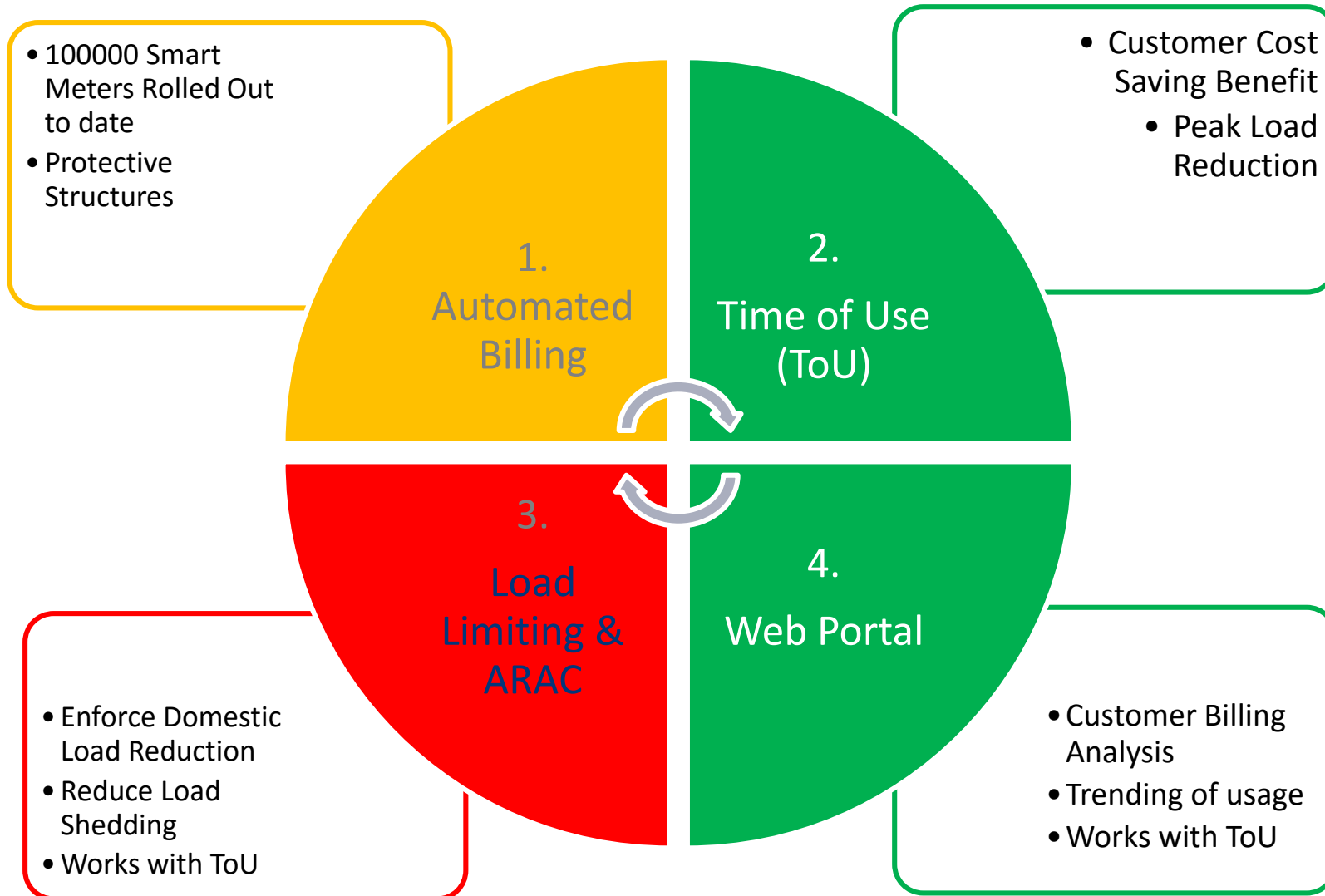
Economic Impact

- More than 800 Jobs created
- More than 100 SMMEs participate in the economic injection
- More than 500M spend on SMME's
- 170 000 Smart Meter Rollout
- Non-technical loss reduction from 32% to 22% within 3 years
- Investor confidence increased by ability to monitor bill
- Economic Growth expanded by ability to do Demand Side Management
- Smart Home Automation enabled

Future Proof Reference Architecture and Standards for Smart Metering



Smart Grid – Smart Metering



CoJ Sample Smart City Successful Projects

✓ **Smart Meter Solution for Smart Grid Networks**

- Automated Meter Data Reading
- Load Limiting with Smart Home Automation
- Basic Free Electricity Programming
- Time of Use
- Realtime Energy Usage Web Portal

✓ **Integrated Intelligent Operations Center (I²OC)**

- 170 000 Smart Meter Rollout
- Non-technical loss reduction from 26% to 22% within a year
- Employ more than

CoJ, World Bank and FMDV Engagement - CoJ Pipeline Smart City Projects

□ **Project 1 - Creation of a fully functional integrated Intelligent Operations Centre (I²OC) for well-coordinated, integrated and responsive service delivery; Coordination of CRM and Back Office**

The vision is to create a 'state-of-the-art' data analytical center to help the City's management with better decision-making and to provide a 360° view on strategic and operational issues through effective information-gathering, processing, and efficient dissemination of intelligent information.

The plan is to expand the I²OC offerings to include City Wide Integrated Services Operations Centre for the additional domains as the developed blueprints;

- City planning & operations
- Energy
- Water
- Transportation

On-boarding the Public Safety department offerings where we integrated new and existing CCTV cameras as part of crime prevention and enhancing the Johannesburg Metropolitan Police Department's incident management operations and included enhancements to the video analytics and event reporting capabilities, as well as high availability of Intelligent Law Enforcement (ILE) and Intelligent Video Analytics (IVA), backup of ILE and IVA data, server monitoring and alerts, additional training of JMPD staff working at the (I²OC).

CoJ, World Bank and FMDV Engagement - CoJ Pipeline Smart City Projects

□ Project 2 – Development of an integrated City wide unified communications platform that enables digital city

The vision is to create a ‘state-of-the-art’ IoT infrastructure that will deliver a Digital City

The plan is to consolidate the different communications networks and platforms of the City using a Telco Grade infrastructure that will service the City offices, Utility infrastructure, Business Community and the Citizens / Residents of Johannesburg. The solution will be primarily used to service

- Energy
- Water
- Transportation
- Security
- Health

CoJ, World Bank and FMDV Value Proposition & Realisation

- City of Johannesburg believe that smart technologies can contribute to improve our municipal management
- The main accomplishments/services of City of Johannesburg regarding the use of SMART technologies in municipal management is in communications and energy management
- One specific project that has brought interesting results (goals of the projects, achievements, difficulties) is Waste to Energy
- The advice to other cities around the world that wish to implement SMART initiatives regarding: the main challenges we have encountered and the key elements that ensured the success of SMART initiatives are multidimensional



- The introduction of IoT and associated instrumentation, supported by powerful analytics platform, deliver Smart City
- The City has managed to breach the digital divide in areas that were historically disadvantaged, providing them access to business opportunities and job employment
- The City was able to created high number of job opportunities and additional revenue stream while dealing with cleanliness.
- The funding should be PPP based for large scale projects that are community facing. Rollout should be agile and phased. Involvement of communities from concept inception is critical



THANK YOU