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THE SWEDISH TRADE & INVEST COUNCIL



OPPORTUNITIES IN THE CHINESE IOT MARKET

MARKET INFORMATION

June 2016

Business Sweden, China



IOT IS A HEAVILY PROMOTED INDUSTRY WITH LARGE POTENTIAL FOR INNOVATION

THREE REASONS WHY IOT IS ONE OF THE MOST INTERESTING MARKETS FOR SWEDISH COMPANIES

1

CHINESE GOVERNMENT INVESTS HEAVILY IN IOT

- ▶ China's Ministry of industry and information technology's (MIIT) 12th five-year development plan specifically discussed the importance of IoT and elaborated on how to double the IoT market by 2020
- ▶ The government has earmarked over 5 billion CNY (650 million EUR) for IoT investments by 2015
- ▶ The government has established state-owned enterprise zones such as the Chengdu Internet of Things Technology Institute in the Sichuan province

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CHINA IS THE LARGEST AND FASTEST GROWING MARKET FOR IOT

- ▶ MIIT estimates China's IoT market to hit CNY 500 billion (80 billion USD) by 2015, and double to CNY 1 trillion (166 billion USD) by 2020
- ▶ China leads the world in the adoption of machine-to-machine (M2M) services, with 74 million connections at the end of 2014, representing almost a third of the global base
- ▶ The M2M figure is expected to grow at an annual rate of 29% to reach 336 million connections by 2020

3

SWEDEN IS A GLOBAL LEADER WITHIN IOT DEVELOPMENT

- ▶ Sweden and the rest of Scandinavia are world leaders in internet based M2M connectivity
- ▶ Ericsson's global position and vision of 50 billion devices globally by 2020 has put Sweden on the map
- ▶ Sweden has unique competence and capabilities to develop sensors that meet high demands
- ▶ Sweden's early development of IoT applications together with an innovative environment, good international contacts and strong basic industries bring a competitive edge

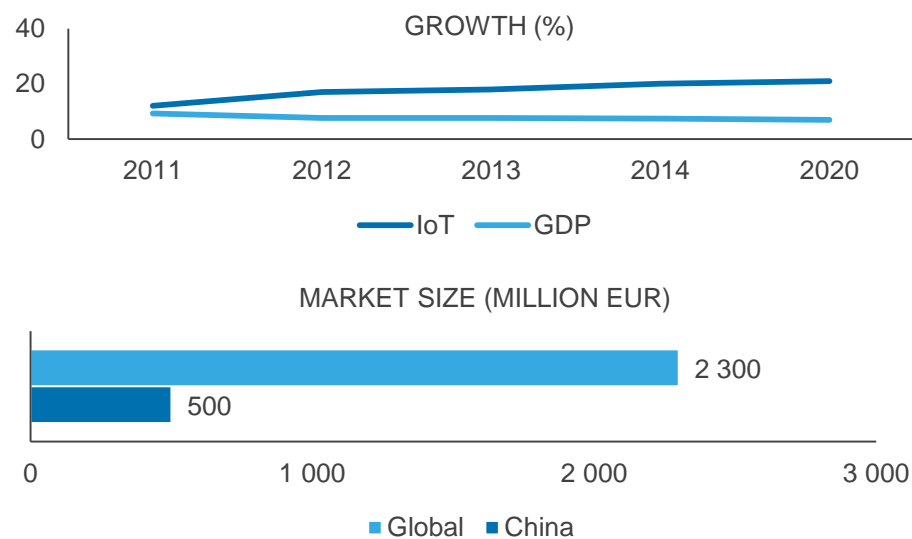
SOURCE: GSMA, "HOW CHINA IS SCALING THE INTERNET OF THINGS", 2015; CNN, "CHINA LOOKS TO LEAD THE INTERNET OF THINGS "2013; MACHINA RESEARCH, "SCANDINAVIA AND INTERNET OF THINGS", 2015; IOT SWEDEN: "NATIONAL AGENDA FOR THE INTERNET OF THINGS", 2013



CHINA IS PROJECTED TO REMAIN THE LARGEST IOT MARKET IN THE WORLD

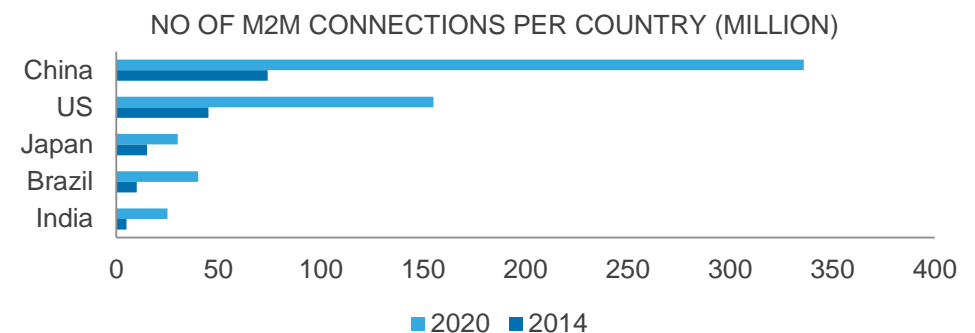
SIZE AND GROWTH RATE

- ▶ China is the largest market in the world for IoT with a 22% market share
- ▶ To date, most M2M deployments in China have been through a conventional business-to-business (B2B) approach
- ▶ The IoT market is growing considerably faster than GDP, projected annual growth until 2020 is between 20%-30%



OTHER MARKET CHARACTERISTICS

- ▶ Machine-to-Machine (M2M) connections, which involves connecting multiple machines, devices and appliances to the internet by multiple networks, are a key part of (IoT)
- ▶ China is, by some distance, the world's largest M2M market
- ▶ With 74 million connections at the end of 2014, China represents almost a third of the global base
- ▶ This figure is expected grow at a compound annual rate of 29% to reach 336 million connections by 2020



The diagram shows million M2M connections per country end of year 2014 and projected for 2020 – a key performance indicator for IoT maturity

THERE ARE SEVERAL EXCITING OPPORTUNITIES WITHIN IOT IN CHINA (1/2)

MARKET CHARACTERISTICS

POTENTIAL CUSTOMERS/PARTNERS

WEARABLES

- ▶ While Chinese companies are on the cutting edge for wearable devices, e.g. fitness bands and smart watches, there are opportunities for more creative and innovative products
- ▶ E.g. telecom giant China works with a number of partners in the niche of tracking devices, pointing out that the biggest issue so far is battery life
- ▶ Competition is however fierce as device manufacturers, such as Xiaomi and Huawei, are very active in this market, as are online service providers, such as Tencent (WeChat), and mobile operators
- ▶ A company with an innovative product would do best to partner up with a large and established Chinese player on the market

- ▶ Xiaomi
- ▶ Huawei
- ▶ Tencent
- ▶ China Mobile
- ▶ China Unicom
- ▶ China Telecom

CONNECTED CARS

- ▶ Building on the expansion of 4G China Unicom has signed deals with more than 20 car manufacturers and dealers to offer 4G services to more than three million cars
- ▶ International automakers believe in rapid market growth
- ▶ Due to a mindset of “car means face” there ought to be a large demand on features such as remote engine start, send-to-car and similar services
- ▶ Opportunities also exist in built-in connectivity for electric bikes, e.g. devices that would help them to navigate easier or track a stolen bike
- ▶ Best opportunities for Swedish companies are when teaming up with an international or Chinese automaker

- ▶ China Mobile
- ▶ China Unicom
- ▶ China Telecom
- ▶ SAIC Motor
- ▶ Dongfeng Motor
- ▶ Beijing Automotive
- ▶ BYD Automobile

SEMI CONDUCTORS & SENSOR NODES

- ▶ Sensor technology and high-performance chips are generally designed for robust, dynamic, and compatible systems, however in China these areas are relatively weak
- ▶ China will continue to expand its semiconductor market consumption leadership and increase its market share
- ▶ Since 2013, more than half of the worldwide semiconductor consumption is incurred in China
- ▶ Main drivers are the automotive and electronic equipment industries
- ▶ Innovation is dominated by large Western companies
- ▶ For Swedish companies, direct distribution or via an agent to a large Chinese company is the most promising opportunity

- ▶ Broadcom
- ▶ Hisense (Huawei)
- ▶ Unigroup

SOURCE: GSMA, “HOW CHINA IS SCALING THE INTERNET OF THINGS”, 2015; EU SME CENTRE, “THE ICT MARKET IN CHINA”, 2015; PWC, “THE INTERNET OF THINGS: THE NEXT GROWTH ENGINE FOR THE SEMICONDUCTOR INDUSTRY”, 2015,

THERE ARE SEVERAL EXCITING OPPORTUNITIES WITHIN IOT IN CHINA (2/2)

MARKET CHARACTERISTICS

POTENTIAL CUSTOMERS/PARTNERS

SMART GRIDS AND SMART METERING

- ▶ Because of the expanding energy demands, China is aiming to lead the world in the use of connectivity to make more efficient use of electricity
- ▶ The Chinese government is aiming to ensure that 95% of China's households will have a smart meter installed by 2017
- ▶ Global companies will have to compete through tailored offerings and/or superior, yet cheap, technology as China's expectations are foremost on low cost rather than functionality and life span
- ▶ There are opportunities in teaming up with a Swedish giant, e.g. ABB, or partnering up with an existing Chinese player on the market

- ▶ State Grid Corporation of China
- ▶ China Southern Grid.

WIRELESS TECHNOLOGY (WSN & RFID)

- ▶ High-performance chips are generally designed for robust, dynamic, and compatible systems, however in China these areas are relatively weak
- ▶ A rapidly growing market with a revenue of EUR 1,6 billion in 2014
- ▶ Competitors are strong within assembly but there are opportunities within chip design and manufacturing
- ▶ Opportunity exist within either distributing directly, or via agent, to Chinese manufacturers e.g. within automotive, construction, marine, medical, telecom

- ▶ Tongfang Guoxin Electronics
- ▶ Nationz technologies
- ▶ Datang Microelectronics
- ▶ Fudan Microelectronics
- ▶ CEC Huada electronic design
- ▶ Shanghai Huahong



A LEADING CHINESE MOBILE MANUFACTURER RECOGNISES IOT AS AN INDUSTRY FOR THE FUTURE

INSIGHTS FROM THE CHINESE INDUSTRY



smartisan

SMARTISAN FACTS

“Probably the second best smartphone on the planet”

Smartisan Technology Co. Ltd. Is based in Beijing and creates mobile devices. It is a wholly owned company by Smartisan Technology whose business focus is on sale of digital products and related services. Their edge in the Android smartphone field is the design of hardware, graphical user interfaces and user experience. Smartisan has a collaboration with a Swedish firm today and are open for additional partnerships with foreign or domestic partners with an interesting offering

SMARTISAN FOCUS AREAS

WEARABLES

CONNECTED CARS

SEMI CONDUCTORS &
SENSOR NODES

SMART GRIDS AND
SMART METERING

WIRELESS TECHNOLOGY
(WSN & RFID)

SMARTISAN COMMENTS ON MARKET TRENDS

- ▶ IoT market trends
 - ▶ IoT is considered a very interesting area to invest in
 - ▶ Smartisan is currently doing a feasibility study within wearables, but is not yet on the market
 - ▶ Innovative technology, customer experience and price are believed to be the drivers of the market
 - ▶ 5G, IOT safety, battery performance and charging systems will be hot topics for the coming 3 years
 - ▶ User experience by system integration is their biggest concern
 - ▶ This is affected by a number of IoT related products such as sensors, WSN & RFID
- ▶ Innovative needs within their line of business
 - ▶ 5G, fingerprint identification, high performance battery, optical anti-vibration, better heat radiation
 - ▶ Smartisan is also planning to enter the virtual reality devices industry and are in need of technology
- ▶ View on partnership/s
 - ▶ Co-development is the preferred collaboration model – Smartisan has a Swedish partner today and is open for more collaborations
 - ▶ A patent-binding model, i.e. where they can have access to the patent, is preferred
 - ▶ Essential qualities in a partner are a market ready offering, know-how and/or fast response time
 - ▶ Essential product requirements are a proof-of-concept, ready demo, solid patent protection

SOURCE: BUSINESS SWEDEN RESEARCH



THERE'S A STRONG SWEDISH COMMUNITY IN THE IOT MARKET, ESPECIALLY WITHIN WIRELESS AND M2M

EXAMPLES OF COMPANIES WITH IOT OFFERINGS

YANZI NETWORKS

- ▶ The Yanzi network is a software platform built to enhance IoT efficiency
- ▶ The product will provide cloud-based monitoring of video cameras, temperature and humidity sensors, energy monitors and more
- ▶ Won second prize at the IPSO Internet-of-Things Challenge Competition 2014

THINGSQUARE

- ▶ Thingsquare's software platform allows you to connect all your products with smartphones wirelessly
- ▶ Components of the Thingsquare system have been used in a variety of connected products, such as thermostats, industrial sensors, office environment sensors, street lights

IMAGIMOB

- ▶ Specializes in A.I. based sensor software that tracks the activities and movements of individuals
- ▶ One of 11 finalists in the European-wide 2014 EIT ICT IoT Idea Challenge

WATTY

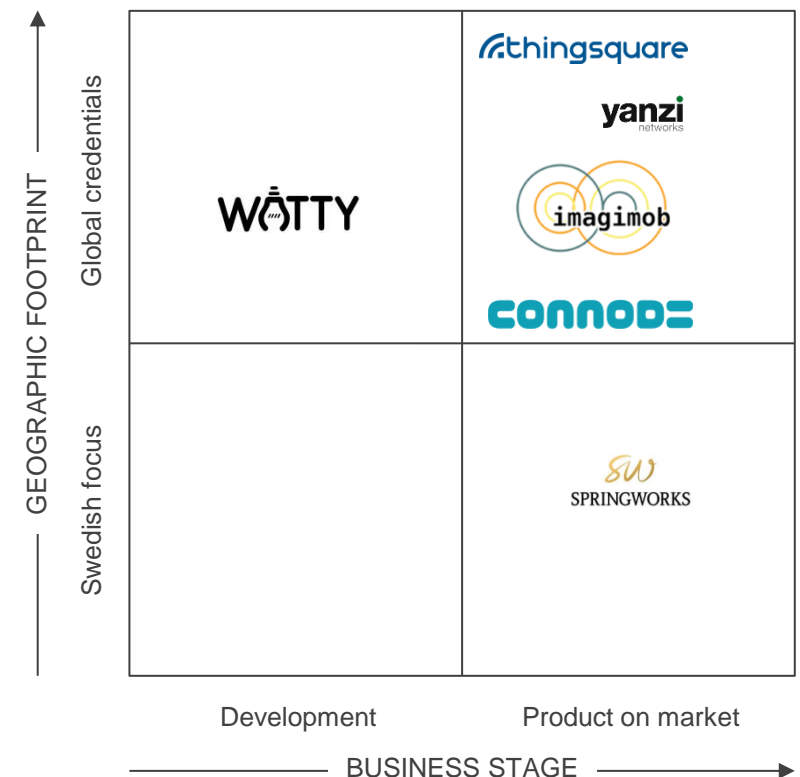
- ▶ An energy management product that allows you to understand, change and improve your household energy consumption using your mobile
- ▶ A finalist in the IoT Innovation category of the Swedish Mobile Gala 2014

CONNODE

- ▶ A leading provider of wireless mesh communications
- ▶ Partnering up with Telefonica, their Smart meter technology will now be spread across the UK

SPRINGWORKS

- ▶ Known for its machine-to-human connectivity (M2H) – an amalgamation and refinement of M2M
- ▶ Strong experience with the gaming and automotive industries and one of the leading companies in interactive and sustainable driving experiences





IOT PROVIDES OPPORTUNITIES FOR COMPANIES WITH THE RIGHT FOCUS AND ENTRY STRATEGY

IN SUMMARY, THE IOT INDUSTRY HAS SIGNIFICANT MARKET POTENTIAL, CONCRETE BUSINESS OPPORTUNITIES AND A SWEDISH COMMUNITY READY TO RESPOND TO THE DEMAND

MARKET POTENTIAL

- ▶ The Chinese IoT market is the one of the largest in the world and is expected to keep growing
- ▶ Heavily promoted through government initiatives
- ▶ A market driven by a high rate of connected people and a growing mobile telecommunication industry
- ▶ A focus industry for Chinese ICT enterprises which means opportunities for partnerships but also intense and growing competition

IDENTIFIED OPPORTUNITIES

- ▶ Opportunities for Swedish companies have been identified, particularly within:
 - ▶ Tracking technology
 - ▶ Battery life and power management
 - ▶ Chip design and manufacturing (Sensors, WSN and RFID)
 - ▶ Connected cars “flashy” features
 - ▶ High quality semi conductors and sensor nodes
 - ▶ Tailored and low cost smart grid technology
- ▶ For market entry partnering up with a domestic or global player is advised

STRONG SWEDISH CAPACITY

- ▶ Sweden is regarded as a global leader within the field
- ▶ Sweden has a number of established companies with innovative products and global credentials
- ▶ Swedish IoT industry is particularly strong within tracking technology and power management solutions



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