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DEVELOPMENT OF ICT CONFERENCE AND EXHIBITION (DICE)

HOW SMART SUSTAINABLE CITIES CAN LEVERAGE THE POWER OF AI?

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SMART CITIES HELP ADDRESS CORE CHALLENGES

Enhance resilience, sustainability, & quality of life …

Source: Smart cities: Digital solutions for a more livable future- McKinsey Global Institute
https://www.mckinsey.com/industries/capital-projects-and-infrastructure/our-insights/smart-cities-digital-solutions-for-a-more-livable-future

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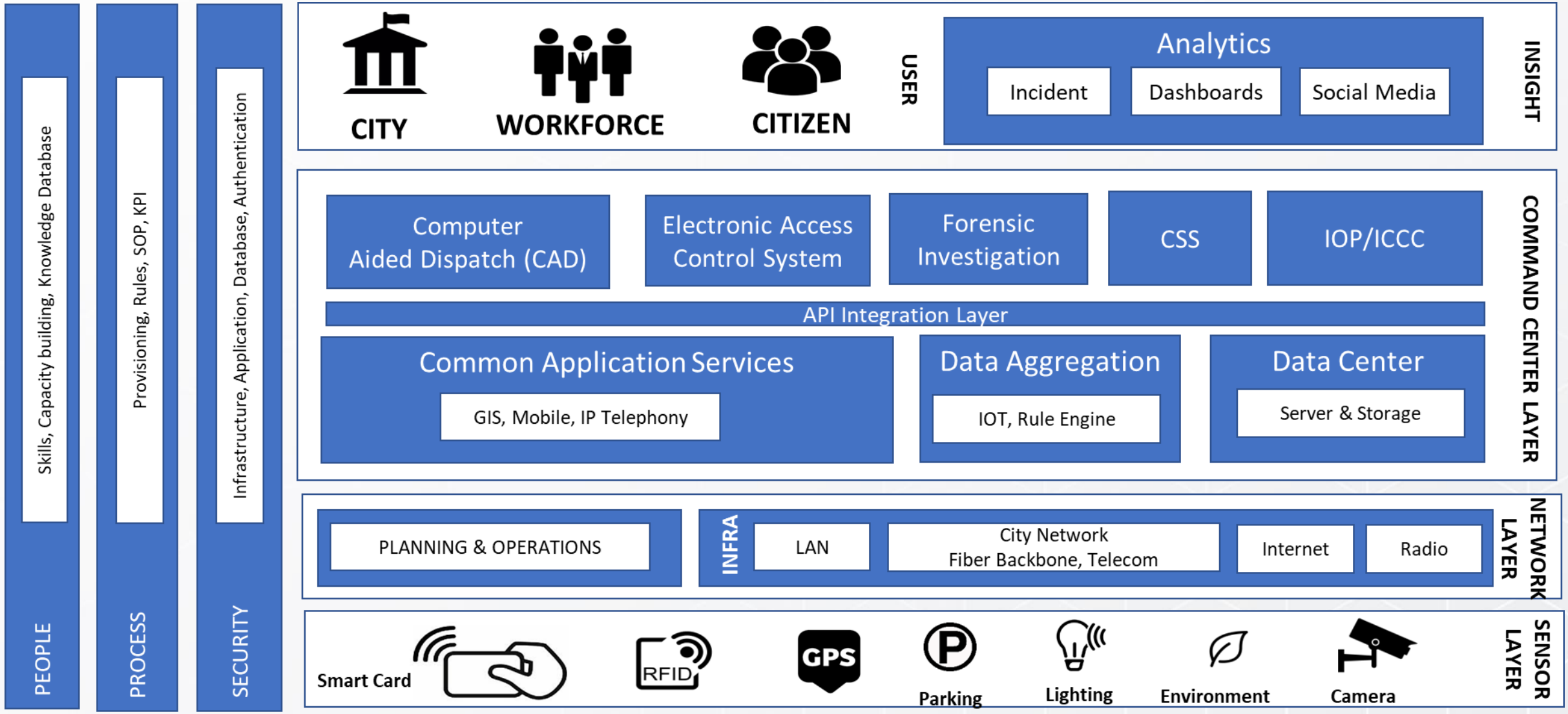
SMART CITIES FRAMEWORK



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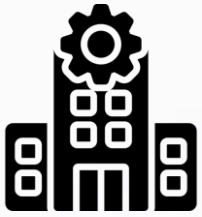
SMART CITIES PILLARS



	Infrastructure Management	Mobility	Sustainability	Public Safety	Citizen Experience
High Quality of Life Residents, Visitors and Investors	Command & Control Centre	Traffic Flow Analysis	Energy Savings	AI Video Analytics	Citizen App and Portal
Data Driven Insights and Intelligence	City 3D Model-Digital Twin	Smart Mobility & Transportation	CO2 Reduction	PSIM for Security Operations	Developer and Property App
Efficiently and sustainably run the city operations	Agile Integration	Smart Parking			Digital Human Ambassador
Safe and Liveable City	Cyber Security				

Unified Assets Operation Platform	City Brain (AI)	Data Platform	API Platform
City Wide ICT WAN			

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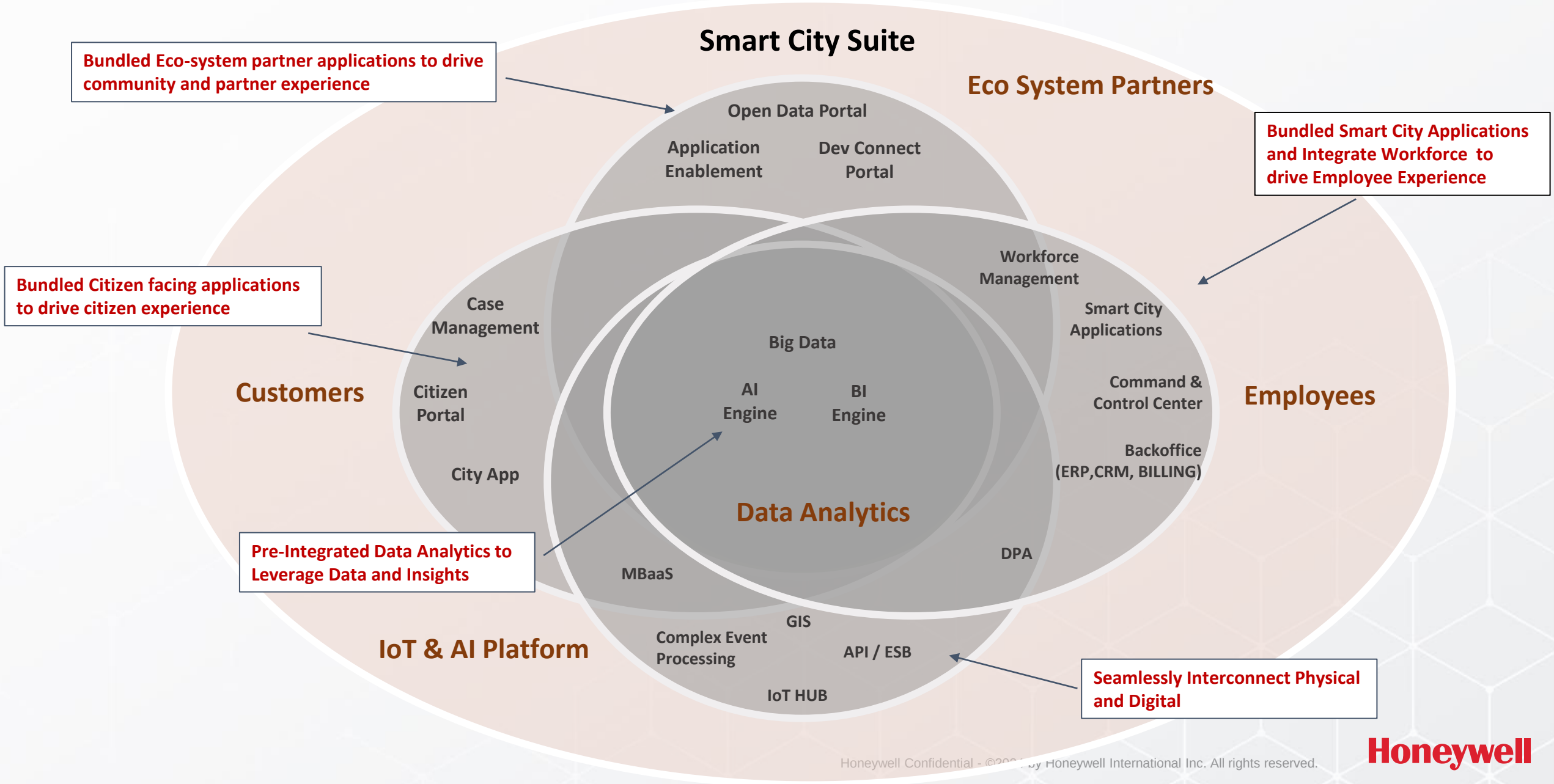
SMART CITIES DIGITAL PLATFORMS



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IOT DIGITAL PLATFORM

Data Integration

Seamlessly Integrate any Sensor and Application Systems using advanced technologies – IoT and APIs and deliver real-time visibility.

Data Processing

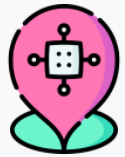
Complex Event Processing (CEP) engine to process the data in real time and create alarms, detect anomalies and digitalize workflows.

Data Management

Hadoop Big Data based Data Lake to store and manage structured, semi-structured and unstructured data.

Digital Process Automation

Inbuilt Engine to automate workflows and digitalize the business process



Location Intelligence

Pre-Integrated Location Intelligence engine for Geo-Spatial capabilities and integrate with any Map Services

Business Intelligence

Pre-Integrated Business Intelligence system with capabilities - Data Warehouse, ETL, Analytics and Visualization.

Cyber Security Management

Pre-Integrated Identity and Access Management system for Device, Application and User level security.

Low Code Tools

Out-of-the-box tools with domain templates for Data Integration, configure rules, dashboards and Digitalize Workflows.

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AI PLATFORM

AI Engine

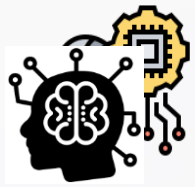
Pre-Integrated AI Environment for Machine Learning including Deep learning capabilities to deliver advanced analytics.

Machine Learning

Pre-Trained Models and Pipeline to solve Smart City domain specific problems and enable decision-making to deliver more intelligent and personalized services to users.

ML Composer

Low Code Tool based approach of ML environment to easily train, build and deploy machine learning models



Cognitive AI

Contextualize & deliver Real-Time inference dynamically based on the changing needs and behaviors of users and urban systems to deliver rich experience

Conversational AI

Natural Language Processing(NLP) Engine to deliver Virtual Assistance through ChatBoT, HumanBoT which can be embedded in Mobile Apps and Portal.

AI Apps

Pre-packaged AI apps leveraging the AI capabilities across Smart City Domains.

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DELIVER DIGITAL EXPERIENCE TO EMPLOYEES

Integrated Command and Control Center

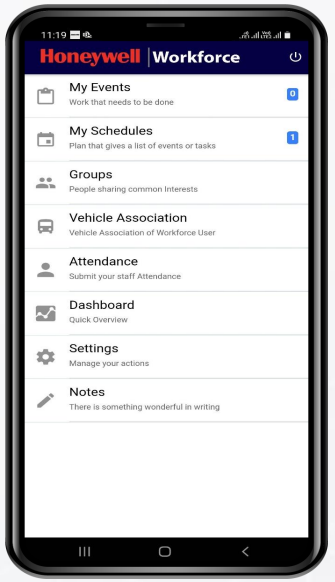
Unify the data from various system and create a common operating picture for Intelligent Operations.

Incident Management

Manage the alarms and automate the SOP execution for various types of alarms

Dashboard and KPI

KPI Driven domain specific dashboard templates which can be personalised for every customer



Mobile First

Integrate the Digital Platform and back-end application systems through Mobile Backend as a Service and enable Mobile Apps based digital service.

Unify the Workforce

Unify workforce and Optimise efficiency through a Work Force Management System and enable real-time insights to carry-out field operations efficiently.

Workforce App

One Mobile App for all in-line departments user to provide real time insights to the incidents for taking actions faster.

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INDUSTRY DOMAIN APPLICATIONS

Smart Infrastructure

ICCC- Command and Control Center
Build Intelligent Operations Center by Seamlessly Integrating various urban and community system, digitalize the processes and automate the operations to improve the safety and quality of living

Energy

LIGHTING – Street Light Management system
Manage and Optimize the Energy Consumption of Street Lights

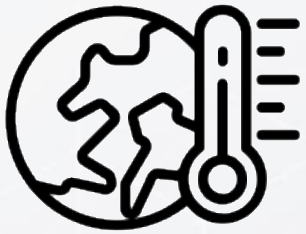
Urban Mobility

ITS - Public Bus Transit System
Manage Fleet Schedules and Deploy Realtime Passenger Information system for Commuters

PARKING - Smart Parking Management System
Manage parking facilities , optimize revenue and provide Realtime parking services

Traffic - Smart Traffic Monitoring System
AI Application for Traffic Flow Analysis

Mobility - Smart Mobility Transportation System
AI Application for Traffic Flow Analysis



Smart Environment

SWM – Solid Waste Management
Manage Solid Waste Collection and Monitor Green House Gas Emissions.

SUSTAIN– Sustainability Manager
AI Application to Measure , Monitor and Report Sustainability for Energy Savings & CO_2 Reduction

Water– Smart Water Management System
Analyze water consumption and detect any damage or leakages in real time.

Irrigation– Smart Irrigation Management System
Monitor and control irrigation water delivery network to optimize water delivery to green spaces / areas to reduce over-watering and enable leak detection.

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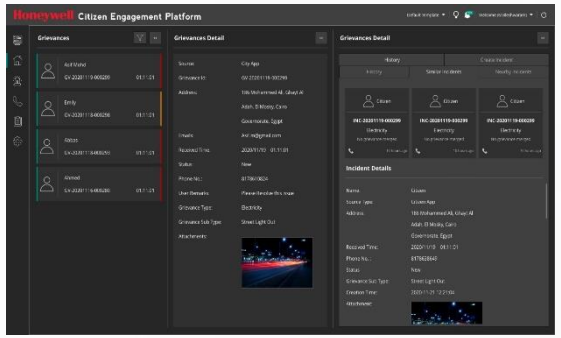
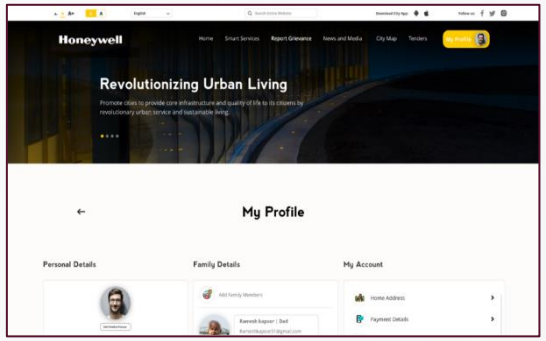
CITIZEN EXPERIENCE



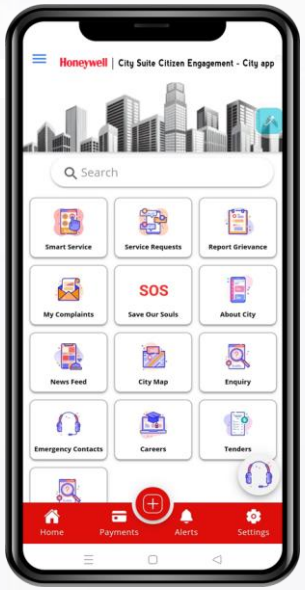
Case Management System

Omni-Channel case management system to field, manage and coordinate Citizen/ Residents/ Visitors grievances and deliver exemplary services.



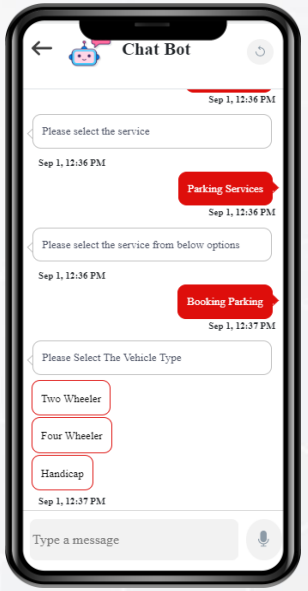
Citizen Web Portal

Web-portal to provide online interface for Citizen/ Residents/ Visitors to digitally avail services, manage grievances and navigate urban spaces.



Citizen App

A super app that helps citizens/residents/visitors to navigate the urban space, avail civic and community services digitally.



ChatBot

Conversational AI Capability integrated with Mobile App/Portal

HumanBot

Personalize the experience through Digital Human Avatar

Digitalize services facing Citizens to avail civic services digitally and navigate the urban space efficiently

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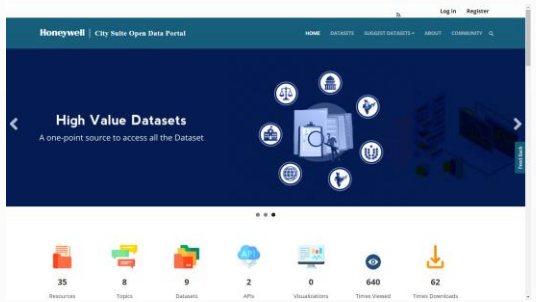
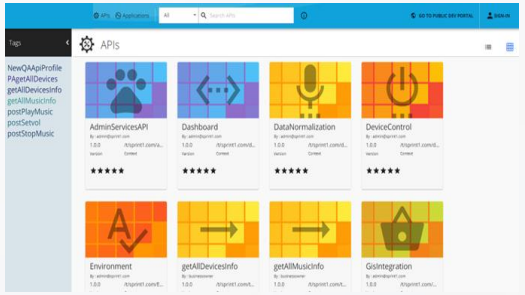
PARTNER EXPERIENCE



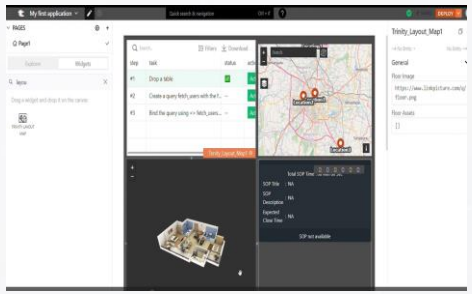
Open Data

Share the data with the Eco-system and community to consume the data and build third party solutions and improve the capability to deliver digital services



Partner Portal

Enable a seamless experience for Partners to integrate their offering – devices/sensors and applications to build the digital infrastructure



Application Enablement Tool

Low Code Tool for Third party to build Applications leveraging the Digital Platform capabilities and enhance the capability of the offering

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COMMAND CENTER OPERATIONS EXPEREINCE

3 /4 Screen Operation
Easy and Quick situation Awareness

Alert & Event Management
Alarm Notification, Validation, Handover, Grouping & Event Management

Digital Twin based Immersive Experience
Fully Integrated with Digital Twin for an immersive experience

GIS location intelligence
Fully Integrated with City Map, Points of Interest and Real Time Locations.

Video/Camera Visualization
Common operating picture on videowall for viewing during special events/emergency

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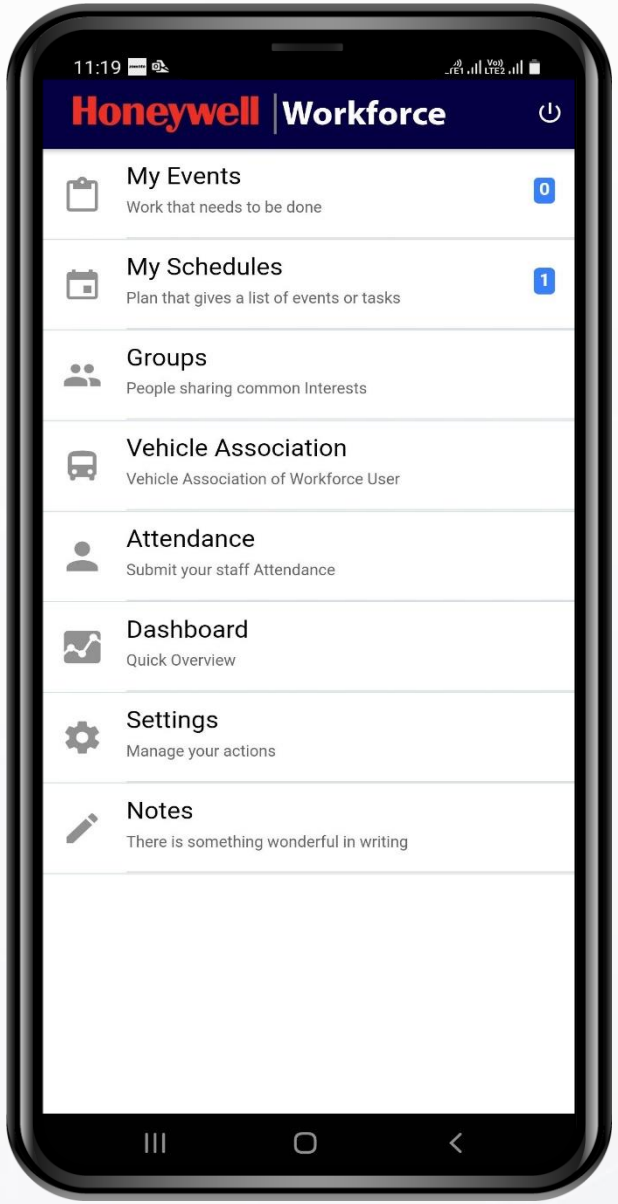
EMPLOYEE EXPERIENCE - WORKFORCE



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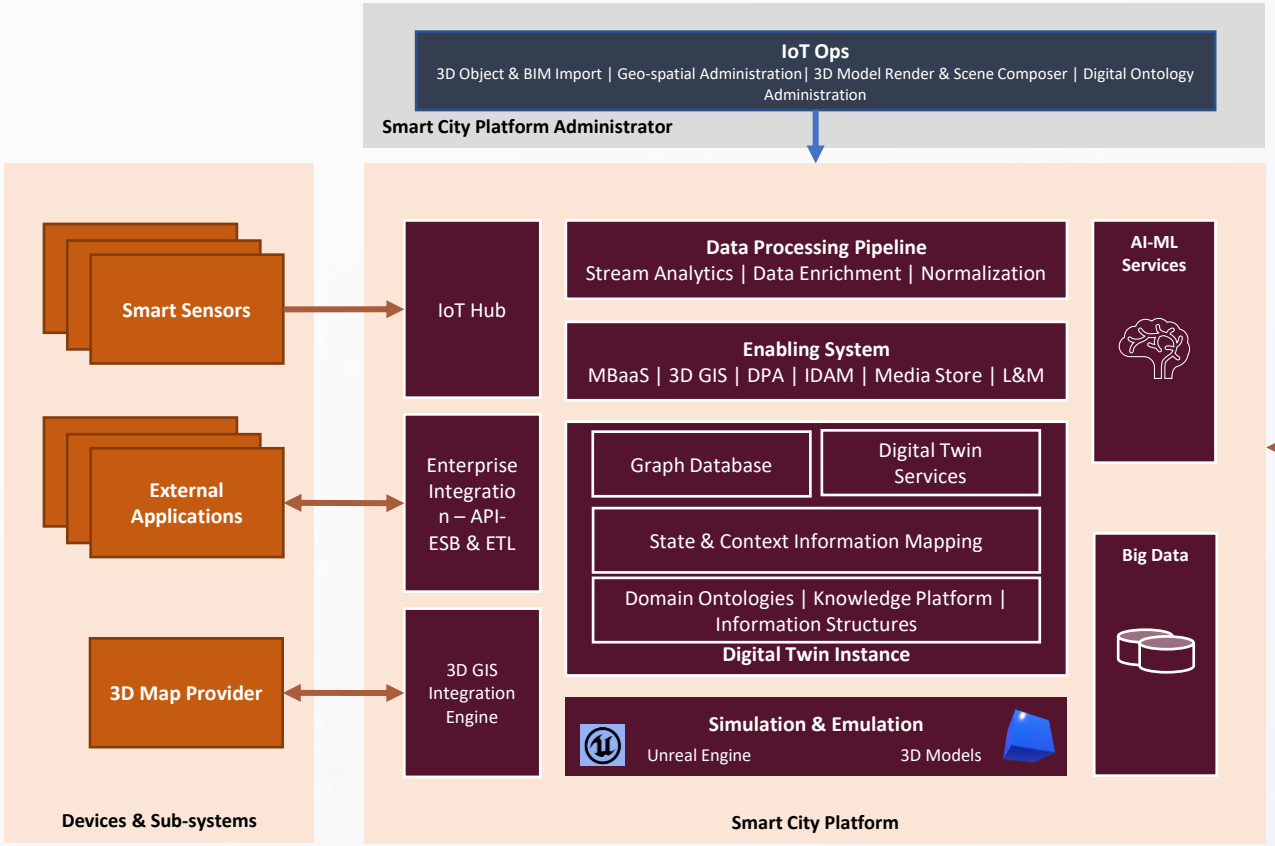
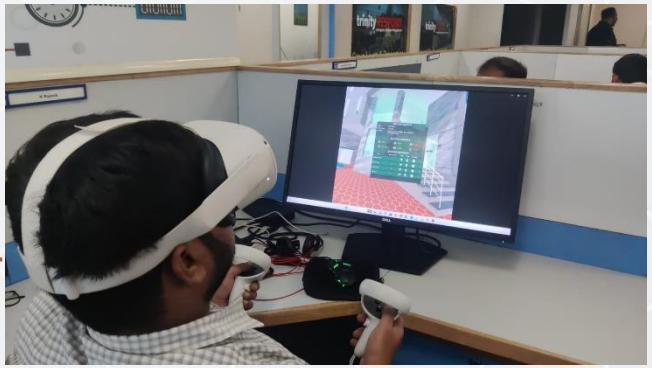
DIGITAL TWIN

Integrated with Command Centre to Provide Immersive Experience



Building Twin

Community Twin



AR with Speech

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THE ROLE OF AI IN SMART CITIES

THE ROLE OF AI IN SMART CITIES
OPEN DISCUSSION SESSION

What is ML?

ML stands for Machine Learning, which is a subset of AI and focuses on training computer systems to learn from data and make predictions or decisions without being explicitly programmed.

What is AI?

AI stands for Artificial Intelligence, which refers to the development of computer systems that can perform tasks that would typically require human intelligence.

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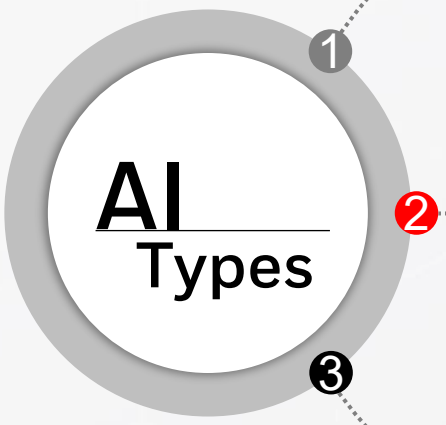

NARROW AI

- Also known as Weak AI
- Designed for a specific task or a narrow set of tasks
- Examples include virtual assistants like Siri or Alexa, as well as chatbots for customer support

GENERAL AI

- Also known as Strong AI, (Artificial General Intelligence or AGI)
- Possesses human-like intelligence and can understand, learn, and apply knowledge across a wide range of tasks
- AGI is still largely a theoretical concept and does not currently exist in practical applications

SUPER INTELLIGENT AI

- A hypothetical level of AI that surpasses human intelligence in all aspects.
- Often a topic of debate and concern in the field of AI ethics and safety

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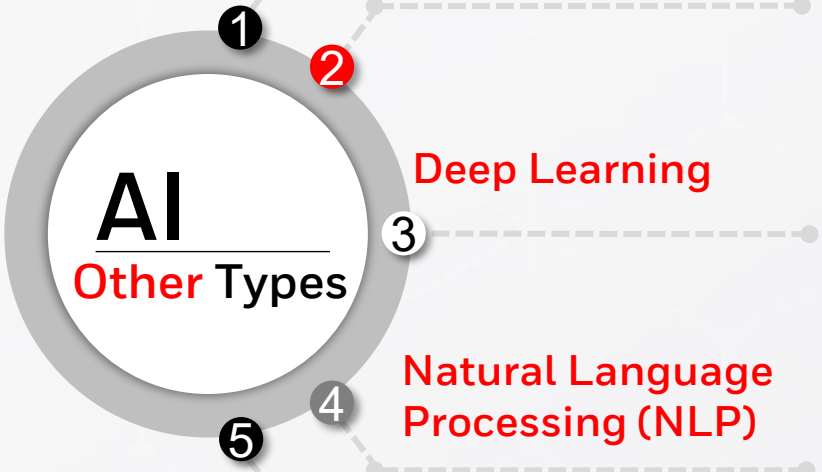

Reactive Machines

- These AI systems are designed to perform a specific task without learning or adapting over time. They operate based on pre-defined rules and do not have the ability to improve through experience

Machine Learning (ML)

- ML is a subset of AI that focuses on the development of algorithms that can learn from data. It includes subtypes like:

  1 Supervised learning 2 Unsupervised learning 3 Reinforcement learning

Deep Learning

- A specific type of machine learning that uses artificial neural networks to model and solve complex problems. Deep learning has been particularly successful in tasks like image and speech recognition

Natural Language Processing (NLP)

- AI systems designed to understand, interpret, and generate human language. NLP is crucial for applications like chatbots, language translation, and sentiment analysis

Computer Vision

- AI that enables computers to interpret and understand visual information from the world. It's used in facial recognition, object detection, and autonomous vehicles

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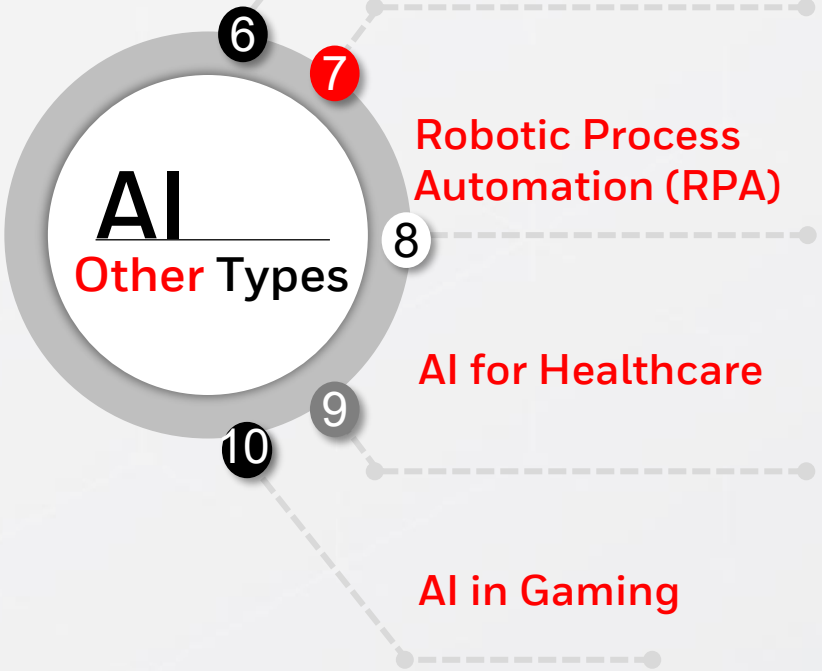

- AI systems that emulate the decision-making abilities of a human expert in a particular domain. They use a knowledge-base and inference engine to make recommendations or solve problems
- AI systems that can operate independently and make decisions without human intervention. These are used in autonomous vehicles, drones, and industrial automation
- AI designed to automate routine, rule-based tasks in business processes. RPA can increase efficiency by performing tasks such as data entry and data extraction
- Specialized AI applications in the healthcare industry, including medical diagnosis, drug discovery, and health monitoring
- AI systems that play video games autonomously, like DeepMind's AlphaGo and AI opponents in video games

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SMART CITY MAIN PILLARS

SUSTAINABILITY

- Energy Management
- Waste Management
- Urban Greening

CITIZEN ENGAGEMENT

- Chatbots for Citizen Services
- Community Feedback Analysis
- Smart Community Apps

AI
Use Cases

PUBLIC SAFETY

- Predictive Policing
- Emergency Response Optimization
- Anomaly Detection for Infrastructure

MOBILITY

- Traffic Management
- Public Transportation Optimization
- Parking Solutions

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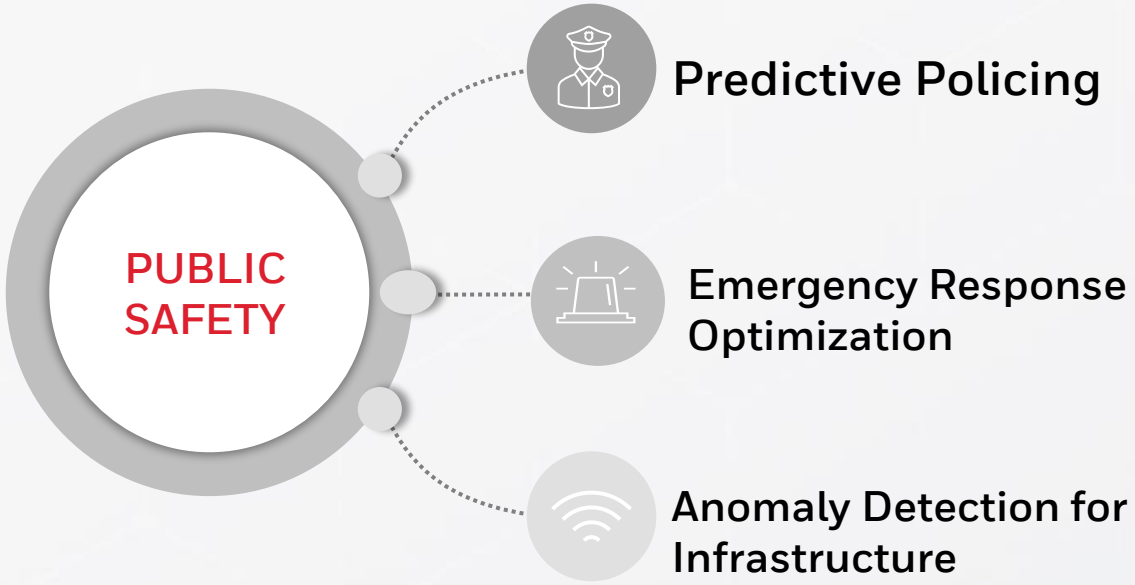

AI can analyze historical crime data, weather patterns, and other relevant information to predict areas with a higher likelihood of criminal activity. Law enforcement agencies can then deploy resources more efficiently to prevent crime.

AI-powered systems can monitor and analyze real-time data from various sensors, including traffic cameras and gunshot detection systems. In case of emergencies, such as accidents or gunshots, AI can quickly alert first responders and optimize their routes to reach the scene faster.

AI can continuously monitor critical infrastructure like bridges and buildings. It can detect anomalies in structural integrity through data from sensors and sound analysis, alerting authorities to potential safety hazards before they become critical.

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AI can optimize energy usage in public buildings, street lighting, and traffic management systems. It can analyze data from IoT sensors to ensure efficient energy consumption, reducing costs and environmental impact.

AI-powered waste management systems can optimize trash collection routes based on real-time data about bin fill levels. This reduces fuel consumption, traffic congestion, and greenhouse gas emissions.

AI can help identify suitable areas for urban greening projects, such as the creation of parks and green spaces. It can analyze land use data, climate information, and citizen preferences to enhance sustainability and livability.

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AI-powered traffic management systems use real-time data from cameras and sensors to optimize traffic flow. They can adjust traffic signal timings and provide route recommendations to reduce congestion and improve traffic flow

AI can enhance public transportation by predicting demand, optimizing routes, and adjusting schedules in real time. This makes public transit more efficient, reducing waiting times and encouraging its use

AI can help drivers find available parking spaces in real time using mobile apps and smart parking systems. This reduces traffic congestion, fuel consumption, and frustration while looking for parking

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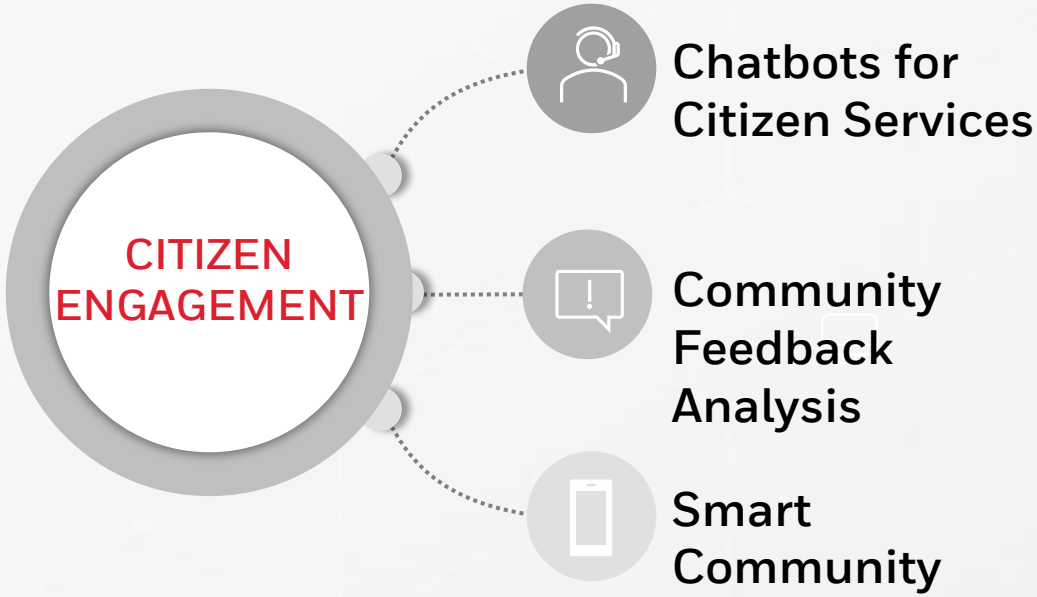

AI-powered chatbots can assist citizens in accessing public services, answering questions, and providing information 24/7, enhancing citizen engagement and satisfaction

AI can analyze social media and online forums to understand citizen sentiment and identify community concerns. This data can inform city decision-makers and lead to more responsive governance

AI can support the development of community apps that offer services such as reporting issues, paying bills, and accessing local news and events, making it easier for citizens to interact with the city government

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CASE STUDIES

Greenfield Smart City in META Region

- New administrative and financial capital
- Home for 8Mn population
- Area will expand over 700Km2

Digital Transformation of city and delivering digital experience to Citizen and Employee by integrating core process of Metering, Electric Distribution, Parking, Street Lightings and Buildings

HCS 's Single Suite Software

- City Operation Centre
- Mobile workforce Management
- Citizen Engagement
- AI & BI Applications
- Smart Grid with OMS
- Meter Data Management

IOT & AI PLATFORM

Scale of operations

Video Surveillance	ANPR Camera	Water Meter	Gas Meter	Electricity Meter	Smart Lights
25000+	5000+	700000+	700000+	700000+	100000+

Solution highlights

- City Operations Centre to Connect & Monitor
- Integration to multiple in line Department Services – Gas, Water & Electricity to increase availability and manage operations
- Automate Parking Slot Assignment & Street Light Scheduling
- Using advanced analytics & AI for leakage management, outage management & grid reliability
- Workforce App to Integrate Department Workforce and provide them Insight
- Citizen Engagement to transform civic service delivery

Safe City Project for Indian Metro City

- Home to 12.5 Mn population
- Second fastest-growing metropolitan city in India

Digital Transformation of Public Safety Services and providing public safety to the citizen, visitors and business

HCS 's Single Single Software

- CAD
- Command and Control Center
- Mobile workforce Management
- AI & BI Applications
- Social & Crime Analytics

Scale of operations

Camera	Call Takers	Police Vehicles	Dispatcher	Police Station Users
1000+	70+	750+	10+	150+

Solution highlights

80%
Reduction in response time for call handling

40%
Reduction in time for case creation & dispatch

33%
Reduction in response time for field response to reach

Multi channel integration for citizen-: social media, telephony, SOS Panic App

First responder app to facilitate quick response to emergencies

Predictive Policing to optimise police resources and cut down crime

Video Analytics to detect offenders – persons OR vehicles of interest and respond faster in real time

Nationwide Emergency Response System in APAC

- Home to 7.5 Mn population
- Major global financial centre and one of the most developed cities in the world.

Digital Transformation of Emergency Service for Police to deliver public safety.

HCS 's Single Suite Software

CAD

AI & BI Applications

Mobile workforce Management

IOT & AI PLATFORM

Scale of operations

Tetra	Call Takers	Police Vehicles	Dispatcher
5000+	800+	5000+	600+

Solution highlights

- Deployed National emergency helpline number for the Country
- Integrated call for service through telephony
- Platform integrates the Dial 999 "call for service" for Emergency Response - Police and Fire
- Application is Integrated to centralized case management system
- First responder app to facilitate quick response to emergencies

Early Warning & Disaster Management For Coastal State in India

- Prone to Multiple Disasters
- Home for 34 Mn population
- Area will expand over 39K Square Km

Digital Transformation of Early Warning and Disaster Management services and enabling state authorities to prepare, respond and recover from multi hazard disasters

HCS 's Single Suite Software

- Early Warning System
- Situation Management
- Citizen Engagement
- AI & BI Applications
- Mobile workforce Management

IOT & AI PLATFORM

Hazard Types Integrated

Weather | Flood | Cyclone | Tsunami | Earthquake | Drought

Data Sources Integrated

IMD | SKYMET | IBM | SEISMO | INCOIS

Solution Highlights

- Seamlessly connect , monitor and analyze Hazardous data from systems
- Mass notification system to disseminate information
- 360° Degree situational awareness to coordinate response and recovery
- Ai-based early warning system for disaster management

Smart Community in META Region

- Smart Community Solution implementation for a Greenfield Community
- Focus on four smart pillars – Mobility, Sustainability, Safety & Wellness and Community

Digital Transformation of community and delivering digital experience to the residents and monitoring of the community through Integrated Command and Control Centre

HCS 's Single Suite Software

- City Operation Centre
- Mobile workforce Management
- Citizen Engagement
- AI & BI Applications
- Solid Waste Management
- Intelligent Transport System

IOT & AI PLATFORM

Smart Pillar- Use Cases

Solution Highlights

Integrated Operation Centre for Smart Destination Services and Security Operation Centre for security related incidents

Solid Waste Management System for Route Optimization, Dynamic Scheduling, Fleet Management and Integrated Workforce Solution

Integrating transportation solutions to create accessible, equitable and safe multi-modal transit options ensuring safer, faster and easy mobility within the community.

Single window interface dedicated for citizen grievance redressal/ service request handling.

HONEYWELL SMART CITY TEAM

Honeywell