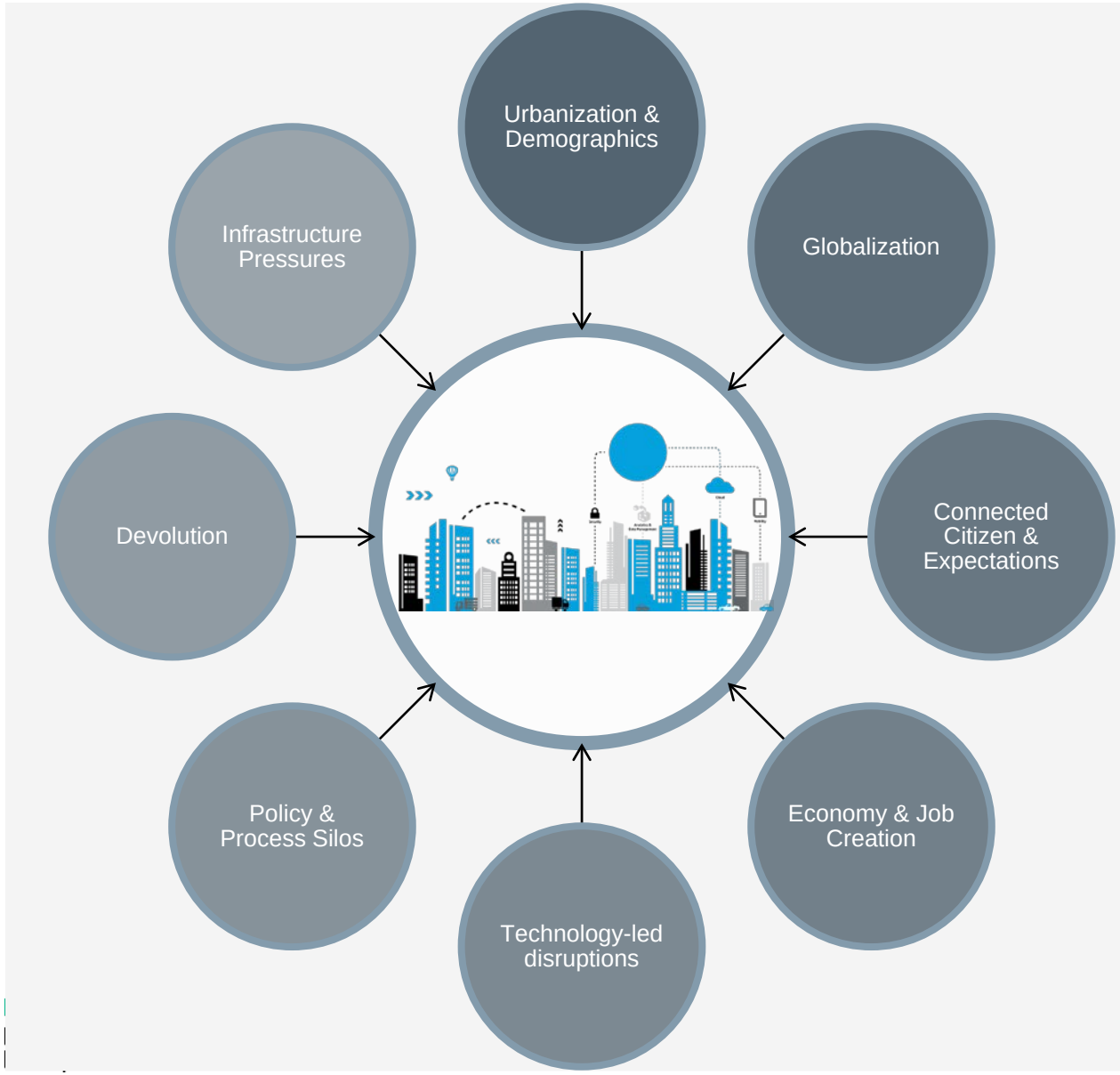
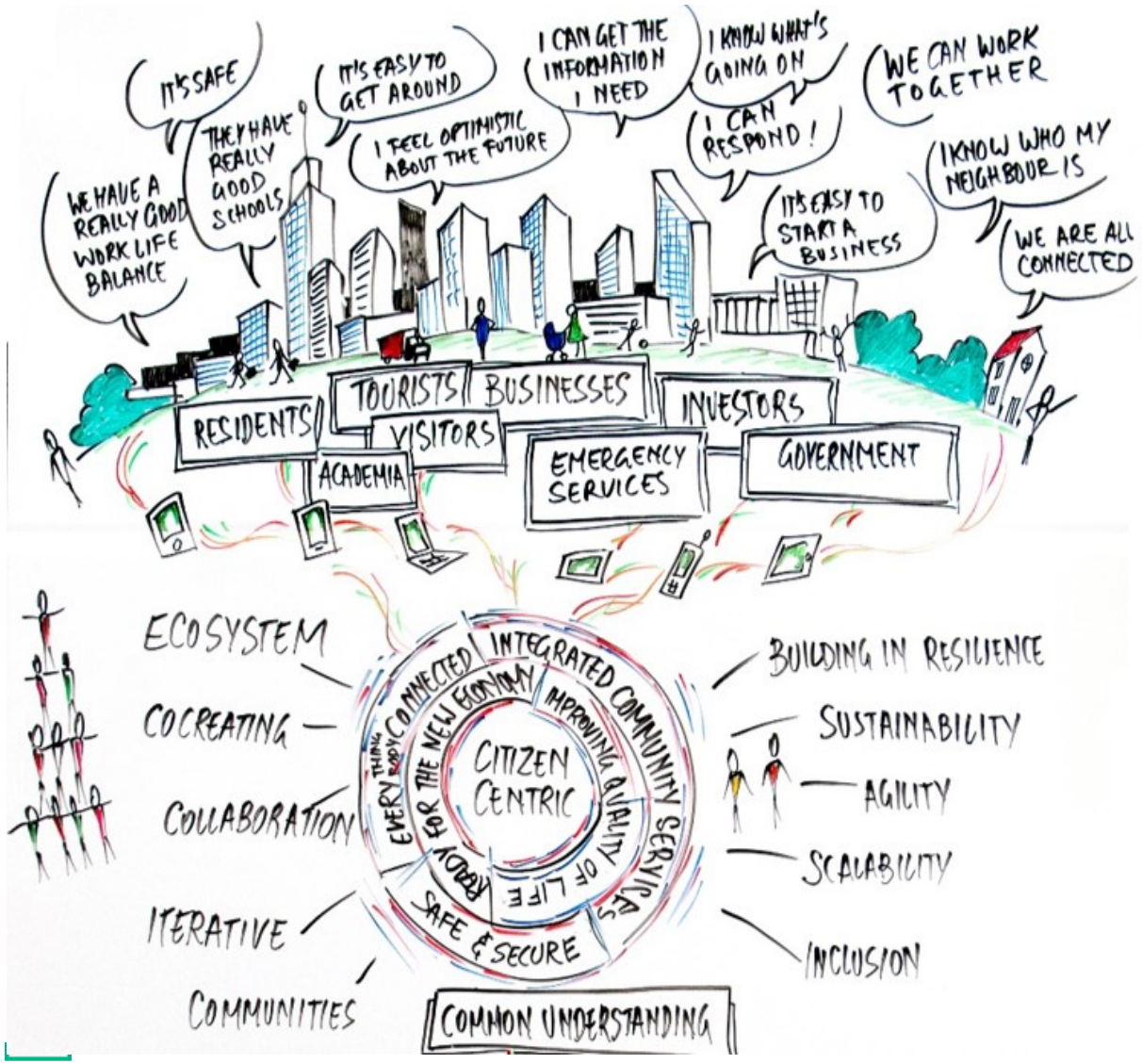

Hewlett Packard
Enterprise
HPE India
29rd Sept 2017

The Shift To Future Cities



HPE’s Citizen Centric & Outcomes Driven Approach



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Future Cities: Citizen Centric & Public Value Outcome Oriented

- Rapid & Proactive Policy to Program
- Joined Up and multi-agency
- "Tell Us Once"
- Shared Assets
- Agility & Resilience
- Public Value Focus

- Pervasive Connectivity
- New Business Models

- Performance Management & Outcomes Tracking
- Infra for competitive advantage

- Channel Choice
- Private & 3rd Sector Services
- Citizen & Community Engagement
- Innovation & Co-design
- Deep Citizen Insights
- Data Privacy & Security
- Accelerators & Incubators

Policy & Ops
- Compression of planning cycle
- Capex to Opex shift
- "Tell us Once" → joined up government
- Multi-channel, mobile, cloud enabled

Solutions and SP's
- Content, applications and channels
- Mature As a Service offerings providers
- Government accredited service providers
- Private service delivery centers in emerging markets

Innovation
- Design Thinking
- Rapid development/fail fast approaches
- Citizen engagement in services innovation

Platforms
- Open Data, Open Innovation
- Platforms - Social Innovation, Open Innovation, Citizen Self Help

Business Models
- Broad, multi-industry/sector teams
- Risk and reward sharing models, usage-based models
- Usage based revenue models

Landscape: Asymmetric and Disruptive

CONSULTING	INFRASTRUCTURE	CONTENT & CONNECTIVITY	INNOVATION & AAS
Deloitte. Capgemini CONSULTING. TECHNOLOGY. OUTSOURCING nexGen group	ferrovial THALES LARSEN & TOUBRO	vodafone BT Google du	BRIDJ CAPITA Next Drop
URBAN PLANNING, FINANCING	**RESOURCE MANAGEMENT**	**IT INFRA & SOLUTIONS**	**SYSTEMS INTEGRATORS**
ARUP Foster + Partners citi MACQUARIE BANK YES BANK	PHILIPS SIEMENS Schneider Electric GE	Microsoft IBM CISCO SAP Socrata	accenture IBM TATA TATA CONSULTANCY SERVICES

DISRUPTIONS

- DESIGN BOUNDARIES ARE SHIFTING
- ICT BEING EMBEDDED AT VERY EARLY STAGES
- TRANSFORMATION, RISK MANAGEMENT, OPS BECOMING KEY
- CUSTOMERS VALUING AGILITY, INNOVATION
- CONTENT & TRANSACTION PLATFORMS EMERGING
- BUSINESS MODELS ARE CHANGING RAPIDLY

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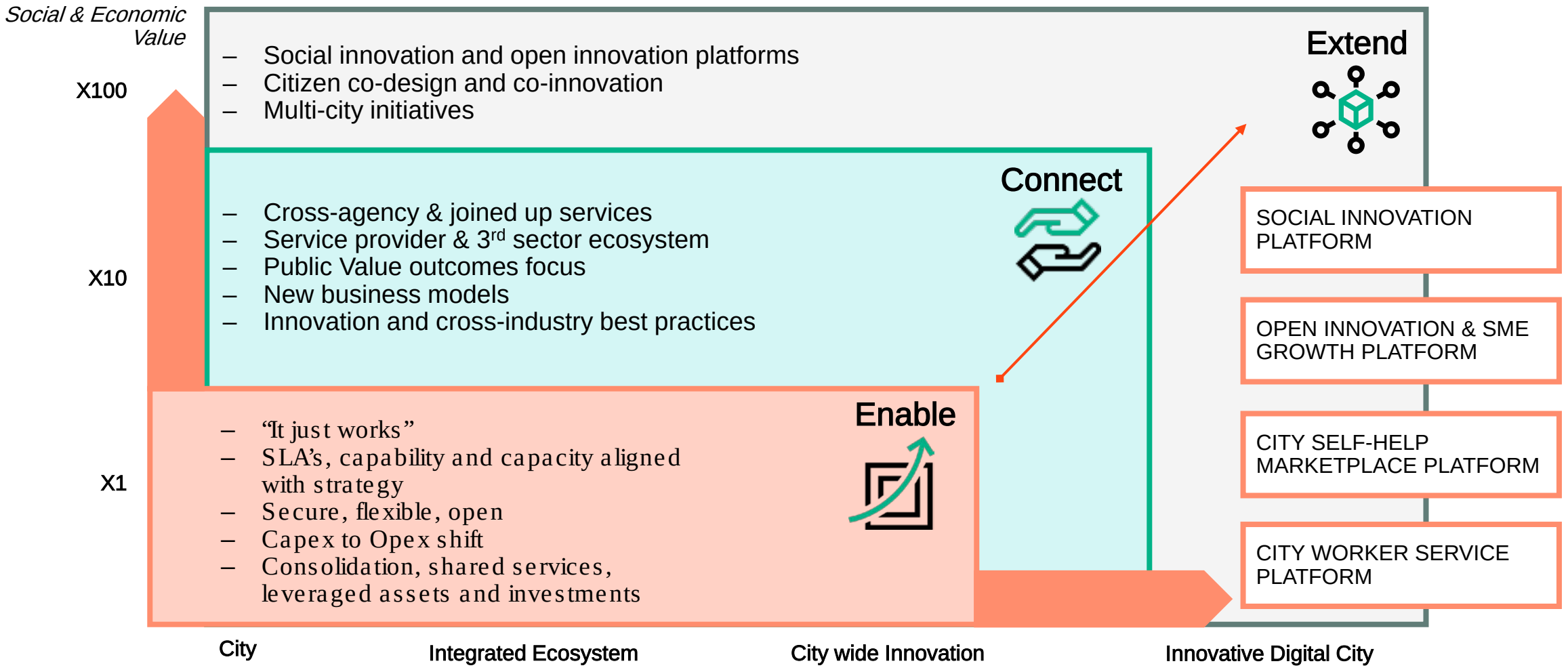
Transformation Partner For A Future City:
HPE Addresses A Critical Gap



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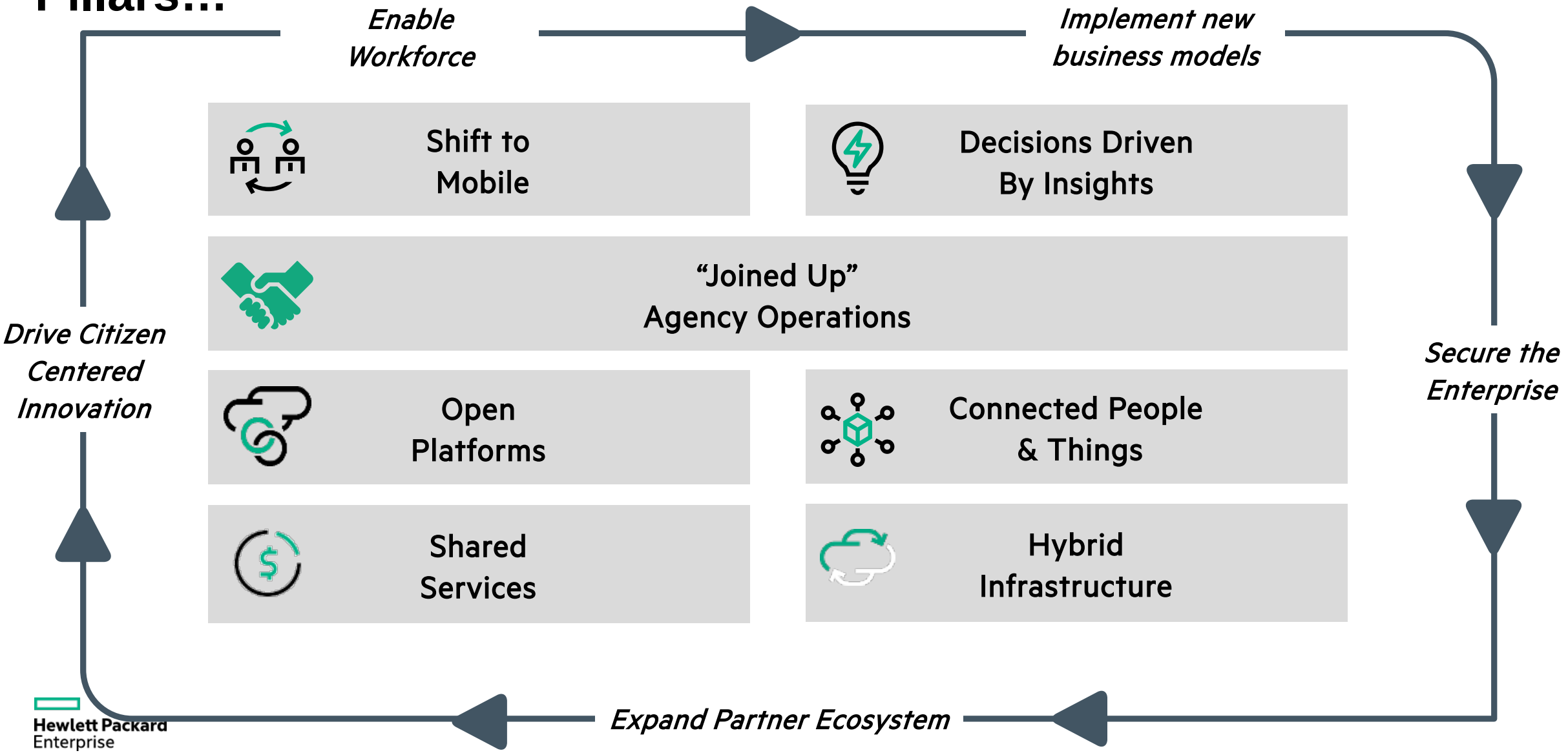
HPE: A Leader In The Foundational Information Technology Pillars…



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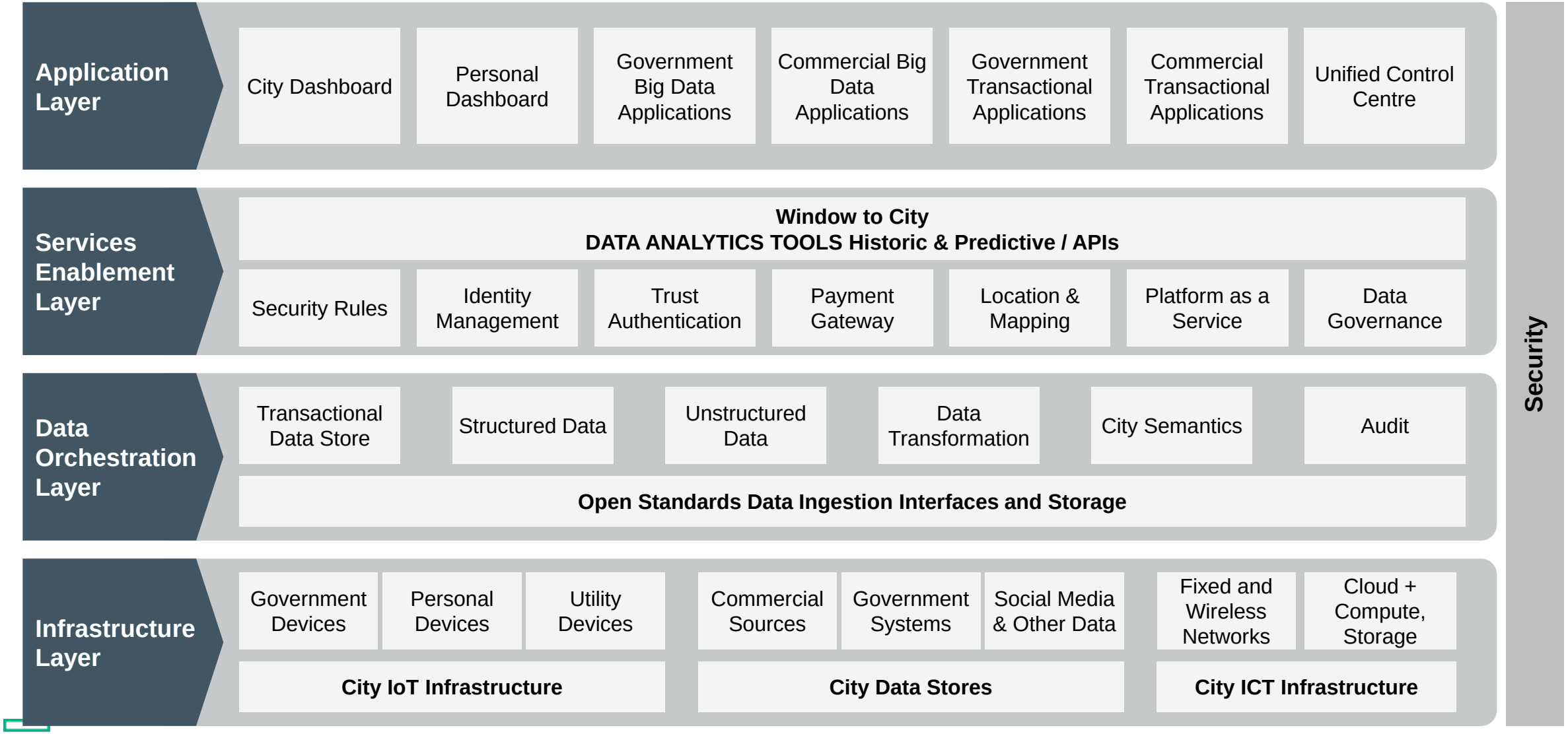
Future City Architecture



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Our Approach: Shared Ambitions and Benefits for All Partners & Stakeholders

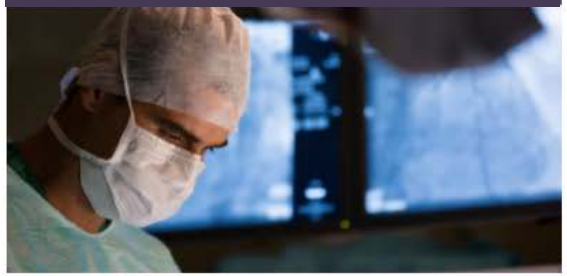
Creators
Device or equipment

- Optimize design, operations
- Improve field performance
- Increase customer value

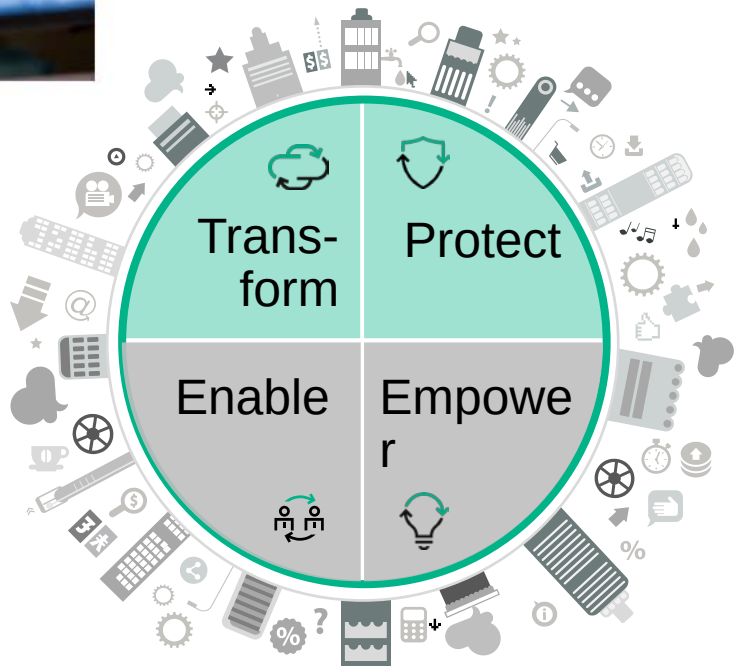
Enablers
Platform providers

- Differentiate and out-compete
- Increase customer value
- Generate new revenue

Operators
Solutions or “things”



- Increase revenue
- Optimize operations
- Reduce operational risk
- Improve productivity



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Smart City Mission India- overview

Smart City Mission:	Smart Cities Mission (http://smartcities.gov.in/content/) is an urban renewal program by the Government of India with a mission to develop 100 cities across the country making them citizen friendly and sustainable. The Union Ministry of Urban Development is responsible for implementing the mission in collaboration with the state governments of the respective cities. MoUD is using the 'Challenge' or competition method to select cities for funding- 90 cities have been approved till now.
Financial Outlay:	A total of ₹980 billion (US$15 billion) has been approved by the Indian Cabinet for development of 100 smart cities and rejuvenation of 500 others. ₹48,000 crore (US$7.1 billion) for the Smart Cities mission and a total funding of ₹50,000 crore (US$7.4 billion) for the Atal Mission for Rejuvenation and Urban Transformation (AMRUT) has been approved by the Cabinet. First batch of 20 cities selected will receive central assistance of US$30 million each during the first year followed by US$15 million per year over the next three years. The remaining money has to come from the states, urban bodies and the consortium that they form with corporate entities. The execution is through formation of city **Special Purpose Vehicle (SPV).**
ICT RFP's:	Some cities are releasing RFP's covering point solutions (eg Smart Pole RFP's- Bhopal) while many are releasing mega RFP's including either all or many of the following components – city wide fibre, Surveillance, Command and Control Center , City Dash Boards/Mobile Apps, City ERP, Analytics , Smart Solutions for Utility, waste management, Lighting etc, Citizen Portal , Analytics,, Data Centre Build, Server, Storage, Network And Public WiFi
Projects:	Approved projects https://smartnet.niua.org/smart-cities-network

Total Winning Proposals	Total Urban Population Impacted	Total Cost of Projects (₹ Cr.) *(Including Other Cost - O&M, Contingency, etc.)*
90	**95,955,046**	**189,256**

ILLUSTRATIVE LIST

Smart Solutions

E-Governance and Citizen Services

1. Public Information, Grievance Redressal
2. Electronic Service Delivery
3. Citizen Engagement
4. Citizens - City's Eyes and Ears
5. Video Crime Monitoring

Waste Management

6. Waste to Energy & fuel
7. Waste to Compost
8. Waste Water to be Treated
9. Recycling and Reduction of C&D Waste

Water Management

10. Smart Meters & Management
11. Leakage Identification, Preventive Maint.
12. Water Quality Monitoring

Energy Management

13. Smart Meters & Management
14. Renewable Sources of Energy
15. Energy Efficient & Green Buildings

Urban Mobility

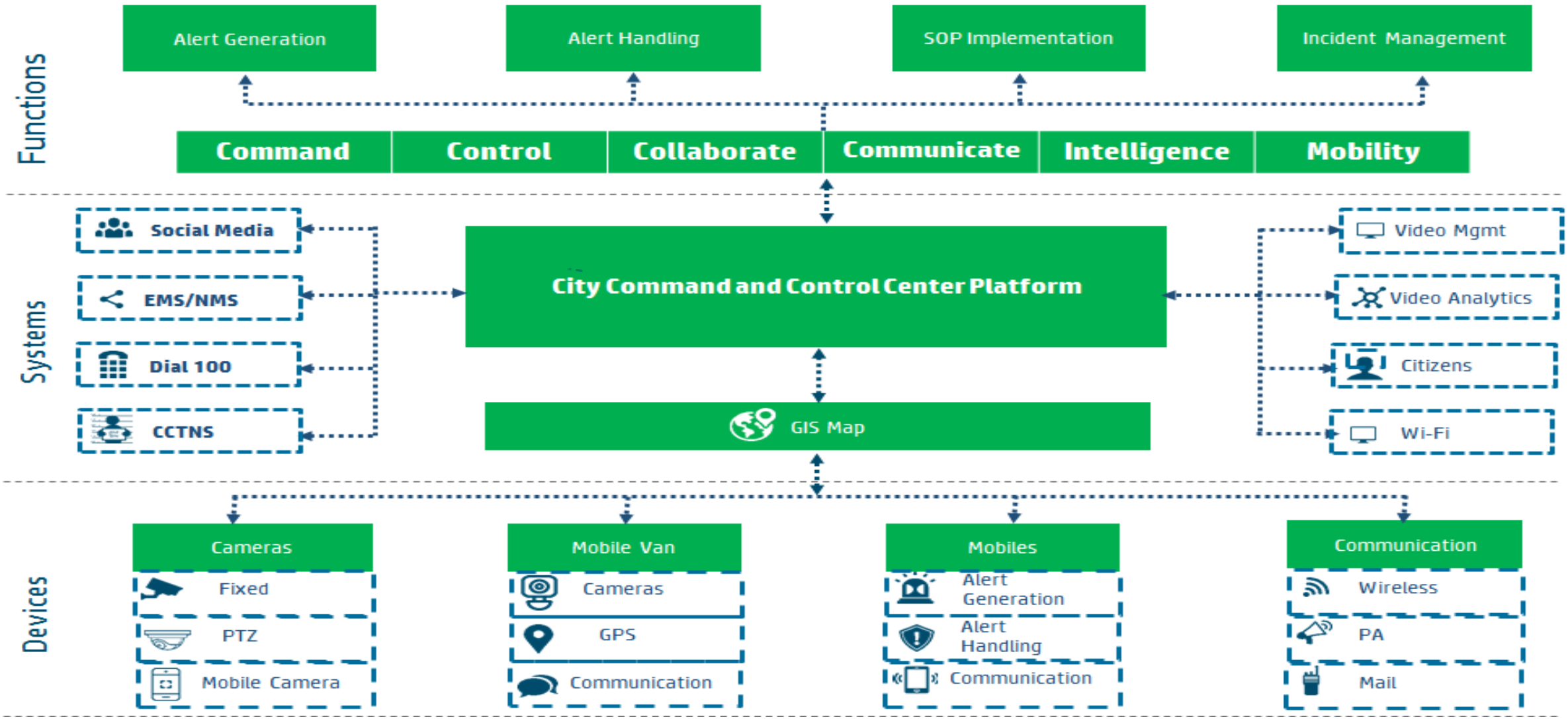
16. Smart Parking
17. Intelligent Traffic Management
18. Integrated Multi-Modal Transport

Others

19. Tele-Medicine & Tele Education
20. Incubation/Trade Facilitation Centers
21. Skill Development Centers

Source: MoUD

City Command and Control center Architecture – External / Logical View



Future Cities and IoT

Government Agencies Have A Number of IoT Use Cases

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Healthcare

Optimize healthcare delivery using medical devices and wearables

Water, Utilities

Make more informed decisions, protect city's water supply and prevent water waste

Industry

Enable easier tracking of transport and logistics flows, not only for one industry, but multi-industry (e.g., retail, oil, shipping, etc.)

Lighting

Save time for maintenance crews and **save fuel costs**– from driving around town to find and replace broken bulbs

Environment

Monitor air quality, pollution and other weather conditions such as temperature and humidity

Location/context based services

Provide real-time event info; leverage GPS locations and combine with the user profiles to find a suitable parking spot

Traffic

Optimize traffic flow using traffic signals, the number of vehicles and pedestrians

Parking & Transportation

Better utilization of assets, parking spaces and enforcement staff, through real-time parking availability info

Citizen Safety

Proactive and timely interventions across government agencies. Rapid and integrated response to events.

Buildings

Optimize building electricity usage with motion sensor lights which can dim or shut off when a room is empty

Managing Complexity Requires A Platform Approach

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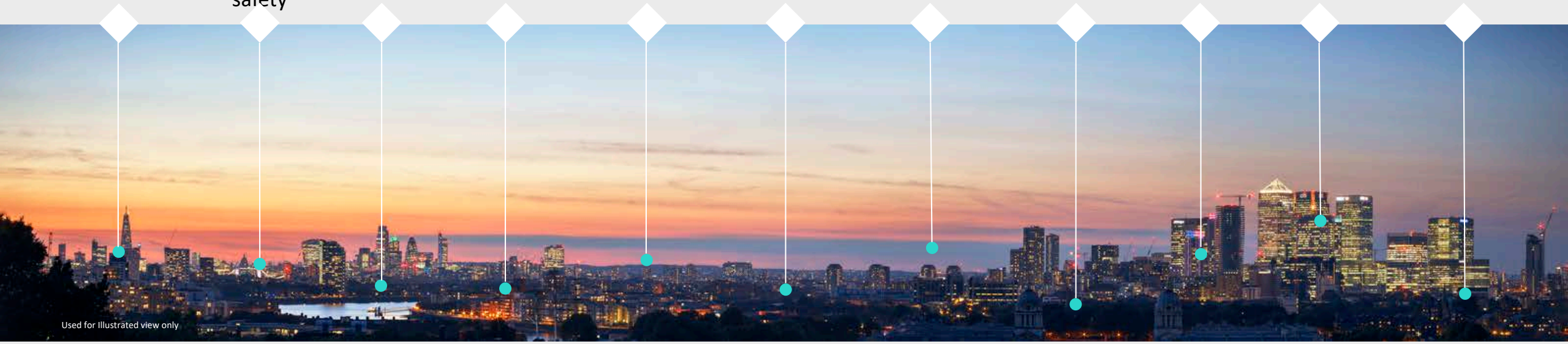
HPE Universal IoT Platform

Smart metering
Personal safety
Video surveillance
Driving behavior
Public facilities
Fleet Management
Environmental sensing
Waste Management
Fire detection
Smart lighting
Smart parking



Connectivity & connected objects

Aggregation and Computing for Trend Analysis

Data reporting, Control mechanisms

Operations and Financials

Innovation / new services

HPE UIoT Platform
Solution Architecture – With an Integrated Partner Ecosystem

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Enterprise Applications / Use Cases

Smart Parking (IEM)	Smart Waste Management (BH Technologies)	Connected Car (IAV)	Smart Fleet Management (Trinetra)	Smart Safety / Track & Trace (ATrack)	Smart Environment / Transportation (Sens'it)	Smart Manufacturing / Factory (ARM)	Smart Supply Chain / Factory (GPAS)

Data Service Cloud (DSC)

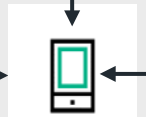
- Device & Service Management (DSM)
- Data Analytics (DA)
- Data Acquisition & Verification (DAV)
- Back Office Systems
- CMP
- Network Interworking Proxy (NIP)

Cellular

Track & Trace

Connected Vehicle

Wi-Fi



Android App

MS Band 2 (Wrist band)

LPWAN

Sigfox | LoRa

Temp., Humidity, Etc.

Ground Humidity

Temp & Humidity

Smart Parking

Waste Management

Satellite

Precision Ag (Connected Plantation)

Fixed Line

ARM mbed

Smart Environment (Smart Manufacturing)

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Thank You