

Smart Cities Augur Well for IoT Opportunities in Yangtze River Delta

According to China's new-style urbanisation plan for the Yangtze River Delta ([YRD](#)), several clusters of smart cities will be developed. Additionally, a new generation of information technology will be deployed in order to enhance city management. This will, of course, boost demand across the region for [IoT](#) (Internet of Things) services.

The overall development of the IoT industry on the mainland, however, is still at a nascent stage, with the number of appropriate applications available for such projects subsequently rather small. When it comes to big data and the related solutions required to raise the level of city management, total or standard solutions are lacking. As a result, the industry cannot meet the demand for large-scale applications brought about by urbanisation.

Hong Kong's IoT industry players are not only well-versed in advanced foreign technologies, but also possess the necessary R&D capability. As such, they excel in utilising technologies that have been developed in accordance with widely-accepted international standards/frameworks, in order to provide total technology and management system solutions. Strong demand in the YRD region for IoT applications relating to traffic control, environmental monitoring and municipal management has created a variety of opportunities for those industry players looking to enter the market.

Smart City Clusters Take Shape

One of China's key urbanisation strategies is to boost the construction of information infrastructure facilities, while using the latest information technology to build new-style smart cities. A fundamental focus of the country's detailed strategy is to strengthen the management of traffic, public order, municipal services and the environment. This will be delivered by promoting such technological applications as IoT and cloud computing, in order to build clusters of smart cities and enhance the overall quality of the urbanisation process.

Similarly, the YRD urbanisation plan will see distinct efforts made to integrate information technology with urban development. This will be achieved by building digital

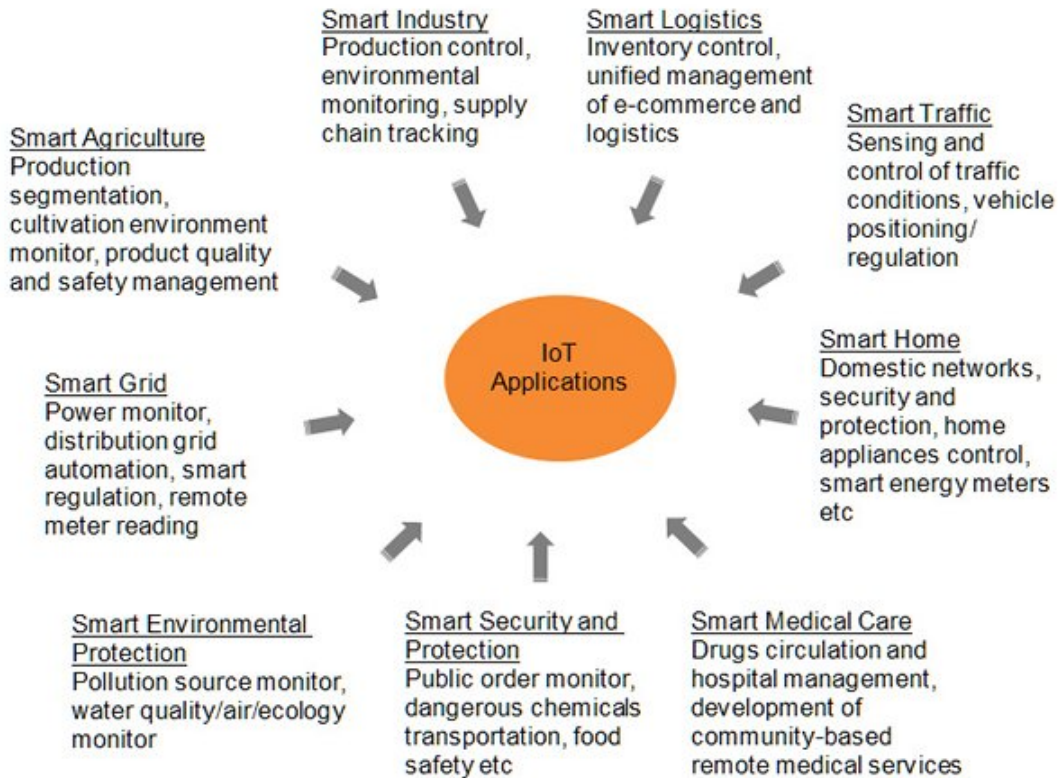


Hong Kong service providers offer technology and management system solutions.



management systems for geographical information, smart traffic, public order, urban environment management, disaster response and contingency planning. A key element of this will be the promotion of the use of IoT for the traffic management, environmental protection, energy and logistics sectors. By so doing, it is hoped that the quality of new-style urban construction and the efficiency of city management will be enhanced in the course of the urbanisation process.

Key Areas of Application in the IoT Development Plan



Source: *The 12th Five-Year Plan for the Development of IoT*

Burgeoning IoT Market

According to China e-Business Research Centre figures, in 2012 the size of China’s IoT market reached Rmb365 billion. Meanwhile, the China R&D Centre for the Internet of Things has projected that, by 2015, the overall size of the IoT market be Rmb750 billion, with an average annual growth rate of about 30%.

In *The 12th Five-Year Plan for the Development of IoT*, issued by the Ministry of Industry and Information Technology, it states that, all being well, by 2015 the IoT industry will have mastered a number of core technologies in such technical areas as sensors, transmission, processing and application. It is also expected that advances will be made in industrialisation, the formulation of key standards and of subsequent applications in key areas. Efforts will also be made to develop the IoT market, including developing the low-frequency and high-frequency radio frequency identification (RFID) sector, expanding the production and application of sensors, as well as exploring the M2M (machine-to-machine) terminal equipment market.



Specifically mentioned in the IoT development plan is the intention that Jiangsu province will take advantage of its integrated circuit manufacturing technology and its pool of talent to test, design and build software to continue construction of the Wuxi National Sensor Network Innovation Demonstration Zone.

To date, the zone has attracted 39 key IoT R&D institutions, bringing in over 2,000 high-level IoT experts. As of the end of 2013, there were 794 IoT enterprises in Wuxi, employing more than 120,000 people. The size of its IoT and related industries reached over Rmb140 billion, with a distinct emphasis on the development of 10 key IoT application and demonstration projects[1], specifically covering security and protection, environmental protection, agriculture, water conservancy, medicine, tourism, traffic, and food safety.

Opportunities for Hong Kong Companies in Mainland IoT Sector

According to the Hong Kong Applied Science and Technology Research Institute (ASTRI) opportunities abound across the mainland IoT sector. Currently, however, many equipment and solutions for data management and technology on the mainland are either still small in scale or at a prototype stage of development. As such, they cannot meet the huge application demand generated by the fast pace of urbanisation.



ASTRI offers technology and management system solutions. (Image courtesy of ASTRI)

Commenting on this shortfall, Dr Billy Chan, Senior manager (Communications Technologies) of ASTRI said: "As the area of mainland cities continues to expand, a new generation of technology is required to strengthen urban management. The continued development of infrastructures such as mobile communications is also conducive to the application of more advanced technologies, including IoT, across various management sectors.

"Although the mainland has mastered quite a few core technologies - including sensors, data transmission and processing technologies, where managing and utilising such big data and equipment to enhance urban management is concerned - it still lacks total and standard solutions. As a result, it has difficulties in meeting the application demand and development of large cities. Hong Kong industry players, many of whom are well versed in the development of advanced technologies and standards, who possess the relevant technology and R&D capability, can offer the necessary technological support to the mainland market."

One example here, according to Chan, is the development of an advanced solar street light management system by ASTRI, one using IoT open platform technology. By using the IoT gateway and management platform software developed by ASTRI, it is hoped to carry out the real-time monitoring and control of more than 3,000 street lamps. In line with specific needs, other sensors can also be installed in the system in order to collect various images and data, in a bid to meet the management needs of other smart city systems, such as traffic, environmental monitoring and municipal management systems.

This scalable platform software can even be applied to smart homes. Currently, this



platform software has already been put to use in the mainland through industry-wide collaboration.

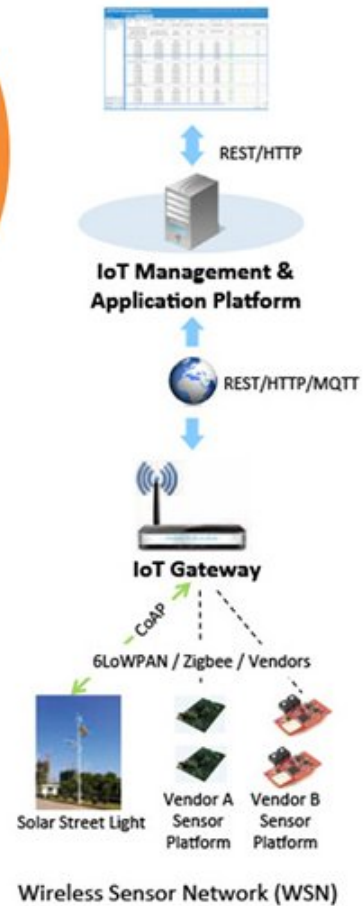
ASTRI's Solar Street Light Management System

- Remote control of LED street lights →
- Real-time brightness monitoring →
- Remote configuration management →
- Fault management and alarm reporting →

IoT Platform Technology
Reduces manual operation, operating and maintenance costs



Source: ASTRI



As the urban construction area in Jiangsu province continues to expand, more advanced technologies are now required to monitor and manage the province’s increasingly busy networks. These include traffic and transportation, air quality and other environmental resources, as well as a range of resource-saving applications. Transportation and telecommunications networks in the province are also expanding rapidly. For instance, following the launch of the “Broadband Jiangsu” project in the province, broadband penetration in urban-rural areas has accelerated dramatically over recent years. The coverage of wireless broadband and wireless LAN has also grown substantially, making it easy for the province to use the latest information technology to improve its urban management systems, while also providing opportunities for IoT technology application companies to enter the local service market.



Expansion of Transportation and Telecommunications Networks in Jiangsu

	2000	2005	2010	2011	2012	2013
Total length of highways (km)	58,013	82,739	150,307	152,247	154,118	156,094
No. of fixed broadband subscribers (million)	1.833	4.495	10.622	12.212	14.064	14.314
Total length of long-distance fibre-optic lines (km)	--	25,699	33,034	33,318	32,820	35,864
Capacity of mobile phone exchanges (million users)	6.2	33.97	87.95	95.36	96.66	103.57
Penetration rate of mobile phones (%)	8.5	34.1	76.7	85.0	95.0	100.0

Source: *Jiangsu Statistical Yearbook*

When interviewed by HKTDC, the relevant departments in the Jiangsu province government indicated that IoT is now one of the mainland's key strategic industries. Although the industry has established a foothold in terms of technology, industrialisation and application, its overall development is still at a nascent stage. In particular, where the R&D of core technologies and high-end products is concerned, the gap between China and a number of overseas territories remains wide, with the current number of large-scale application projects insufficient to meet present needs. According to the officials, it is hoped that an increased number of IoT application-related businesses can be nurtured in order to strengthen Jiangsu's operational efficiency with regard to environmental protection, energy saving and traffic management. The province is also interested in a range of other technologies from Hong Kong, including RFID, sensor and application solutions. It is believed that these technologies will help the province improve the efficiency of its cargo freight and logistics industry.

Advantages of Hong Kong Services

Speaking to HKTDC, Dr Ernest Lo, President of the Hong Kong Internet of Things Association, said the mainland market, including the YRD, offers huge scope for IoT applications. For instance, he said, in order to satisfy the demand for senior care and wellness services created by the urbanisation process, a new generation of sensor technology needs to be deployed to collect medical, daily life and health condition data. This data can then be analysed via IoT management systems. The systems can also be used to control the equipment from a distance, providing cost-effective daily services for users.



Dr Ernest Lo shares insights on mainland IoT opportunities at the 2014 Eco Expo Asia in Hong Kong.

Lo said: "The mainland market is vast. The sky is the limit for IoT service suppliers. Apart from key technologies, however, full details of the applications and total management systems and solutions are major requirements for entering the market. Additionally, the ease of use of such services and their capacity to meet the practical needs of users are also key to success.

"Europe and the United States are the frontrunners in IoT technology application, having accumulated considerable experience in device interface and user preference. This



information provides considerable insight for those technology sector players wishing to enter the mainland market. Additionally, several international technical organisations have now formulated a number of technical standards, notably ZigBee, a low-power mesh network standard, as well as AllJoyn, an open source software framework used in domestic and industrial IoT, that now facilitate interoperability among connected devices. The mainland can import and use the technologies developed under these widely accepted international standards/frameworks in order to propel the growth of its IoT industry.”

According to Lo, Hong Kong has a pool of Chinese and international technical talent and companies in the IoT sector. This, coupled with its free flow of information and the international exposure and language advantage of its local talent, has put Hong Kong in an ideal position to effectively bring in technological achievements and market experience from foreign countries to the mainland, while offering custom-made solutions to the mainland’s industry players.

Lo is director of CTTC-HK Ltd[2] as well as the founder of Future Impact Lab, which runs Tech X Social, a crossover platform jointly built by CTTC-HK and its technology partners. CTTC-HK is a technology company originated from Spain. The company can capitalise on the achievements of its R&D institutions in Europe, as well as its branch in Hong Kong – notably in the fields of radio communications, access technologies, IP technologies, intelligent energy (IQe) and engineering support. It can also utilise its advantage in regard to Hong Kong’s position as the technology trading hub for the Asia Pacific region, providing local and mainland clients with key IoT wireless technology services, as well as advanced R&D services and solutions.

Note: For more information on smart city development in the YRD, please see [IoT Players Capitalise on Urbanisation Trend in Yangtze River Delta: Industry Views](#)

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- [1] Source: Wuxi National Sensor Network Innovation Demonstration Zone
[2] The full name of CTTC is Centre Tecnològic de Telecomunicacions de Catalunya

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