Smart Cities in China: The transition from Quantity to Quality

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Get Ready for China!

The EU SME Centre is an EU Commission funded project which helps EU SMEs prepare to do business in China by providing them with a range of information, advice, training and support services.

The Centre is implemented by a consortium of six partners and was established in October 2010. It successfully completed its first phase in July 2014 and has now entered its second phase which will run until July 2018.
Please continue to submit your text questions and comments using the Questions Panel

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Kirk Wilson is Executive Director for the China region at CBBC, jointly leading an experienced team of over 150 industry experts, consultants, project managers and economists across 15 locations. Kirk is also Sector Lead for ICT in China with recent focus on IoT (Smart Cities), Integrated circuit design, eCommerce, and Cybersecurity. Kirk has spent around 16 years in various consultancy and leadership roles within the IT Services industry including as an Account Director with EDS, and most recently as a Consultant with the United Nations in Beijing, working closely with regional Governments in China to develop business with global IT services companies. Kirk is a Chinese speaker, and has a BSc in Artificial Intelligence and Computer Science from Edinburgh University, an MA in Chinese Studies from Lund University in Sweden, and MBA from Cambridge University Business School.
Patrik Li is Director for Energy, Environment & Infrastructure at CBBC.

Patrik followed a degree in Linguistics from the University of Bern with one in Sinology from Xi’an Jiaotong University. Having established and run a Chinese-language service for Swiss Radio International for four years, he moved to Beijing to work for Flanders Investment & Trade, providing China market entry consultancy and business support services to Belgian SMEs and later becoming director of the Energy and Environment sector for Flanders.
Agenda

- Smart Cities Market in China (focus on tech per EU SME report)
- Smart City Infrastructure and Trends
  - Sponge Cities
  - Vertical Cities
  - BIM (Building Information Modelling)
- Smart City Technology & Applications
  - Sub-Sector review and opportunities for EU SME
  - Practical advice & Ten Point Plan
- Q&A
According to IBM, Smart Cities are designed to utilise information and telecommunications methods to sense, analyse and integrate various pieces of key information from core systems used in city operations, and to respond intelligently to a variety of needs relating to the environment, public security, city services, commercial activities and citizens’ livelihoods.

3 Tiers: Data Acquisition; Service; Application tiers

Smart Water, Energy, Transport, Healthcare,
Urbanisation
New Town Planning notice (2014-2020) “a new administrative management model is required to be developed in pilot cities, prioritising administrative tiers, and district/region design and planning to increase effectiveness and lower costs” (New Normal)

New Generation Information Technology
Intelligent devices, sensors, cameras, smart terminals, robots and IoT have been applied to water, weather, energy, environment, making everything ‘sensing’, connected and recorded. 5G platform will present huge opportunities (Huawei Surrey University 5G Testbed) (Data!)
National Development and Reform Commission (NDRC) promoting and driving Smart City builds, from the perspective of new urbanisation.

Ministry of Industry and Information Technology (MIIT) policy, standard and evaluation process for informatisation

Ministry of Housing and Urban-Rural Development (MOHURD) has led and organised pilot Smart City identification in China. The Digital City Engineering Research Center is managed by MOHURD

Ministry of Finance (MOF) allocation, monitoring and control of budgets in Smart City builds.

Local/City Governments (local implementation plans vary widely)

**Challenge:** No Clear Working Mechanism among All Government Departments, no coherent set of Smart City regulation
Total market size of China’s Smart City build in 2014, USD 13 billion (exc related equipment/automation applications), and could reach USD 28 billion USD in 2020.

**International Data Corporation (IDC)**

National Development Bank (NDB) agreement with MOHURD on national Smart Cities investment EUR 11.8 billion (RMB 80 billion) (new plans in 13-5 plan)

Around 400 MOHURD pilot Smart Cities, enlargement projects, and special projects
Challenges

Legal and Regulatory Issues: A lot of ‘guidance’ but few practical regulations around data protection, standardisation, information sharing, definitions etc. PPP Model discussed widely, but definitions and best practice unclear. (CBBC activity on this); No clear working mechanism between Gov departments

Market Barriers: Master Planning approach inconsistent; poor data openness; poor information sharing between governments/companies (incompatible bespoke solutions); Data and privacy protection; PPP Model poorly understood; Dumb-Cities real estate projects based on incentives

National Information Security Strategy (ICT Report)

Localisation: Particular challenges interpreting Chinese cultural aspects of city design, behaviour, data analysis, citizen expectations
Chapter 1: Smart City Infrastructure & Trends
Sponge Cities

US
1900-1999

China
2011-2013

4,405 million tonnes

6,615 million tonnes

Source: USGS, International Cement Review
Sponge Cities

Current situation

• More than 300 cities fail to reach national standards for flood prevention
• 400 of the 600 biggest cities face water shortages

Sponge City concept

• Build infrastructure to collect excess rainfall and integrate flood control in urban planning.
• Reintegrate natural processes into the urban landscape.

Outlook & Opportunities

• 16 cities approved to become model sponge cities
• Each city to receive 400 Mio RMB per year for 3 years to implement projects
• Need for companies with experience in multi-disciplinary project planning/managing
Lake water protection

In Anhui province Hydro International have supplied a Storm King® as part of a solution to protect the water quality of a lake.
2015: China leading in Supertalls

- 58% of worldwide 200-meter-plus buildings completed in China
- Trend to continue
  (300 supertalls under construction in China)
- Cities embracing ToD concepts, leading to more mixed use developments.

Opportunities

- Building management
- Green building certification
- ToD concept planning
- Mixed use designers
Accelerated adaptation of BIM in China

- Autodesk report forecasts 108% growth by 2017
- Lack of internal understanding delaying faster adaptation.
- Investors need to be convinced of RoI for BIM.

Lack of National Standards creates opportunities

- There is currently no coherent certification system in place
- Large scale projects (Shanghai Tower, Beijing Z15) create base for future state regulations, expected by 2020.
- Trend towards whole-life project approach favours foreign players with BIM experience
- Development of Guidelines, Training, Creation of Data Exchange Protocols and native software development in demand.
China Zun Tower, Beijing

Due for completion by 2018, this 528-meter-tall tower will be the flagship building of the 30-hectare CBD core in the east of Beijing. Arup has been part of a nine party BIM consortium since 2011, providing consultancy to the project.
Chapter 2: Smart City Technology & Applications

**Essence Securities 2015**

Intel announced in May 2015 that it will build a joint laboratory to promote ‘internet connected energy’ with China Smart Energy Union

**Key Players**

Baosight (state owned software company, energy saving)

IESLab (integrator for smart grid, water, energy saving, informationisation)

Sungrow (repositioned from solar PV to energy storage, vehicle and charging)

Wiscom (power plant automation, smart substation)

NARI (Built e-commerce platform for power exchange in 2014)

**Opportunities**

Energy saving consultation, new energy development, cloud platform build, remote meter and monitoring and big data operation.
China’s transportation sector was one of the first to embrace ‘Smart’ concepts and many cities have started to undertake smart transportation projects. A series of smart city developers, including top-level designers, system integrators and solutions providers are capable of providing solutions for smart transportation projects in China. Internet for Vehicles (est 80% of cars will be automated, worlds largest market)

**Key Players**

NavInfo (data, content and service for digital mapping, internet of vehicles)

AutaNavi (digital map, navigation positioning)

Hikvision (video camera, webcam, virtual video, image analysis)

Dahua Technology (monitoring products and solutions. London Underground project)

Seisys (system integrator for transportation systems; highways, tunnel, bridge management)

**Opportunities**

Urban Management: Hangzhou “1+3+4” system aims to ease transportation pressure. (1data center, 3 platforms-telecom-data-traffic GIS, 4 applications-decision analysis, simulation and evaluation, will integrate aviation/rail), driverless cars
Major Healthcare Reform. But major challenges associated with the reform are generating opportunities for smart solutions in E-records, hospital informatisation, remote medical treatment (e-healthcare), medicine e-commerce and wearable devices. Relatively open market for most sectors.

**Key Players**

- **Biolight** (wearable and portable medical equipment)
- **Andon** (blood pressure meters; and App for individuals to monitor their own health status)
- **Alijk.com** (Invested by Alibaba. Monitoring processes of medicine distribution and sales)
- **WinningSoft** (medical and health informatisation for hospitals and regions)
- **Searainbow** (medical payment and medical insurance platforms)
- **Longmaster** (e-health solutions and diagnostics)

**Opportunities**

Wearable devices, e-commerce platforms, hospital informatisation and social healthcare insurance payment, electronic records, national-wide data sharing, intercommunication of cities and regions.
EU SMEs in China

**Infrastructure**
- ARUP Sponge City, BIM, Supertall
- HYDRO Smart Water Monitoring, Filtering
- INGENOR (Spain) Award for Eco-City Masterplan of Kunshan City
- Vito (Belgium) working with the Chinese government on Air and Water Quality monitoring assessments.
- Smart Water for Europe (SW4EU) platform for showcasing Euro Water solutions
- PLP Architecture
- Haskoll
- Space Syntax
- Benoy
- Modern Water
- Sure architecture

**Technology & Applications**
- Sondrel (IC design)
- Micro Focus (Mainframe solutions)
- Indigo Vision (CCTV)
- Testplant (Automated software testing)
- Paragon (Logistics software)
Ten Point Plan for Finding Opportunities in China’s difficult ICT Market (Smart City Focus)

1. Find niche markets (Sponge City, Parking, IoT)
2. Be present in market
3. Partner with local industry leaders
4. IP & Due Diligence (Real Estate vs core technology)
5. Third markets cooperation
6. R&D projects (including training and tech transfer)
7. M&A Investment
8. Government SEI Strategic Emerging Industries
9. Chinese Giants supply chain (indigenous innovation)
10. Open IP environment (value in service)
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<th>Exhibitions</th>
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<td><strong>Smart City Expo China 2015</strong></td>
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<td><a href="http://www.cnsce.net/">http://www.cnsce.net/</a></td>
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<td>In 2015 the Expo is organised by various organisations including the Chinese Academy of Science, China mobile and the Zhejiang Provincial Government amongst others. The Expo will focus on intelligent city, internet + and wearable device among other areas.</td>
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<td>11(^{th}) - 13(^{th}) September 2015, Ningbo</td>
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<td>Email: <a href="mailto:info@cnsce.net">info@cnsce.net</a></td>
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<td><strong>2015 7(^{th}) Asia (Beijing) Wisdom City &amp; IoT Application Exhibition</strong></td>
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<td>Wisdom city provides an opportunity for government agencies, associations as well as private companies to gather. 2015’s exhibition will include an intelligent city round table and an intelligent building technology forum.</td>
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<td>11(^{th}) - 13(^{th}) November 2015, Beijing</td>
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<td>Email: <a href="mailto:msbgjzyf@126.com">msbgjzyf@126.com</a></td>
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<td><strong>Smart City Expo &amp; Congress</strong></td>
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<td>Companies visiting the 2015 expo and congress are expected to include companies in the smart transport, green building, smart water, smart security and smart community. It is expected that 20,000 visitors will attend in 2015.</td>
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<td>14(^{th}) - 17(^{th}) November 2015, Shanghai</td>
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<td>Email: <a href="mailto:smartcitychina@meorient.com">smartcitychina@meorient.com</a></td>
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<td><strong>Smartcity China 2015 Innovation Industry Conference</strong></td>
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<td><a href="http://www.smartcityexpo.net/english.html">http://www.smartcityexpo.net/english.html</a></td>
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<td>In 2014, over 10,000 professional visitors attended the exhibition and more than 100 companies showcased their products. Areas of focus for the 2015 exhibition include how to push smart city construction, how to solve smart city, finance, investment and operational issues and the scientific approach to smart city construction.</td>
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<tr>
<td>31(^{st}) August - 3(^{rd}) September 2015, Shenzhen</td>
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<tr>
<td>Email: <a href="mailto:fendi.wang@cioe.cn">fendi.wang@cioe.cn</a> or <a href="mailto:it@cioe.cn">it@cioe.cn</a></td>
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<td><strong>China (Sichuan) International Smart City and Internet of Things Expo &amp; Conference</strong></td>
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<td>In 2015 the Expo covered approximately 20,000m(^{2}) and was supported by MIIT. Dates for 2016 not yet available, Chengdu</td>
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