Nigeria Smart City Deployment Drives Digital Economy & Growth
Bring digital technology to every person, home and organization for a fully connected, intelligent world

Huawei's end-to-end portfolio of products, solutions and services are both competitive and secure. Through open collaboration with ecosystem partners, we create lasting value for our customers, working to empower people, enrich home life, and inspire innovation in organizations of all shapes and sizes.

At Huawei, innovation focuses on customer needs. We invest heavily in basic research, concentrating on technological breakthroughs that drive the world forward.

188,000
Employees

80,000+
R&D employees

170+
Countries and regions

68 in
Interbrand's Top 100
Best Global Brands

72 in
Fortune Global 500
Focusing on Smart Devices, Connectivity, Computing, and Cloud; Providing Products and Solutions for Three Customer Groups

Global carriers
- Iconic global technology brand
- Best strategic partner for carriers
- Enabler and preferred partner for digital transformation
- Cloud partner with stable, secure, trustworthy, innovative services, delivering affordable, effective, and reliable inclusive AI.

Global enterprises, governments, and industries

Hundreds of millions of consumers

- Consumer Products & Services
- Carrier Products & Services
- Enterprise Products & Services
- Cloud Products & Services

Information Transmission

Smart devices
- Smartphone
- Wearables
- Smart home devices
- Vehicle-mounted terminals
- Life services for all scenarios

Connectivity
- Wireless networks
- Fixed networks
- Core networks
- Operation support systems
- Intelligent O&M
- Enterprise networks
- IoT networks

Computing and cloud
- Storage and servers
- Data center
- Private cloud
- Video surveillance
- Enterprise communications
- Network energy
- Enterprise EI
- AI platforms
- Big data analytics
- Cloud services

Information Distribution & Presentation

Information Learning and Inference

Information Processing & Storage

LEADING NEW ICT
We Are Entering an Intelligent World

All Things Sensing
Sensing the physical world, mapping it to digital signals
Temperature, space, and touch
Sense of smell, hearing, and vision

All Things Connected
Data goes online to power machine intelligence
Ubiquitous connections, wide connections, multiple connections, and deep connections

All Things Intelligent
Big data and AI power new applications
Digital twins
Digital survival

ICT infrastructure will be the foundation of the intelligent world
Smart Cities Are Booming Around The Globe
Smart Cities Bring Comprehensive Positive Changes

Efficient Municipal Governance

- Social security
- Emergency response
- Utilities management
- Urban planning
- …

High-Quality Public Services

- Public transportation
- Education
- Healthcare
- Government services
- …

Sustainable Economic Development

- Industrial parks
- Tourism
- Logistics
- Agriculture
- …
# Social and Economic Value of Smart Cities

**New jobs**

<table>
<thead>
<tr>
<th>Smart Yanbu in Saudi Arabia</th>
<th>The big data and smart brain supports Saudi Arabia’s Vision 2030.</th>
<th>18% ↑ Investment</th>
<th>18K ↑ Employment</th>
</tr>
</thead>
</table>

**Convenient public services**

<table>
<thead>
<tr>
<th>Smart Longgang in Shenzhen, China</th>
<th>60+ government agencies are integrated to support online applications and single-window service.</th>
<th>50% ↓ Waiting time</th>
<th>29% ↓ Handling efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>About 8% ↑ Travel experience</td>
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</table>

**Public safety**

<table>
<thead>
<tr>
<th>Safe City project in Kenya</th>
<th>Thousands of HD cameras and handheld terminals are used by 9,000+ police officers in 195 police stations in the capital of Kenya.</th>
<th>46% ↓ Crime rate</th>
<th>0 ↓ Incidents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>46% ↓ Major events</td>
<td>0 ↓ Major events</td>
</tr>
<tr>
<td></td>
<td></td>
<td>14% ↑ International tourists</td>
<td></td>
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</tbody>
</table>

**Environmental protection**

<table>
<thead>
<tr>
<th>Smart streetlights in Weifang, China</th>
<th>Over 40,000 LED streetlights are controlled by the IoT platform.</th>
<th>6.8 million kWh ↓ Annual electricity saved</th>
<th>45% ↑ Efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>25% ↑ Lighting rate</td>
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**Healthcare**

<table>
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<tr>
<th>Telemedicine in Henan, China</th>
<th>The world’s largest telemedicine website covers 18 cities and over 130 towns.</th>
<th>120K ↑ Patients every year</th>
<th>CNY1 bn ↓ Cost reduction</th>
</tr>
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<tbody>
<tr>
<td></td>
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<td>97% ↑ Satisfaction</td>
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</table>
Nervous System, Building a Smart City with All Things Sensing, Connected, and Intelligent

Big Data management and analysis
The FusionInsight Big Data Platform supports 1 million-dimension data modeling. The OceanConnect IoT Platform supports 2 million TPS and 10 million concurrent connections.

Ubiquitous connections
Diverse wired/wireless access modes adapt to complex city scenarios (indoor, underwater, underground, high-density, large-number, etc.) and enable 360° coverage.

Numerous sensors
Low-power NB-IoT/LTE-IoT chips and 10-year battery life lower facility O&M costs.
Sensing
Connection
Intelligence
NB-IoT/eLTE-IoT, the LPWA IoT Technologies Best Suited for Smart Cities

- 100,000 connections/cell (100 times that of 4G)
- Battery life of 10 years (5 times that of 4G)
- Unmatched signal penetration (workable in water or underground)

2020
3 billion
Cellular IoT connections

7X
2015
400 million
Cellular IoT connections
More than **40,000** streetlights in Weifang have been reconstructed based on NB-IoT. As a result, the O&M efficiency is improved by **45%**, the lighting rate is increased by **25%**, and the annual electricity consumption is reduced by **6.8 million kWh**.
Smart Parking, Delivering Brand-New Parking Services Downtown

Yanbu, Saudi Arabia: By using the eLTE, the city has improved parking space utilization by 25%, and reduced labor costs by 30%.

Accurately and quickly detect parking space occupation status.

Regulate drivers’ behavior to ensure reasonable usage of parking space.

Parking space query  Reservation on mobile phone  Driving navigation  Quick payment
Smart Water, Giving a Real-Time Full Picture of the City Lifeline

Weifang promotes 'smart river chief' solution based on eLTE to know water state and quality in real time.

Water state monitoring (flow velocity and liquid level)

Water quality monitoring
eLTE, Building a Secure and Reliable Government Private Network

- Broadband and narrowband integration based on 4.5G technology; wireless IoT with licensed and unlicensed spectrums
- Large-capacity narrowband IoT, 50,000 connections per base station

Mobile government

Video backhaul

Municipal management

Policing trunking
High-Density Wi-Fi, Improving Wireless Broadband Access Experience

- **80,645** spectators
  - Ultra-large scale and ultra-dense

- **24,000 concurrent** connections
  - Concurrent connection rate 50%↑

- **100%** coverage
  - Without blind spots
Agile All-Optical Network, Supporting Smart Life, Office, and Business

- **Simple**
  - One fiber for multiple services
  - Simplified architecture and easy O&M

- **Reliable**
  - Active devices replaced by passive devices
  - Copper cables replaced by optical fibers

- **Flexible**
  - Open cloud access
  - Centralized device management

**Project Name:** Guangfu Community
**Total land area:** 0.66 million square meters
**Total construction area:** 1.6 million square meters

- Residence: 5,000
- Store: 1,000
- Large shopping mall: 1
- 4-star hotel: 1
- Office building: 7
- 5-star health center: 1
- School: 2
- Parking spot: 10,000
- Population: 100,000–120,000
Sensing
Connection
Intelligence
IOC Acts as the City Brain and Supports Scientific City Management and Decision-Making based on Big Data.
Big Data Requires Big Pipes and Large-Scale Computing Capabilities.

In the future, information pipes will become as wide as the Pacific Ocean.

- Internet data – ocean
- Management data – river
- IoT Data – starry sky
- Cloud computing: Open, flexible, and secure
- Ultra-broadband: High bandwidth and low latency
- Big Data platform: 1 million-level data modeling
Strategic Partnership with MoC to Build Smart City in Nigeria

Energy Supply
Network Connection
ICT Infrastructure
E-Government Services
Digital Services
ICT Ecosystem
IOT Smart Terminal

Platform
National Cloud Platform
Virtual Data Center & Cloud Services
Big Data Platform
Server
Hyper Converged Infrastructure
Virtual Machine
High Availability Storage
Storage Servicers

NDC
Modular Data Center Facilities
Disaster Recovery DC
Backup DC
Campus Switch
Data Center Switch
SDN
Data Center Router
Data Center Firewall

NBB
Backbone Network
Metro Network
LTE Coverage
Cyber Security product & Solutions
WLAN Coverage
FTTx & GPON
Galaxy Will Be the Basement of Smart Nigeria

**Smart infrastructure zone**

- Efficient government collaboration zone
- Inclusive public services zone
- Refined social management zone
- Livable urban environment zone
- Modern industry development zone

**Smart application layer SaaS**

- **Map**: geographic information layer
- **Database**: data management layer
- **Terminal**: IoT sensing layer
- **Cloud**: computing and storage layer
- **Network**: network communications layer

**Data and services**
- Unified internal portal services
- Unified Big Data services
- A set of maps (geographical information database)

**Benefits for people**

- Unified external portal services
- Unified O&M services
- One database group (basic database)

**Unified IoT services**

- Unified map services
- Unified security services
- One cloud (distributed cloud architecture)

**Unified O&M services**

- Unified map services
- Unified security services
- One network (converged network)

**Unified infrastructure**

- Sensors & actuators
- Controllers

**Unified IoT services**

- Efficient government collaboration zone
- Inclusive public services zone
- Refined social management zone
- Livable urban environment zone
- Modern industry development zone

**Data integration**

- Galaxy Will Be the Basement of Smart Nigeria

**Unified infrastructure**

- Efficient government collaboration zone
- Inclusive public services zone
- Refined social management zone
- Livable urban environment zone
- Modern industry development zone

**Unified IoT services**

- Efficient government collaboration zone
- Inclusive public services zone
- Refined social management zone
- Livable urban environment zone
- Modern industry development zone
Huawei Smart City Strategic Vision: Platform + Ecosystem, Building Better Smart Cities

Focus on customer requirements and provide a holistic set of Smart City solution.

Platform strategy
Open, elastic, flexible, and secure

Ecosystem strategy
Co-existence, mutual-growth, and regeneration
Cooperative, Win-Win, and Open Ecosystem worldwide

<table>
<thead>
<tr>
<th>High-level design</th>
<th>System integration</th>
<th>Investment and financing</th>
<th>Operations</th>
<th>Platform</th>
<th>Application</th>
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<tr>
<td>accenture</td>
<td>CETC 中国电科</td>
<td>国家开发银行</td>
<td>esri China</td>
<td>NOHMI</td>
<td>Honeywell</td>
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<td>IBM</td>
<td>TAIJI</td>
<td>中证城市发展</td>
<td>HEXAGON</td>
<td>GE</td>
<td>VEOLIA</td>
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<td>LEADOR</td>
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<td>未来国际</td>
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<td>DHC 联合股份</td>
<td>FOUNDER 方正</td>
<td>Audax</td>
<td>Epiq</td>
<td>ENJOYOR</td>
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<td>e-Hualu 易华录</td>
<td>Westone</td>
<td>e-Hualu</td>
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<td>National Information Center</td>
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Leading New ICT, Building a Smart City Nervous System