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INTERNET OF THINGS (IOT) INDUSTRY

IN INDIA

FLANDERS INVESTMENT & TRADE MARKET SURVEY



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INTERNET OF THINGS (IOT) INDUSTRY IN INDIA

December 2017

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FLANDERS INVESTMENT & TRADE

India, with growing consumption and acceleration in High-Technology manufacturing activities, is destined to emerge as an important high technology driven manufacturing location. As per the recent reports, India is one of the fastest growing semiconductor-consuming markets in the world. The rise of the middle class fueled by the sustained economic growth is driving the consumer market in India at an astounding pace.

Indian information technology (IT) services companies now own about two-fifth of the global Internet of Things (IoT) market. In all, about 43 per cent or \$1.5 billion of the global \$3.5 billion market, says a report by research and strategy consultancy Zinnov Zones. The share in Western Europe and North America is 27 per cent and 23 per cent, respectively.

The report listed Indian technology giants TCS, Wipro, Infosys, HCL, Tech Mahindra, Persistent, Genpact and L&T Technologies among the global leading innovators and market leaders in IoT. Companies were classified into nurture, breakout, execution and leadership zones, based on various competencies. The rankings were also based on which companies chose to respond to the survey queries within the mandated time frame.

Managed IoT services are expected to see the fastest growth, at a compounded annual rate (CAGR) of 23.5 per cent. Translating to INR. 20,360 million of annual business for Indian companies. Product engineering has the largest share of Indian IoT services, with INR. 41,680 million business in 2017. L&T Technologies, TATA Elxsi, Persistent Systems, L&T Infotech and Happiest Minds have moved significantly over the past year in rankings among Indian providers.

The three top Indian IT service firms – TCS, Infosys and Wipro – garner less than 20 per cent of their revenue from digital technology-based services, including IoT. It is understood that 76 per cent of total IoT revenue is generated by the top 20 of its service providers globally. Growth of Asian market is likely to lessen over the next five years, with an expected CAGR of 17 per cent; the North American market is expected to show 21 per cent.

While HARMAN Connected Services leads the overall list, TCS, HCL, Wipro and Tech Mahindra remained neck to neck across categories. Pune- based Persistent Systems broke into the leadership zones for 'Platform and Application Competency', 'Big Data Management' and 'Analytics Services'.

1 INDIAN ECOSYSTEM

The Indian ecosystem framework is accelerating development and adoption of IoT Systems by focusing on end-to-end solutions, including aspects like ecosystem development and monetization. Some tech companies have presence across platform and application competency, advisory and consulting, system integration, communications competency and big data.

Bangalore was the top location in India for IoT processes. Karnataka and Bangalore have been fortunate to have the IT industry as an engine for growth for the last 25 years. Today, the IT industry has over 15 lakh employed here, more than 25,000 companies of which around 7000 are start-ups. With export revenue of 45 billion dollars, there are more than 450 research labs with over 400 Fortune 500 companies getting their work done here.

Bangalore has over 1,25,000 chip testers and designers, the largest in the world with over 200 chip design companies even though India has no Fab. Bangalore has more than 20,000 automotive software engineers and designers, more than 10,000 aeronautical engineers and designers. Lately, over 500 start-ups using Artificial Intelligence (AI) and Machine Learning (ML) have come up with India's first Fund for AI/ML being started here. About 50% of IoT ecosystem, be it companies or development activity, are located out of the Silicon Valley of Asia – Bangalore Technological ecosystem.

Karnataka has led India in creating the right policy framework to create this Hitech City. In 1997 came India's first IT Policy, later the Bio-tech Policy, a Science Policy, and recently, the Start-Up Policy and the Electric Vehicle Policy, all due to a very innovative Minister.

We are now in the 'Age of Disruption' where the mobility industry is being disrupted by the Electric Car, the IC engine based vehicle industry disrupted by the electric engine, the coal based power industry by Alternative Energy, manufacturing by 3D printing, IoT and Robotics, the life science industry by bespoke DNA medicine and stem cells, the medical industry by Robotics Surgery and AI, the financial services industry by disintermediation of the payment system. All led by massive growth in mobile computing power, cheap data packs, even cheaper cloud technology, with software eating hardware. By 2030, we will see a completely new age driven by technology disruption! We already see the change due to 1060 million mobile connections.

In order to face the 'Age of Disruption' to win Karnataka is proposing to invest in Robotics, AI / ML, IoT and other High-Tech and frontier industry by creating policies for these new age industries to come up. A start has been made by the Electric Vehicle (EV) policy. The State also proposes to invest in R&D in frontier areas by creating a network of Universities and laboratories and funding research in these areas, creating scholarships and laboratories for experimentation. AI / ML will rule the world giving countries a competitive edge. This opens up a ecosystem of co-development and technology cooperation. This is an area where the cooperation and co-development can take place.

Industry is getting disrupted by 3D Printing, IoT and Robotics. To accelerate adoption by MSME, training centres and grants for adoption are needed. Industry associations are proposed to be given grants to set up training centres. The State also needs to incentivize electronic, mobile phone and sensor manufacturing by providing ready built infrastructure where capital costs will be reduced, set up near airports as these are part of global supply chains. The EV policy is the right entry point for EV by placing orders for 5000 EV Buses over the next 3 years, if manufactured here.

2 INDUSTRY CHARACTERISTICS

Hither to the industry was dominated by design services and embedded software, and it is estimated that the demand of electronics products and systems in India would grow to about USD 400 Billion by 2020. At the conventional rate of growth of domestic production, it would only be possible to meet demand of about USD 100 Billion by 2020. The Government attaches high priority to electronics & IT hardware manufacturing. It has the potential to generate domestic wealth and employment, apart from enabling cyber-secure ecosystem. There have been some efforts for rapid growth of the electronics (including telecom) hardware manufacturing sector in the past like 100% FDI permitted under automatic route, no industrial license requirement, payment of technical know-how fee and royalty for technology transfer under automatic route. However, these efforts have not led to a substantial impact; partly because of India is a signatory to the Information Technology Agreement (ITA-1) that has resulted in a zero duty regime on import of the goods covered under the Agreement. India has also executed Free Trade Agreements (FTAs) and Preferential Trade Agreements (PTAs) with several countries / trading blocks, which has enabled zero duty import of items not covered under ITA. DeitY (Department of Electronics & Information Technology) has taken some key steps to boost manufacturing of specific products and the setting up of planned semiconductor manufacturing facilities is likely to be accomplished. Thus, by 2020, India will not only have the IoT space well on the launch trajectory, but also have the entire high technology paradigm in place, and will be in the reckoning among other Asian high-technology manufacturing countries.

The Internet of Things (IoT) is the network of physical objects that contains embedded technology to communicate and sense or interact with the objects' internal state or the external environment.



These are the domains that will get benefitted and further disrupted by IoT.

3 OPPORTUNITIES IN INDIAN INTERNET OF THINGS (IOT) SECTOR

The global IoT market will exceed US\$ 300 billion by 2020. According to a NASSCOM study, the Indian IoT market is poised to reach US\$ 15 billion by that year, accounting for 5 per cent of the global market.

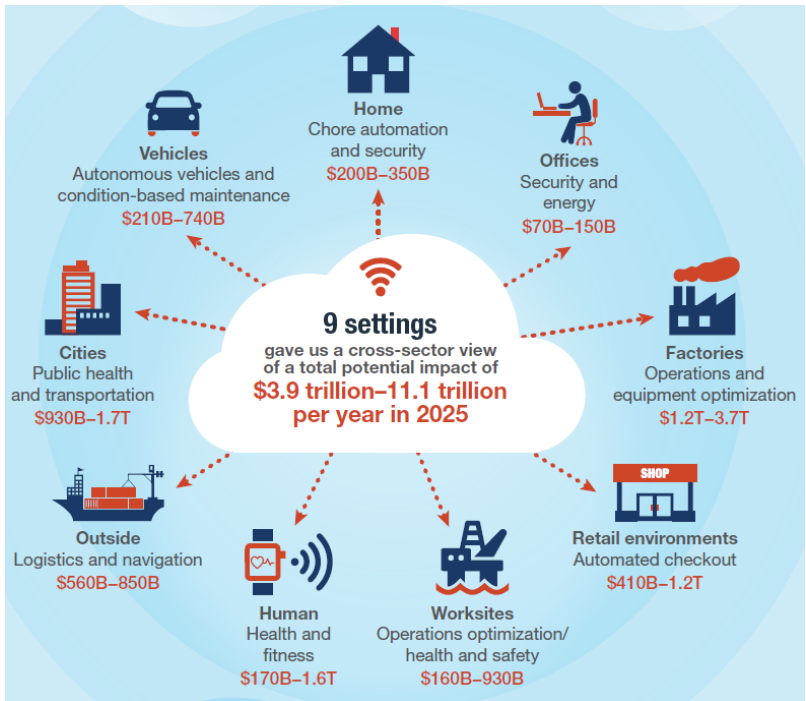
India's IoT market is expected to grow exponentially over the next couple of years. According to 6Wresearch, the Indian IoT market is projected to grow at a CAGR of 28.2 per cent during 2016-22. The key drivers of this market are government initiatives, growing acceptance of smart applications, and increasing Internet penetration across the country.

The Industry segment key indicators:

- The connected devices projected to grow to nearly 8 billion devices 2020
- Indian IoT market poised to reach US\$ 15 Billion by 2020
- The industry is growing at a CAGR of about 28.2%
- Potential of 15.5 million jobs in the sector by 2025
- Currently about 500 companies in the sector with a huge demand supply gap of personnel

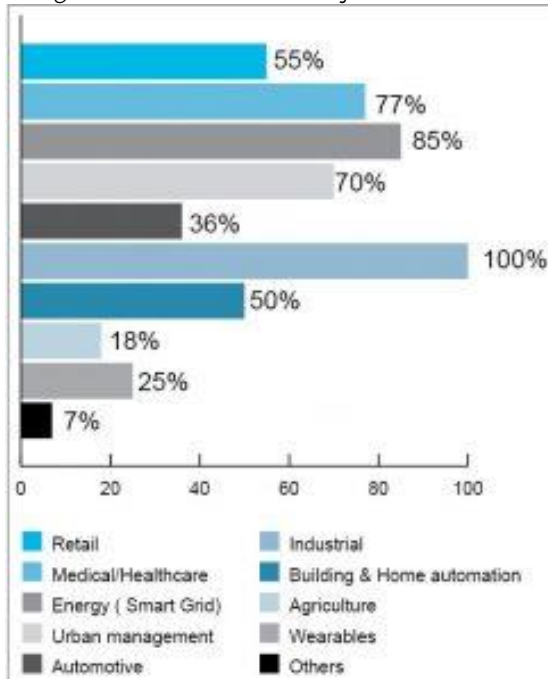
At present, the growth of the IoT business is primarily driven by consumers shifting from using devices such as laptops and tablets to using smart sensors, wearables and clustered systems like fitness trackers or smart homes. However, with the goal of improving human productivity, safety and the overall quality of life through a network of smart connected devices, the potential of IoT technology lies far beyond just consumer electronics. It shows promise in other markets and application areas including energy, water and traffic management, industrial IoT, surveillance and security, etc.

The high growth in this market is anticipated on account of ongoing developments in IoT technology, which provide better connectivity and coverage as well as real-time monitoring / tracking of services and systems across diverse industry verticals to reduce operational and manpower costs. Apart from smart cities, various other government projects such as smart transportation, smart grids, etc., are also expected to propel the adoption of IoT technology across the country. Therefore, the initial smart product-oriented applications in white goods, cars, etc., will be extended to improve supply chain agility, manufacturing and operations efficiency, etc. The semiconductor consumption in India is likely to increase with Consumer Electronics, Telecommunication Segment and Instrumentation leading the growth. Further, each segment of semiconductor products like microprocessors, microcontrollers, memory, and DSP across each segment have tremendous potential. The major players in various semiconductor segments are already present in India. The next opportunity and the industry segment is the semiconductor manufacturing scenario in India. This has been corroborated especially from the Flanders point of view by the presence of IMEC in Bangalore and many more electronics-related companies expressing their intent to be present in India.



The Global IoT footprint of Opportunities (India contributes to 5% of the above as on December 2017).

The growth of the IoT Industry within the main application sectors in India:



The revenue generation option in India is characterized by Business Intelligence and Connectivity options, and together they contribute about 66% and rest of the option is covered by professional services and security level management.

IoT offers tremendous opportunities as illustrated above, although there are challenges in realizing the full potential of IoT. Fragmentation, Security and Privacy, Device & Data Management, Collective Intelligence, Software and Services are some of the challenges in the segment.

The Industry trends indicate that IoT players, service providers, chipset vendors, device manufacturers, infrastructure providers and the OTT players have huge potential in India to work with Flemish counterparts in similar areas.

A few verticals focused on the ESDM sector can be looked at to enhance the collaboration like Component / Product Manufacturing, Semiconductor Engineering, Technology Upgradation Services, Design & Development Services, Joint Ventures in addressing the global market leveraging local talent and cost arbitrage, Joint Development of technology products & possibilities of cooperation, and Joint IP Creation.

With approval of 100 smart cities by Government of India, India needs international partnership to implement the same. Similarly, as IoT is now being adopted across the various industries, it will need more partnerships in terms of technology transfers, IPs, Skills, etc. Flanders can definitely assist India, being one among the top 3 in early adoption of IoT, to achieve its dream.

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Datum publicatie: December 2017

