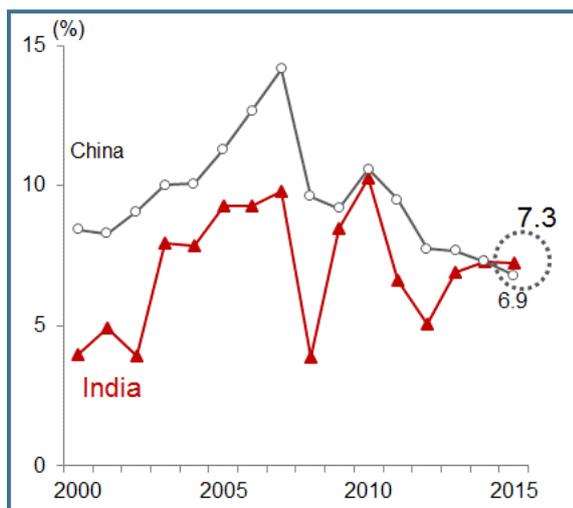## Research — India's Urban Digital Innovation

Hisaaki Ozaki

Chief Researcher, APAC Group, 1st Research Department

Reforms under the Modi government are progressing and the Indian economy continues to grow. One of the major challenges ahead is to raise the standard of living (QOL) of the people starting with those living in urban areas, and the government aims to achieve this through the development of smart cities. The Hitachi Research Institute is currently studying digital policy in India, which continues to make reforms and grow, from the perspective of increasing business opportunities in urban digital solutions (Urban Digital Innovation).

## 1. Innovation and Economic Reforms under the Modi Administration

Since Prime Minister Modi assumed office, India's real GDP growth has risen from 6.6% in fiscal 2013-2014 to 7.6% in fiscal 2015-2016. In fact, India's economic growth has topped that of China since 2015 (Fig. 1). The inflation rate is being kept in check at 4.9% from a previous 9.5%, the fiscal deficit has been reduced, and a high level of foreign exchange reserves has been achieved. The World Bank and other international organizations are predicting that India's economic growth will continue in the 7-percentile range.



Source: Prepared by the Hitachi Research Institute based on data from the IMF

Figure 1. Comparison of Real GDP Growth of India and China

Noteworthy reforms of the Modi government supporting economic growth can be broadly divided into three: increased foreign direct investment (FDI), the promotion of production in India under the "Make in India" campaign, and the digitalization of public services under "Digital India" initiatives.

The relaxation of investment regulations has resulted in an influx of $45 billion (approximately 5.0 trillion yen) in FDI in fiscal 2015-2016, an increase of $9.6 billion from the previous year. In 2015, India surpassed China as the world's largest recipient of FDI.

Leveraged by FDI, infrastructure development and improvements are moving ahead. Since Prime Minister Modi has taken office, the country's electric power supply shortage has been halved from 4% to 2%, railways have been extended 60%, and more than 6,000km of new roads have been built. Even in the fiscal 2016-2017 government budget, $32 billion (approximately 3.6 trillion yen) has been earmarked for investment in infrastructure development, a 22.5% increase from the previous year. In December 2015, the government also established the National Investment Infrastructure Fund (NIIF), which is expected to contribute significantly to infrastructure development.

Under the "Make in India" policy to promote the manufacturing industry, the government aims to increase manufacturing's contribution to GDP to 25% by 2022. In 2016, however, the ratio remained at 17%, the same level as under the previous government. The relaxation of regulations on land use and labor, which come under the jurisdiction of the state governments, remains an outstanding issue. Some states such as Gujarat, where the ruling BJP (India's Liberal Democratic Party) holds the majority in parliament, have been moving ahead with reforms for the past two years and, in tandem with these reforms, manufacturing incentives have accelerated. If deregulation makes further headway with an increase in the number of states where the BJP holds the majority in
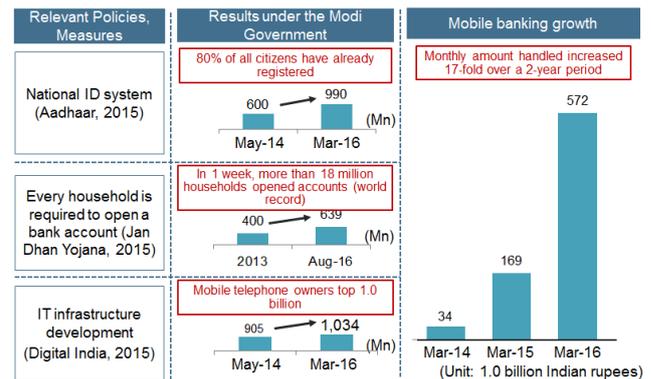
parliament, the domestic manufacturing industry in India can be expected to grow. Furthermore, growth of the manufacturing industry can be expected to accelerate with the introduction of the GST (goods and services tax) Law in 2017, an increase in commerce among states following the construction of the Dedicated Freight Corridor ("DFC," railway lines dedicated to freight only) in 2018-2019, and increased efficiency in the supply chain.

## 2. Digitalization of Rapidly Developing Services

"Digital India," the third major policy of the Modi government, intends to improve and develop the internet environment to make public services such as finance, health care and education available to all Indians online. The government has already announced that it will invest $17.5 billion (approximately 2.0 trillion yen) to realize this by 2019. In 2010 the government introduced Aadhar, a national ID program. This program registered subscribers in a biometrics system based on a combination of three physical features: fingerprints, face, and the iris of the eye. As a key aspect of the "Digital India" policy, Prime Minister Modi made joining this previously voluntary program compulsory. At present, this biometric system has more than one billion members, making it one of the world's largest biometrics systems in operation. In addition, due to falling prices and improvements in the telecommunications environment, the number of smart phone users in India has grown to the second largest in the world, exceeded only by the number of users in China. Against this backdrop, the digitalization of services in India is making rapid progress.

In finance, the government abolished subsidies and other receipts of cash, unified account transfers, and required each household to open a bank account (Jan Dhan Yojana). As a result, 240 million new bank accounts, equivalent to 37% of all households, were opened (Fig. 2). In November 2016, Prime Minister Modi suddenly abolished the 500 and 1,000 rupee notes. At that time people were required to exchange the old currency for new

currency at banks, or to deposit the money into their bank accounts. The objectives behind this were two: (1) to eradicate black money and (2) to encourage people to use bank accounts and promote the shift to a cashless society. It is hoped that this will accelerate the digitalization of payments and transactions in various aspects of everyday life including e-commerce and promote innovation in financial services such as settlement via dedicated mobile banks and encoded SMS.



Source: Prepared by Hitachi Research Institute from various information and data

Figure 2. Digitalization of Financial Services in India

In health care, the government intends to promote the use of electronic records and remote health care that will be linked with the national ID system. To achieve this, hospitals will increase IT spending to promote digitalization of data management and administration within hospitals through active use of cloud services. New business opportunities for private sector companies will also increase with digitalization as companies set up and operate services via the cloud where patients can search for doctors, make appointments and settle payment.

In February 2017, government-affiliated think tank Niti Aayog released a ranking for each state on its progress in digitalization. This is the part of plan of the government introducing a competition among the states, which will further accelerate the "Digital India" policy.

## 3. Plan to establish innovative smart cities

Modi's government has earmarked cities as places for linking the acceleration of basic data infrastructure such as biometrics information, social infrastructure development,

and the digitalization of services, and is promoting plans for the construction of smart cities across all regions of India.

At present, the urban population of India accounts for 31% of the total population (approximately 380 million) but, in tandem with economic development of India, it is expected that a little under 850 million people, or 50% of India's total population, will become concentrated in urban areas by 2050. Consequently, increasing QOL through infrastructure development that also takes into account the environment in areas such as energy, water resources, transportation, and living conditions is an urgent issue. India has announced its Smart City Mission policy to build smart cities in 100 locations nationwide using IT. To do this, the government plans to appropriate a budget of 480 billion rupees (approximately 860 billion yen) in total for 100 cities over a five-year period. Digitalization is expected to improve government services and offer smart services in many areas including urban transportation. In January 2016, India's Ministry of Urban Development selected 20 cities for the first phase of the project (Table 1). A look at the plans for smart services for the respective cities shows that while many cities will be directing their attention to urban transportation infrastructure and government services, diverse plans that reflect the issues the respective cities face, such as security and disaster countermeasures, are also evident. Use of national data available through the national ID system will also make it possible to develop and deliver finely tuned services to meet the needs of people in the respective cities.

Table 1. Cities Selected for Phase 1 of the Smart City Mission and Development Features

| City | State | Main Smart Areas Planned |
|---|---|---|
| Bhubaneswar | Orissa | Urban transportation |
| Pune | Maharashtra | Urban transportation, roads, water management |
| Jaipur | Rajasthan | Urban transportation, tourism, government services |
| Surat | Gujarat | Urban transportation, government services |
| Kochi | Kerala | Urban transportation, water management |
| Ahmedabad | Gujarat | Urban transportation, government services |
| Jabalpur | Madhya Pradesh | Waste disposal |
| Visakhapatnam | Andhra Pradesh | Disaster countermeasures, security, government services |
| Solapur | Maharashtra | Government services, business environment |
| Davanagere | Karnataka | Urban transportation |
| Indore | Madhya Pradesh | Urban transportation, waste disposal |
| NDMC | Delhi quasi-state | Government services, electric power supply, water management |
| Coimbatore | Tamil Nadu | Security, urban transportation |
| Kakinada | Andhra Pradesh | Waste disposal, government services |
| Belagavi | Karnataka | Government services, urban transportation |
| Udaipur | Rajasthan | Government services |
| Guwahati | Assam | Water management, security, disaster countermeasures |
| Chennai | Tamil Nadu | Urban transportation, water management, disaster countermeasures |
| Ludhiana | Punjab | Urban transportation, government services |
| Bhopal | Madhya Pradesh | Government services |

Source: Prepared by HRI based on information from the "India Smart Cities Mission" website

## 4. Tasks for Future Research

At the Hitachi Research Institute, we view India's smart cities, which will take shape through digitalization, as "D-SmILE Cities" (Digitally-powered Smart Infrastructure and Life Enabled Cities) and we intend to study measures implemented and their progress in various areas such as mobility, energy, water, the environment, education and health, among others, with a view to making a contribution as the Hitachi Group to the realization of digitalization and smart services.