IT Policy in Japan

October 13, 2015

Ministry of Economy, Trade and Industry (METI)
NATIONAL IT STRATEGY
Tips for Japanese IT industry

IT and communication account 10% of total industry market (6.85 tri USD) (Source: MIC ICT white paper 2015)

Internet Penetration 82.8%
Cellphone 94.6%
Smartphone 64.2%
Tablet 26.3%
PC 78.0%

Cloud Computing Usage 38.7%
(Source: MIC ICT white paper 2015)

Major IT vendors

- NTT-Data (12.6 B USD 2014)
- Fujitsu (39.7 B USD 2014)
- Hitachi (81.4 B USD 2014)
- NEC (24.5 B USD 2014)
- IBM Japan (7.3 B USD 2014)

Rate 120 yen = 1 USD
Transition of Japan’s IT Strategy

- **E-Japan Strategy (Jan 2001)**
  - Development of broadband infrastructure
  - Achieve an IT country on the cutting edge of the world by 2005

- **E-Japan Strategy II (July 2003)**
  - Emphasis on IT utilization
  - Achieve a society where anyone, can feel the benefits of IT anytime and anywhere in 2010

- **New IT Reform Strategy (Jan 2006)**
  - Driving forward the IT structural revolution

- **i-Japan Strategy 2015 (July 2009)**
  - The benefits of digital technologies for all

- **A New Strategy in IT (May 2010)**
  - Establishment of a new society where the citizens hold sovereignty

- **Declaration on Becoming the World’s Most Advanced IT Nation (June 2013)**
  - Breaking dead lock and revitalize Japan’s economy by IT.

- **A New Strategy in IT 2015**
  - Achieve transition to a citizen-driven society and a true knowledge-information society

- **Transition of Japan’s IT Strategy 2013 ~ 2020**
  - Achieve an IT country on the cutting edge of the world by 2020
I. Basic Principles

- 2013: Created a government CIO system, start inter-ministerial measures, and adopted the Declaration to be the World’s Most Advanced IT Nation ("IT Declaration")
- 2014: Revised the IT Declaration

The IT Declaration was revised in light of the rapid advances in the adoption of IT over the past two years.

Current Conditions

Japan is implementing new economics policy package (Abenomics), consisting of the “three arrows” strategy—bold monetary policy, flexible fiscal policy, and a growth strategy that promotes private investment. In conjunction with development and investment for the Tokyo 2020 Olympic and Paralympic Games, expectations for the future are rising and the economy is on a recovery path. At the same time, it is necessary to address various issues including preparing for the formation of a superannuated population, a shrinking workforce, rising social insurance benefits, disaster countermeasures, and aging social infrastructure.

1. The Use of Information Technology, the Key to Japan’s Rejuvenation

- It is positioned as an engine of growth as a foundation of the growth strategy, and under the minister responsible for IT, vertical organization of ministries and agencies will be broken down to take inter-ministerial measures. Over the past two years, measures have been taken to build foundations for IT use and promote its use, and those foundations are nearing completion.

Representative Results to Date

- Measures to integrate and eliminate government information systems and adopt cloud-based systems based on business process reform (BPR) will cut operating costs by approximately 20% with a current target of FY 2021 (approximately ¥90 billion annually) (the target is 30%), and the number of government information systems is expected to be reduced by approximately 60% by FY 2018 (the target is 50%).
- Measures to encourage use of the Social Security and Tax Number System including system reforms for smooth introduction of the Social Security and Tax Number System, and development of the Disclosure System of Personal Information Cooperation Record function and requirements.
- Submission of a bill to amend the Personal Information Protection Act in order to encourage use of personal data while protecting personal information.

2. Pursuit of “true affluence” with the world’s leading Problem-Solving IT Utilization

- With advances in IT and increasing volumes of data in circulation, we are entering the era of the Internet of Things (IoT) and artificial intelligence (AI).
- By creating unprecedented problem-solving IT use models for the use of these technologies while ensuring security, true prosperity that the public can sense will be achieved.

3. Four Pillars of Problem-Solving through IT Utilization

- From the perspectives of deepening general applicability and continuity through standardization (inter-disciplinary deployment) and the spread of innovation in various fields, which are unique features of IT use, the optimal society that we want through the use of IT will be clarified and measures necessary to achieve it will be taken based on the following four pillars:
  (1) A society that grows toward the future through more intensive by utilizing IT
  (2) A dynamic society that invigorates communities, people, and jobs by utilizing IT
  (3) A society where people experience safety, security, and prosperity by utilizing IT
  (4) A society where one-stop public services are available by utilizing IT
Revised World’s Most Advanced IT Nation Declaration and Process Table—Summary

II. The Society that Japan Should Seek to Become

III. Measures to Become that Society

1. A society that grows toward the future through more intensive by utilizing IT ➞ Target: Develop systems to encourage the use of IT through the national and local governments
   - Develop new IT utilization environments: Investigate new legal systems to accelerate IT use (new*)
   - Review regulations and systems that impede expanding the scope of IT use: Develop environments for the use of personal data
   - Make Public Data Available to the Private Sector (Open Data): Promote problem-solving open data (new*)

2. A dynamic society that invigorates communities, people, and jobs by utilizing IT ➞ Target: Create jobs in local communities and invigorate local economies
   - Implement “IT utilization plan for regional revitalization”
     - Develop information sharing infrastructure, analyze and use information using RESAS and social networks, and support dispatch of IT personnel by government CIOs and persons with experience with successful projects (new*)
   - Create entrepreneurship: Create regional IT startup funds, discover IT personnel, and so on to support startup companies and other companies (new*)
   - Diversify work formats and achieve a work-life balance: Encourage telework from local communities (new*), review Hello Work operations and systems to reinforce support for job-seeking functions

3. A society where people experience safety, security, and prosperity by utilizing IT
   - Create a healthy society of longevity through the provision of appropriate local healthcare and nursing care and promotion of good health ➞ Target: Increase the healthy lifespan of the public by at least one year by 2020
     - Deploy the regional medical information networks nationwide and use various types of medical and healthcare and related data to improve health and prevent the occurrence of disease and serious conditions
   - Use IT to make Japanese agriculture and peripheral industries into advanced knowledge industries and develop them internationally ➞ Target: Agricultural, forestry, and fishery exports of 1 trillion yen
     - Encourage the creation of agricultural information and implementation of strategies to support circulation of that information (support AI agriculture, the use of agricultural IT for wildlife harm countermeasures, and so on)
   - Create the world’s safety and most environmentally-friendly economical road transport society ➞ Target: Start operation of fully autonomous driving systems in the late 2020.
     - Formulate and implement the Public-Private ITS Concept and Roadmap 2015 (support mobility of senior citizens and others, build advanced ITS in the lead up to the Tokyo Olympic and Paralympic Games)

4. A society where one-stop public services are available by utilizing IT
   - Utilization of the Social Security and Tax Number System ➞ Target: Widespread use of Individual Number Cards
     - Expand the scope of use of Individual Number, encourage the use of Individual Number Cards for public and private procedures and use Individual Number Cards as other cards.
   - Reform administrative information systems on the national and local level ➞ Target: Cut local government system operating costs by 30%
     - Investigate adoption of IT in administration and implementation of BPR on the national and local levels by the IT Strategic Headquarters and the e-Government Ministerial Conference.

* Measures to implement the new
IV. Reinforce Foundations to Expand the Scope of IT Use

1. Human Resource Development and Education
   ※ Become the world’s most advanced IT nation to develop human resources who can drive the formation of an information resource nation, human resources who can support such a nation, and human resources who enjoy and lead prosperous lives
   ※ Clarify career paths and take other measures to develop IT human resources in the government
     ○ Educate driving human resources and supporting human resources
       Identify and support cutting-edge human resources who can create new businesses and new services using IT and data and support programming and other IT education
     ○ Educate Human resources who enjoy and lead prosperous lives
       Raise the ability of the people as a whole to use information, develop safe and secure use environments, and foster and secure leaders

2. Secure the World’s Most IT Infrastructure
   ※ Secure broadband environments at the world’s highest levels and create environments adapted to the IoT era that can use large volumes of data
     ○ Develop communications network infrastructure
       Develop free public LANs in tourism regions, disaster prevention sites, and so on (also include in community formation IT use plans)
       Support local government efforts to develop ultra-high-speed broadband in underpopulated, remote, and other regions with disadvantageous conditions

3. Cyber Security
   ○ The IT Strategic Headquarters, Cyber Security Strategic Headquarters, and National Security Council will collaborate the take specific measures under the Cyber Security Strategy and annual plans
   ○ Ensure cyber security to protect the public and society
     Substantial reinforcement of government agency response capabilities and turning attention to security measures to address reductions from higher information system efficiency
     Comprehensively ensure the security of the Social Security and Tax Number System

4. Support Research and Development and Collaboration Among Research and Development Results
   ○ Rapid and reliable collaboration among research results including technology compatible with the IoT era, ultra-high-speed network communications technology, technology that takes information-disadvantaged persons into account as well as effective sensor and robot technology for disaster prevention and mitigation is necessary; close collaboration with the Council for Science, Technology, and Innovation
V. Strategy Implementation Systems and Methods

- Based on this strategy and process table, implement IT measures in government ministries and agencies and work towards achieving the world’s most advanced IT nation
- The “gears” of the measures of each ministry and agency will mesh to advance strongly towards targets, and under the minister responsible for IT measures, the Government CIO will play a central role through oversight and specific participation and inter-ministerial coordination through the following systems
  ⇒ Implement the PDCA cycle timely and appropriately to spiral up measures.

1. Management systems for applying the PDCA cycle to this strategy
   - Exercise of control functions of government CIO (preparing inter-ministerial implementation plans, etc.)
   - Implementation and management systems in the IT Strategic Headquarters

2. Evaluation indicators for target and progress management
   - Key performance indicators (KPI) will be set to appropriately reflect the strategy in society and other forms and problem solving will be accelerated in fields that require prioritization

3. Analysis and deployment of successful models
   - When deploying successful models, there are various examples from different regions, and it is necessary to analyze them individually. It should be kept in mind that, considering the regional circumstances and conditions of one successful model, that model cannot necessarily be deployed in other regions as a successful model without modification simply because it is a successful model.

4. International deployment to reinforce international contribution and international competitiveness
   - Share information between the public and private sectors with a sense of crisis to achieve sustainable growth and development and rapidly implement fundamental measures to enhance international competitiveness.
IT STRATEGY FOR ECONOMIC GROWTH VIA INNOVATION
Main issues METI engaged with

**Trade policy**
- Infrastructure exports
- Economic cooperation negotiations
- Establishment of international rules

**Resources, energy**
- Reform of electric power, gas regulation
- Promotion or renewable energy
- Securing resource concessions
- Nuclear power policy

**SME policy**
- Funding, financial measures
- Support for overseas development
- Support for No. 2 business start-up

**Dealing with Fukushima**
- Reactor decommissioning, contaminated water clean-up
- Rebuilding Fukushima’s industry

**Growth strategy**
- Innovation policy
  - Venture IP, standardization promotion strategy
  - Corporate governance business restructuring

**Corporate governance**
- Business restructuring

**Innovation policy**
- Venture IP, standardization promotion strategy
  - Corporate governance business restructuring
Overcoming demand shortage the most important in ending deflation
⇒ First arrow (dramatic monetary policy), second arrow (flexible fiscal policy), third arrow (fundamental regulatory reform)

“Corporate earnings at all-time highs” and “employment growth”
⇒ “wage growth” via government, labor, employers ⇒ “signs of recovery in consumption”

However, “investment growth weak”

Limits on productive age population due to aging of society
⇒ Improvement in productivity critical to growth

Private sector investment the main key to productivity gains: “Now’s the time to act”

Age of manufacturing plant and equipment increased from 11 to 16 years over past 20 years

Promotion of local Abenomics

Productivity revolution via future investment
“Investment growth” not simply workforce reduction or capacity growth, and thorough support for “innovation creation” that “increases added value”
Aggressive investment critical to future investment in productivity revolution

Increase pressure on management

- Amend Companies Act
  - Promote appointment of external directors
- Draft corporate governance code
  - Appointment of at least two independent directors
- Strengthen “aggressive” governance
  - Review agenda etc. for board meetings
  - Promote further increase in external directors
  - Introduce remuneration linked to earnings

Improvement in corporate earnings

“Aggressive” management decision making

- Conversation between public, private sectors, etc.

Strengthen monitoring on funding side

- Draft stewardship code
  - Proper role of “responsible institutional investors” with view to companies, customers
- Reform of GPIF
  - Invest 50% of AUM in equities
  - Review shareholders meeting processes
  - Efficient disclosure of useful information

Next move

Business reform, reorganization

Aggressive investment

Pay increases

⇒ Big opportunities particularly in IoT related investments.
Entering era of IoT, AI thanks to uptake of internet, mobile telecoms

Industry structure in period of revolution due to progress in IoT, AI technologies creating big business opportunities.

1. First half of 2000s
   - PC to PC
   - Rapid uptake of internet
   - Efficiency gains for all industries
   - Development of mainly B2C internet businesses

2. Second half of 2000s
   - Mobile to Mobile
   - Uptake of SNS, mobile phones
   - Progress in accumulation, use of individuals’ data

3. 2010s
   - Thing to Thing
   - Growth in IoT, progress in AI, reflection in real society
   - Could cause massive change in business in all industries, including industry structure

- SNS: Social Networking Service
- IoT: Internet of Things
- AI: Artificial Intelligence
IT could solve problems faced by Japan, including population decline, medical expense growth

- Usage of data to change society in era of IoT, AI. Social issues could be solved by analyzing this change in industry structure and reforming regulation and establishing systems based on vision of future.

- Artificial intelligence
  - Big data
    - Growth in data volumes, processing capacity
    - Technological progress in “deep learning”

- Era of AI, big data
  - Change in industrial, employment structures
  - Socio-economic revolution

- Population decline, aging of society
- Substitution for workers, including white collar

- Financial burden of healthcare, nursing
  - Preventative medicine based on wearable data and health insurance data

- Tightening energy restrictions
  - Full introduction of smart meters, etc.

- Exhaustion of regional economies
  - Self-driving systems to improve mobility of elderly
IoT to have big economic impact worldwide

Economic impact expected from IoT in 2025 by area (annual)

- Manufacturing: 33%
- Healthcare: 15%
- Infrastructure: 14%
- Retail: 11%
- Logistics: 8%
- Other: 19%

$11.1tn

Impact of optimization of transport routes, self-driving trucks, navigation systems
Impact of self service checkouts, optimization of product layout, electronic tags, customized advertising
Impact of disease prevention due to monitoring, health management
Impact of energy savings, productivity improvement, better facility maintenance functionality
Impact of traffic volume control, water and air quality management

Source: Compiled by METI based on McKinsey & Company materials
http://www.mckinsey.com/insights/mgi/in_the_news/by_2025_internet_of_things_applications_could_have_11_trillion_impact
Initiatives necessary to meet growing challenges of new era

**Near-term policy response**

**Improving usage environment**
- Leveraging AI, IoT in transformation to next-generation industrial structure
  - Strategic initiatives, vision formation to cope with change in industry, employment structure
  - Advanced model creation, regulatory reform in priority fields such as mobility, healthcare, manufacturing processes

**Tightening security**
- Strengthening security measures with view to Tokyo Olympics, Paralympics, and next-generation industrial structure
  - Protecting government institutions
  - Protecting critical infrastructure
  - Protecting companies
  - Initiatives to build platforms

**Building IT usage platforms**
- Training personnel
- Technology development
Formulating vision, strategic initiatives for IoT, big data, AI

- Japan has good platform for businesses leveraging IT, including world’s second highest market penetration for broadband and digitization of more than 98% of health insurance claims. Apple and others have opened research facilities in Japan.

- Strategic implementation of necessary regulatory reform, system building based on vision for future outlook for each area.

### Mobility
- **Vision**: Highly advanced self-driving vehicles
- **Project**: Pilot testing of highly advanced self-driving systems that accelerate, control and steer vehicles in convoys on expressways

### Healthcare
- **Vision**: Life-long employment society thanks to healthy lifespan extension
- **Project**: Development of new healthcare industry leveraging health management, insurance claim data; analysis of genome data; smart clinics

### Manufacturing
- **Vision**: Realization of world’s top manufacturing competitiveness; shift from standard products to tailor-made product; zero design lead time; zero inventories
- **Project**: Testing of pilot smart factories (networking of upstream-downstream, design-production)

- Review of systems necessary for advanced self-driving vehicles, establishment of benchmarks
- Standardization of connectivity of medical equipment; development of rules for use of personal data
- Standardization of telecoms specifications to promote data usage
- Standardization of telecoms specifications to promote data usage

- **Initiatives to realize future outlook**
  - Increase in social value
  - Expansion in healthy life extension industries
  - Optimization of health insurance, nursing insurance premiums
  - Growth in real working population
  - Big reduction in traffic accidents
  - Solution to driver shortage
  - Provision of transport to elderly
  - Improvement in labor productivity
  - Improvement of export competitiveness of manufacturers
  - Export of manufacturing systems

- Regulatory reform, drafting of rules

- Logistics
- Finance
- Education
- Agriculture
"Data-driven Society" through CPS (Cyber-Physical-System)
**NexGen IoT Acceleration Lab**

- Launch *“Next Generation IoT Acceleration Lab”* to make Japan an open and the best place to try various new businesses using AI, IoT, robotics etc. by encouraging new IoT projects
- Welcome new disruptive projects involving start-ups and academia as well as participation and investment from overseas

**Lab/General Meeting**

**IoT Acceleration Committee**

1. Provide insights to each IoT project
2. Conduct proposals such as regulatory reforms and systemic changes towards the government

**Functions**

**NexGen IoT Acceleration Lab**

1. **IoT projects generation**
   - Create IoT projects by facilitating partnerships among large companies, start-ups, foreign companies, and research institutes, local governments, through activities such as matching events

2. **Funding support**
   - Financially support short-term projects driven by start-ups
   - Conduct medium-term feasibility studies and field tests for implementation

3. **Regulatory reform/exceptions (‘sanctuary’)**
   - Breakthrough current regulations and rules essentially for new business models

4. **IoT Category-base scenarios/strategies**
   - Share the views/scenarios/strategies how IoT changes the society/solve social problems

**IoT project Sourcing and Implementation Initiatives**

- Generate short-term projects driven mainly by start-ups as spearheads, and medium-term cross-industrial consortium projects for social implementation in each of 10-20 thematic areas

**Theme Examples**

- Manufacturing
- Mobility
- Infrastructure Construction
- Medical / Healthcare
- Smart Homes
- FinTech

*Cooperating with Robot Revolution Initiative (RRI)*
FORCED LOCALIZATION MEASURES (FLMS)
Types of FLMs

**Unique Security/Safety Rules**
- National security standards
- Unique testing, evaluation and accreditation schemes
- Prohibition of foreign encryption products (local encryption algorithms)

**Discriminatory Measures**
- Preference for domestically manufactured goods
- Import restrictions
- Indigenous IPR
- Exclusion from government procurement

**Sensitive Information Disclosure Requirements**
- Source code
- Sensitive design elements
- Technology transfer

**Localization Requirements**
- *Data localization*
- Restricted cross-border data processing
- Local content/local sourcing
- Local subsidiary establishment
- Indigenous IPR
Risk posed by FLMs

- Conflict with international commitments
- Security weakened
- Innovation hampered
- Users lose the opportunity to access better products and services
- Entry barriers for foreign firms
- Spread to competitor countries
The movement of data across borders is an imperative for today’s global economy.

Data localization requirements disrupt the free flow of data.

Data localization requirements are incompatible with the Internet’s distributed infrastructure that enables optimal system architecture.

The security of data does not hinge on the national boundaries of where such data resides.
Against the FLMs

- Comply with international commitments
- Treat domestic and foreign firms equally
- Eliminate unreasonable regulatory regimes
- Adopt international standards & schemes
- Sustain efficient cross-border supply chain operations
THANK YOU