My Entrepreneurial Journey

To be Future Ready and SEE WHAT OTHERS CAN'T

Dr. Winnie Tang, JP
Founder and Chairman, Esri China (Hong Kong) Ltd
About Me

• Dr. Winnie Tang, JP

• Adjunct Professor
  Department of Computer Science
  Faculty of Engineering
  The University of Hong Kong

• Adjunct Professor
  Faculty of Architecture
  The University of Hong Kong

• Founder and Honorary President
  Smart City Consortium

• Founder and Chairman
  Esri China (Hong Kong) Ltd
Do You Want To Make A Difference?
All Begins with **Maps** *The source of happiness*
Bachelor Degree & PhD from HKU

Taught GIS in HKU

Hong Kong’s first Vegetation Map

The world's first SARS propagation map

Distinguished Alumni by the Faculty of Science of HKU at 70th Anniversary Celebration Dinner 2009

The Science of Where Geography as our common language
To Change the Landscape of Mapping Industry in HK

1997

Paper Map

Electronic Map & GIS

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Who We Are?

Environmental Systems Research Institute (Esri)

GIS Leader
Geographic Information System

- Research & Development
- Education & Training
- Maintenance Support
- Business Development
- Project Management
- Application Development
- Consultancy Services
A pioneer in bringing Geographic Information System (GIS) technology to benefit the public & private sectors in HK

Esri China (HK) 20th Anniversary
Unleashing Young People’s Creativity and Innovation

Tang Chui Wai Hing Project Prize

Winnie S M Tang Scholarship in Applied Artificial Intelligence
Co-creation & Collaboration Key to Smart City Development
What is GIS & How does it work?
Smart Cities

Start with Location
Our world is increasing challenged
The evidence is clear
We need to be Smarter
We need to Understand…and Act Together

Urbanization  Ageing Population  Social Conflict  Inequality  Loss of Nature
Pollution  Energy Crisis  Climate Change  Natural Disaster  Resource Depletion
The Challenges that Cities are Facing

- By 2050, 2/3 of the earth’s population (6.4 billion) will live in cities
- Aging population leads to decreasing productivity
- Resource strain of energy, housing, transportation, jobs, public services, etc.
- Citizens demand higher transparency of Government
The Challenges of China

- Spring Festival 2019, the amount of passenger traffic reached more than 3 billion
- The proportion of the elderly population in China will be as high as 25% in 2030.....
- From Jan to Jun 2019, the average concentration of PM2.5 in Beijing was 46 μg/m³.
- By the end of 2017, China’s urban permanent population will reach 813 million, urbanization rate will reach 58.2%, and it is expected to reach 60% by 2020 and 70% by 2030.
The Challenges of Hong Kong

- About 326,000 private housing units aged 70 or above by 2046, ~300 times of those in 2015
- Over 52% (33,000+) lifts aged 20 years or above
- 1/3 population would be aged 65 or above by 2040
- Overall labor force participation rates projected to decline from 59.3% in 2014 to 48.6% in 2064 ....
What is a Smart City? Technology & Innovation could make a city smart

• The use of ICT (Information and Communications Technology) to improve the quality of life and city services, making the city more livable.

• Ultimate Goals:
  – Enhance quality of life
  – Foster sustainable growth
Leverage on Technologies For Better City Management

ICT is the backbone of any society that wants to achieve “smart” status
Smart City Applications Improve Key Quality-of-Life Indicators by 10 to 30%

Smart City Technologies have substantial unrealized potential to improve the quality of life

Countries developing smart city initiatives with their own goals.
Copenhagen, Denmark
Create a “zero emission city” by 2025
Sweden

Eliminate all traffic-related deaths by 2025 – Vision Zero Program
Setting Custom Metrics & Goals when developing smart cities

London, UK
FinTech Capital of the World
Dubai
Improving its gross national happiness index

Dr. Aisha Bin Bishr
Director General
Smart Dubai Office
Leading role in transportation and freight hub:
- Scores highest on **Maas** (Mobility-as-a-Service) & **Faas** (Freight-as-a-Service)
- Ranks No.1 and beats Dubai & London in the “Smart Cities Competitive Assessment Report”

(*source: ABI research, May 2018*)

**Singapore**

Global leader in “Smart Government’’
Setting Custom Metrics & Goals when developing smart cities

Moscow
Quality of Life, Efficient Government, Solid Infrastructure
Setting Custom Metrics & Goals when developing smart cities

Japan

Super Smart Society  integration of cyberspace with physical space
A Human-Centered Society that Balances Economic Development & Solves Social Issues

Society 5.0

1.0 Hunting Society

2.0 Farming Society

3.0 Industrial Society

4.0 Information Society
Setting Custom Metrics & Goals when developing smart cities

China

“Beautiful China” 美麗中國
Clean Environment, High Tech Companies and Responsive Government
Smart City Components – Model from Dr. Boyed Cohen

Smart Economy
Smart Mobility
Smart Environment
Smart Living
Smart Government
Smart People
3 Phrases of Smart City

Smart City 1.0
Technology-driven

Smart City 2.0
Government-driven

Smart City 3.0
Citizen-driven

Smart City 3.0
is the ultimate goal!
World Ranking - The Smartest Cities in The World

IESE Cities in Motion Index 2019

1. London, United Kingdom
2. New York, United States
3. Amsterdam, Netherlands
4. Paris, France
5. Reykjavik, Iceland
6. Tokyo, Japan
7. Singapore
8. Copenhagen, Denmark
9. Berlin, Germany
10. Vienna, Austria
11. Hong Kong, China
12. Seoul, Korea

174 Cities in 80 Countries

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Smart City Projects Around the World
Starbucks  Grinding Data and Brewing Results
Using Geospatial Big Data Analytics to Boost Performance & Determine the Best Store Location

Where should the next Starbucks store be built?

How does the weather affect coffee orders?

Data drives everything
For Solving Kuwait’s Traffic Congestion

- Use Geo.AI facilitated machine-learning program to fill the gaps in traffic information

Source: https://www.esri.com/about/newsroom/publications/wherenext/new-business-intelligence-geo-ai/
Citizen-Driven Apps for Jakarta Flood Hazard

Real-time map of flooding by crowd sourcing

Reports from Twitter to monitor severe flooding
Zika Virus - *Prevention* is the first course of action
New York Crime Trends 3D Geo-Visualization Map
COP for Public Safety & Security in Boston Marathon

Common Operating Picture (COP) - Online Operations Dashboard
To correlate the underground world to the land above

- **Gather** and generate geologic and topographic data
- **Interpret** & extract cave information
- **Analyse** cross sections, topography & hydrology to determine the origin of water
- **Design** the water flow diversion
- **Monitor** the water level and rainfall intensity
- **Understand** the area using 3D visualisation
- **Distribute** maps to the ground teams

Monsoon rains trapped a soccer team of 12 boys, ages 11 to 17, and their 25-year-old coach

Planned activities using Digital Twin

https://esrih.maps.arcgis.com/apps/Cascade/index.html?appid=0d6376d868f74273b0bc2015ad0a8835

The Financial Express
Smart People Initiatives Around the World

**Coding & STEM Education**

- **Finland** - Coding Education
- **Estonia** - Research & Creative Projects are Compulsory Part of National Curriculum
- **USA** - Obama ConnectED Initiative
- **Switzerland** - STEM learning starts early in school & beyond
- **Israel** - Coding Education in High Schools since 1995
Back To Hong Kong
Amount of Investment in Developing Smart Cities worldwide

China 500 Pilot Cities
China RMB 650.4 Bn
Asia 32%

Amount of Investment in Smart Cities Worldwide

Source: 《未来超级智能城市-德勤中国超级智能城市指数》2018
President Xi laid out China’s vision for **Smart Cities** at the Belt & Road Initiative.

5 Principles to steer the initiative toward greater success.

We should build the Belt & Road:

1. into a road for peace
2. into a road of prosperity
3. into a road of opening up
4. into a road connecting different civilizations
5. into a road of innovation

We should advance the development of big data, cloud computing & **smart cities** to transform them into a 21st-Century digital silk road.”

Source: http://beltandroadforum.org/english/index.html
1. Shenzhen
2. Shanghai
3. Hangzhou
4. Beijing
5. Wuxi
6. Guangzhou
7. Ningbo
8. Foshan
9. Xiamen
10. Suzhou
China Unveiled Development Plan for Greater Bay Area (Feb 18, 2019)

“Plan to Build Smart City Clusters”

1. Open Data Portal
2. Spatial Information Service Platform (CSDI)
3. Coordination Platform for Emergency (COP)
4. Smart Cities Common Standards
5. Smart Transport System
6. Smart Energy
7. Smart Government Management
8. Smart Communities
10. Electronic Signature Certificates
11. Electronic Payment Systems
12. Education and Talents Hub
13. International Innovation and Technology Hub
14. Modern Industrial System

HK must step up the pace on building “CSDI Common Spatial Data Infrastructure” & “COP Common Operation Picture”

To further strengthen Hong Kong 's position as a leading smart city

Image credit: www.bayarea.gov.hk

Ch5 Expediting Infrastructural Connectivity
China Unveiled Development Plan for Greater Bay Area (Feb 18, 2019)

International 1st class bay area that’s vibrant & highly innovative

"Hong Kong, Macao, Guangzhou & Shenzhen as core engines for regional development”

Economic system supported by Innovation

4 Core Cities

Guangzhou
- Integrated Gateway City
- Commerce & Industry Centre & Integrated Transport Hub
- Technological, Educational & Cultural Centre

Macao
- Tourism & Leisure Centre
- Commerce & Trade Platform with Portuguese-speaking Countries

Shenzhen
- National Economic Core City
- National Innovation City
- Capital of Innovation & Creativity

Hong Kong
- International Financial Centre
- Global Offshore RMB Business Hub
- Transportation & Aviation Hub
- Innovation & Technology Industries
- Asset & Risk Management Centre
- Centre for Legal & Dispute Resolution

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HK as a Smart City

Ranking no. 3 in Asia

IESE Cities in Motion Index 2019

Global: 11; Asia-Pacific: Top 3

1 Tokyo

2 Singapore

3 Hong Kong

4 Seoul

IESE Cities in Motion Index 2019

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HK is Committed to be a Leading Smart City with Blueprint Released (Dec 2017)

- It emphasizes “Smart City is **people-centric**”.
- It should be built upon the **needs of the people** & the benefits should be seen and felt by residents & visitors.
Allocated ~$ 45 bn this year & $50 bn last year

Focus Biotechnology, A.I., Smart City & Fintech

Since the setup of ITB, already invested over $100 bn
Major Progress Made

2018 Policy Address

**Smart People**
- $10 bn InnoHK
- $20 bn REF
- $500 m. City & IT Grand Challenge (2020 Q1)
- 12 Projects in Space Sharing Scheme for Youth

**Smart Government**
- Smart Gov’ Innovation Lab (April 2019)
- Open Data Policy

**Smart Economy**
- FPS (Sept 2018)
- 8 Virtual Banks
- 500 Open APIs by banks

**Smart Mobility**
- Opened up 1,000 gov’t premises for mobile base stations
- HKeMobility (July 2018)

**Smart Living**
- HA’s Big Data Analytics Platform (Dec 2018)
- 1 bn ITF for Elderly & Rehabilitation (Dec 2018)
- DHC (Sept 2019)

**Smart Environment**
- Piloting smart technologies to detect the health of trees

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MORE

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Innovation & Technology promoting a diversified economy

**2019 Policy Address**

### Smart City Services
- Smart City Blueprint 2.0
- “iAM Smart” for gov’t services
- Streamlining of Gov’ Services Programme
- Robotics technologies
- Improve traffic management
- Smart Traffic Fund
- Autonomous vehicles trials on public roads

### Talent Bank
- Extend coverage of Technology Talent Admission Scheme
- Extend coverage of Researcher Programme and Postdoctoral Hub
- Extend Public Sector Trial Scheme

### Infrastructure
- HKSTPC Phase II expansion
- 3rd InnoHK research cluster
- Smart Hospital Initiatives
- Extend 5G network coverage by open up sheltered bus stops

### Innovation
- $500 m Social Innovation and Entrepreneurship Development Fund
- “Fintech@Gloucester”
- Science Promotion Unit
- Alliance of HK Youth Innovative and Entrepreneurial Bases in GBA
Why HK? HK has Favorable Smart City and FinTech Ecosystem

1. International Financial Centre
2. Vibrant Startup Ecosystem
3. Favorable Policies
4. Strong Pool of Talents
5. Robust ICT Infrastructure
Vibrant Startup Ecosystem
Cultivating a Diversity of FinTech Innovations

Info Source: HKTDC Research

Smart Economy

~3,184 startups
(42.8% since 2017)

~12,478 employees
(97.4% since 2017)

HK’s Startup Communities

Government-initiated
Universities & NGO-initiated
Private Sector
Civic-initiated

E-commerce, supply chain management & logistics technology
Information, computer & technology
Design
Professional & consultancy services
Data analytics
Financial technology

Percentage of start-ups by key business sectors

Proprietary – Copyright of Esri China (HK) and SCC
Number of Unicorns

Important KPI of Innovation Potential

USA 156
China 94
UK 17
India 13
Germany 8
S. Korea 6

As of 14 Mar 2019

China created a unicorn every 3 days in 2018

Hong Kong has already grown 8 unicorns

7 Initiatives by HKMA to Bolster Fintech & Smart Banking Era

- Deploy FPS
- Upgrade Sandbox
- Introduce Virtual Banking
- Open API
- Enhance R&D
- Banking Made Easy
- Cross-border FinTech
- Hong Kong Monetary Authority

Smart Economy

7 Initiatives

FinTech Supervisory Sandbox FSS 2.0

Global Financial Innovation Network (GFIN)

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Greater Bay Area is Emerging as a Regional Fintech Hub (GFHI)

Top 6 Regional Rankings

1. Yangtze River Delta
2. Silicon Valley
3. Greater Beijing
4. Greater London
5. GZ-HK-Macau Region
6. Greater New York
Key Infrastructure in Hong Kong

- HK-Zhuhai-Macao Bridge
- HK International Airport
- HK Section of GZ-SZ-HK Express Rail Link
- Kwai Tsing Container Terminals

Ranks 2nd in Infrastructure

Photo credit: MTR
• New technology provides a pleasant travel experience for its passengers
• HKIA adopted ArcGIS Enterprise Portal to facilitate daily operation & maintenance
• AI, Big Data and Spatial Analytics to create living digital simulation models
AV : Autonomous Vehicles
• Pilot Projects in West Kowloon Cultural District, HK International Airport, Zero Carbon Building, Hong Kong Science Park, HKUST

ITS : Intelligent Transport System
• All-in-1 mobile app
• IVUs (In-vehicle units) for real time information & payment
• 1200 Traffic detectors
• Intelligent traffic signal systems

V2X : Vehicle-to-Everything
• Facilitate 5G technology to create a successful V2X ecosystem

V2I (Vehicle-to-Infrastructure)
V2N (Vehicle-to-Network)
V2P (Vehicle-to-Pedestrian)
V2V (Vehicle-to-Vehicle)
V2X ....everything
A website to provide the accessibility information of barrier-free facilities in HK. Every local resident, tourists can plan for trips and enjoy easy travel in HK.

- Revamped Access Guide with open data
- Volunteers to inspect & visit over 200 places
Zero Carbon Building & T-Park
Electronic Health Record Sharing System (eHRSS) (since Mar 2016)

Stage 2

Patient Portal & Integrating Chinese Medicine

Launched by end 2022

Over 1 million Registrations (as of 5 Mar 2019, its 3rd anniversary)

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HK Sanatorium & Hospital has selected Hitachi to supply a two-treatment gantry proton beam therapy (“PBT”) system.

One of the most advanced forms of cancer treatment.
STEM (Science, Technology, Engineering, Mathematics)

Inter-school Cross-curricular Project Competition on Climate Change
Smart City Project Programme 2017-2018 for Primary & Secondary Schools
Smart City Project Programme 2018-2019
Asia’s 1st GIS e-Learning Program
Promote GIS education in Primary & Secondary Schools
A total of 188 schools registered
Tung Wah Group of Hospitals GIS Competition: Apply GIS in e-learning and STEM education in a smart city
A total of 18 secondary schools with about 100 participants

1st Runner-up
TWGHs Wong Fut Nam College
Mouse Plague in Hong Kong

Champion
TWGHs Lo Kon Ting Memorial College
A Study of Open Spaces in Yuen Long

2nd Runner-up
TWGHs Li Ka Shing College
A Study on the Use of Electric Vehicles in the North District, Hong Kong
Bus Services in HK to Improve the Public Transport Services

- Territorial Scan of the Bus Services in HK
  - Mapping the service to find out how different variables are related to bus services & where bus services are excessive or insufficient in different areas
  - Open lots of field for future investigations to improve the public transport
Using GIS and open data, this study measures the average time and money spent by local communities on public transport to reach activities:

- Open future investigation opportunities to improve the public transport
Young Scholars Award  Solve Global Problems Using GIS

Geography is a great integrator discipline and many problems have spatial complexities to them.
Free program gives emerging businesses the tools to build mapping & location analytics capabilities into their products.

Esri User Conference, July 2019 in California is the biggest GIS event globally. It attracts 19,000+ GIS users & developers and includes 1,000+ moderated sessions, 770+ hours of training, and 300+ innovative software vendors/startups.
Top-notch Universities with Strong Research Capability

3 Universities amongst the world’s 50

Quacquarelli Symonds (QS)
World University Rankings 2020
Lunar Mapping techniques developed by PolyU have been deployed in the topographical analysis and landing site selection of Chang’e-4, contributed to the success of the moon landing mission.
HKU-Tsinghua Collaboration on Dual Bachelor’s Degree Programmes

Smart People

THE UNIVERSITY OF HONG KONG

Tsinghua University

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Local Universities Offering Interdisciplinary Programs

Cross-pollinating our thinking

6 BASc programmes
10 Faculties

Bachelor of Arts & Sciences
AppliedAI
Design+

FinTech
Global Health & Development
Social Data Science

Dual bachelor degree programs co-organised with 5 internationally renowned institutions

Set up Interdisciplinary Programs Office (IPO)
1st batch of research institutions will start moving into the clusters in the 2nd half of 2019

InnoHK  The Hub for Global Research Collaboration

2 Research Clusters “AIR@InnoHK” (AI & Robotics) & “Health@InnoHK”

AIR@InnoHK
Health@InnoHK
Smart Government Innovation Lab (Apr 2019)

CO-CREATE

I&T Suppliers CONNECT
Find Service Needs, Propose Solutions

Government Departments INSPIRE
Find I&T Solutions, Raise Service Needs

City Dashboard

Tree Movement Monitoring Console
The 1st Year of Government Open Data Plans (Jan 3, 2019)

Open data provides raw materials for technology research, city innovation & Smart City development

Annual Open Data Plan for 2019

- New datasets from 80 B/Ds
- From around 3,300 to close to 4,000 in total

As of May 2019

+300 in total

Year-end target

+700 in total
Making Use of Open Data

High Value Data Domains

1. Geographic Information
   Domain with the highest commercial value & can be used in other 13 different data categories using maps to create visualisations

2. Meteorological and Environmental Information

3. Economic & Business Information

4. Social Information

5. Traffic & Transport Information

Source: European Data Portal, European Commission, 2015 Nov
Why **Spatial Data** is so Important?  
**The Backbone of Smart City**

80% of data is spatial

**Its Importance:**
- Better city planning & management (Prevention, Monitor, Rescue & Recovering)
- Unlock the wealth of existing knowledge and boost the economy
- Make right and agile decision

**Source of Spatial Big Data**
- GPS-enabled devices, Satellite remote sensing
- Aerial surveying
- Radar, Lidar
- Sensor networks
- Digital cameras
- Location of readings of RFID, etc....
GIS Provides the Location Platform

Integrating People, Processes, Things, and Data About Them

Using the Power of Where to Integrate Everything

System of Insight

System of Record

System of Engagement
You make a difference because you can see differently

Are we ready?
Utilities and Telecommunications

- Augmented Reality
- 3D Pipelines
- Automation Fiber Design
- Wi-Fi Planning
- Testing Wireless Data Speed
- 5G Modeling
- Electric Transmission
- Solar Energy Hot Spots
- Underground Asset Management
- Asset Management
- Work Management
- Pole Inspection

- Toronto vGIS Inc.
- Argentina Aeroterra
- Nashville 3-GIS
- Chicago
- Washington Land Info Worldwide Mapping
- New Mexico POWER Engineers
- Australia Cityworks
- Florida Schneider Electric
- Serregal ASER
- Texas El Paso Electric
- Vilnius, Lithuania Vilniaus planas
- Australia Cityworks
- Florida Schneider Electric
- Serregal ASER
- Texas El Paso Electric

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Public Safety and Security

LA Marathon Ops Center
Los Angeles, CA
SALUS—The Crisis Hub

Crime Prediction (AI)

Spatiotemporal Crime Analytics

Buenos Aires, Argentina
Aeroterra

Sri Lanka
Marta Police

Security Camera Viewshed

Traffic Accidents

University of Utah
Nearmap

Traffic Accidents

Traffic Accidents

Suspicious Behavior Reporting

COMPSTAT Dashboard

Traffic Accidents

Suspicious Behavior Reporting

University of Utah
Nearmap

In-Vehicle Awareness

Traffic Accidents

Aeroterra

Nearmap

Security Camera Viewshed

University of Utah
Nearmap

Traffic Accidents

Japan
Yamagata Prefectural

Traffic Accidents

Oklahoma
Highway Safety Office

Suspicious Behavior Reporting

Traffic Accidents

Los Angeles, CA
SALUS—The Crisis Hub

Traffic Accidents

Traffic Accidents

Traffic Accidents

Traffic Accidents

Traffic Accidents

Traffic Accidents

Sri Lanka
Marta Police

Buenos Aires, Argentina
Aeroterra

Sri Lanka
Marta Police

Suspicious Behavior Reporting

Traffic Accidents

Traffic Accidents

Traffic Accidents

Traffic Accidents

Traffic Accidents

Traffic Accidents

Traffic Accidents

Traffic Accidents
Spatial Data Sharing
as a Smart City Infrastructure
CSDI is a Critical Component of the Digital Framework for Smart City Development

Common Spatial Data Infrastructure (CSDI)

(Source: Report of Consultancy Study on Smart City Blueprint for Hong Kong, June 2017)
New HK GeoData Store (CSDI alpha version) Dec 2018
Facilitates Smart City Development & Geospatial Data Applications

Dec2018

79 Types
as first step

CSDI Portal for Government by 2021
CSDI Portal for Public by 2022

Need for CSDI
A map-based information infrastructure leveraging GIS technology

CSDI
starting from 2018 and develop Common Spatial Data Infrastructure (CSDI) by 2023 to facilitate sharing of geo-spatial data across government departments and government...


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What is behind to build a CSDI?

**Common Spatial Data Infrastructure** provide a secured sharing portal for government departments as well as public & private organisations to share spatial data and support smart city applications.
Map-Based COP (Common Operation Picture) for Real-Time Sharing of Emergency Information among B/Ds

City Dashboard to launch by end of 2019 for citizens to check real-time data

- Digital Maps
- Meteorological Data
- City Data
- City Dashboard
- Geospatial Data
- Economy & Livelihood Data

City Dashboard at ICT Expo 2019

Map Sensitive City Dashboard by end of this year

Source: OGCIO, HKSAR Government
CSDI Readiness to Map-sensitive Dashboard

The port is getting smarter & smarter

Dubai Pulse’s City Flow Dashboard  the oil of the future

City’s Dashboard in LA GeoHub

Madrid Smart CEI Moncloa

More…
INSPIRING WHAT’S NEXT

Proprietary – Copyright of Esri China (HK) and SCC
Hong Kong needs a Talent Bank for I&T Development

<table>
<thead>
<tr>
<th>GOVERNMENT</th>
<th>INDUSTRY</th>
<th>ACADEMIC</th>
<th>RESEARCH</th>
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- Technology Transfer & Product Commercialisation
- Open Data & CSDI to foster innovation & creativity
- Leverage the unique strength & market size of Greater Bay Area
- Talent Policies
Are you Ready for the API Economy?

Smart organizations see APIs not a technical tools!
Is the source of strategic value in digital economy.
Open Data Drives Innovation for a Smart City

“Open data is about people, their problems, and giving them the power to solve them.”

Global sandbox is a good example of how to attract and converge FinTech professionals.

Every 50 minutes a new startup is created in the UK.

Source: Financial Conduct Authority
Open Data Legislation to Foster Innovation
Encourage citizens’ engagement and innovation
As part of Mayor Eric Garcetti's Clean Streets initiative, the City's Bureau of Sanitation quarterly drives all of LA's public streets and alleys (traveling over 22,000 miles!) and gives each block a "cleanliness score" from 1-3:

1. Clean
2. Somewhat Clean
3. Not Clean

How clean is your street? Type in an address or click on a street to see how it fares.

Each street score is based on four factors: litter, weeds, bulky items and illegal dumping.

Los Angeles is leading the way as the only big city in the US conducting a regular cleanliness assessment of every City street.
The new Commission will draw together:
1. HM Land Registry
2. Ordnance Survey
3. British Geological Survey
4. Valuation Office Agency
5. UK Hydrographic Office
6. The Coal Authority

Aim:
- improving the access to, links between, and quality of their data
- looking at making more geospatial data available for free and without restriction
- setting regulation & policy in relation to geospatial data created by the public sector
- holding individual bodies to account for delivery against the geospatial strategy
- providing strategic oversight & direction across Whitehall & public bodies who operate in this area

Total £80m budget over the 2-year time-frame
Aim to drive UK’s digital economy by an estimated £11bn each year

Inter-departmental Collaboration

The Release of OS MasterMap Data 1st Project by Geospatial Commission

• Release some of the Ordnance Survey’s MasterMap datasets for free, through API
• Estimate to boost the UK economy at least £130m each year

Topography Layer (including building heights & functional sites) | Greenspace Layer

Highways Network | Water Network Layer | Detailed Path Network

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Korean Government has created a "K-smart City" Export Promotion Team to drive the concept.

- **Kuwait** (Abdullah Newtown) - Korea’s 1st Export Case
- **India** (Kalian Dombibli City & Bandra City)
- **Bolivia** (Santa Cruz)

**Korean Type Smart City**

**Smart City As A Service (SCaaS)** South Korea’s New Export Product

City Planning Proposals

"100 Smart Cities” Plan
Hong Kong should lead the way in Smart City Infrastructure
Export Smart City Infrastructure to GBA & along the Belt & Road

Maximize Innovation, Knowledge and Value Creation for a Smarter City

Common Spatial Data Infrastructure

Coordination Platform for Emergency (CoP)

Spatial Information Service Platform (CSDI)

GBA Development Plan

Map Centric City Dashboard

COP Common Operation Picture

CSDI Common Spatial Data Infrastructure

Open Data

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Readiness for the Future

Solution-Driven
Technology can tackle insurmountable challenges

Human-Centric
Unleashing human potential in creativity, innovation & productivity

Sustainable
Sound production processes can minimize negative environmental impact

Inclusive
Everyone can benefit from 4th Industrial Revolution Technologies
4P Approach Is The Key To Success

Public-Private-People-Partnership (4P)
Achieve the ultimate goal of “Smart City 3.0”
The World Connected by 5G

Connect Future

5G でつながる世界

Video Credit: Ministry of Internal Affairs and Communications
we co-create our smart city
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