Enhancing Public Sector Management by Advanced ICT Infrastructure
1. NTT DATA and its Public Sector Business at a glance

2. Public Sector Track Records
NTT DATA and its Public Sector Business at a glance
• NTT Group is the 29th largest companies in the world*, specializing in IT & Telecommunications with USD 134 billion in revenue.  
  
  * “Fortune Global 500 July 2012

• NTT DATA is the IT solutions arm of the NTT Group, specializing in providing IT solutions and systems integration services.

• History:
  1967 - established as a division of NTT
  1988 - spun off from NTT and incorporated
Our operation outside Japan

Approx. 42,000 persons deployed in 40 countries and regions outside of Japan

(as of Jan 31, 2014)

- Provide seamless support in Japan and abroad
- Choose suitable resources from all over the world
- Achieve best practices and gain new insights

<table>
<thead>
<tr>
<th>Region</th>
<th>Employees: approx.</th>
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<tbody>
<tr>
<td>EMEA</td>
<td>14,000</td>
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<tr>
<td>APAC</td>
<td>11,000</td>
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<tr>
<td>China</td>
<td>4,000</td>
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<td>Americas</td>
<td>13,000</td>
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Asia-Pacific Operations

[ASEAN]
- Indonesia
- Malaysia
- Singapore
- Thailand
- Vietnam
- Myanmar
- Philippines

[Oceania]
- Australia
- New Zealand
- India
- Taiwan
- India
- Taiwan

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**NTT DATA presence in the Japan Central Government**

NTT DATA provides various systems to Japan central government ministries. Among the central government ministries, NTT DATA has the largest share, which is about 30% of total IT-system budget. (Public sector’s sales amount is 280 billion JPY or 2.3 billion USD)

**Major systems provided by NTT DATA for each ministry**

<table>
<thead>
<tr>
<th>Ministry of Internal Affairs and Communications</th>
<th>Electronic Application Acceptance System (e-gov)</th>
<th>Land Registration System</th>
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<tr>
<td></td>
<td>Local Tax Electric Filling System (eLTax)</td>
<td>Supreme Court Custody System</td>
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<td></td>
<td>Ministry of Education, Culture, Sports, Science &amp; Technology</td>
<td>International Financial Aid System</td>
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<td>Ministry of Justice</td>
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<td>Ministry of Foreign Affairs</td>
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<tr>
<td>Ministry of Finance (National Tax Agency)</td>
<td>Accounting Data Management Systems (ADAMS)</td>
<td>National Tax Electronic Declaration Payment System (e-Tax)</td>
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<td></td>
<td>Nippon Automated Cargo And Port Consolidated System (NACCS)</td>
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<tr>
<td>Ministry of Defense</td>
<td>Maritime Operation Force (MOF) System</td>
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<tr>
<td>Cabinet Office (National Police Agency)</td>
<td>IC-embedded Driver License Verification System</td>
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<td></td>
<td></td>
<td>Ministry of Environment</td>
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<td></td>
<td></td>
<td>Electronic Bidding System</td>
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<td>Pension Insurance System</td>
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<td>Health Insurance Society System</td>
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<td></td>
<td>Labor Insurance Network System</td>
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<td></td>
<td></td>
<td>Plant and Animal Inspection System</td>
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<td></td>
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<td>Fresh Foods Market Information System (FAINS)</td>
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<td></td>
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<td>Patent Office Paperless System</td>
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<td>Patent Search System</td>
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<td></td>
<td></td>
<td>Motor Vehicle Registration System (MOTAS)</td>
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<tr>
<td></td>
<td></td>
<td>Air Traffic Control/ Radar Data Processing System (RDP)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The CO₂ National Registry System</td>
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</tbody>
</table>
2. Public Sector Management Solution
Custom Clearance - NACCS
NACCS outline

• **Nippon Automated Cargo and port Consolidated System**
• NACCS is the comprehensive IT infrastructure for customs clearance including both import and export transactions.
• It also provides national single window portal, used by both public agencies and private organizations.
• **High online rate**: More than 98% of import/export cargo transactions are processed online by NACCS.
• The world’s fastest e-Customs system: Most of submissions take only 3 seconds to be processed.
• The clearance procedures are highly automated. It ensures transparency and fairness.
NACCS is a national single window for customs clearance, connecting all the related agencies, organizations, and companies in Japan.

**NACCS System**

**Import**
- Ship arrival
- Unloading
- Customs clearance
- Taxation
- Delivery

**Export**
- Send out
- Loading
- Customs clearance
- Taxation
- Ship departure

**Government agencies, etc.**
- Maritime Bureau, Ministry of Land, Infrastructure, Transport and Tourism
- Port administration
- Coast Guard
- Customs
- Food inspection (Ministry of Health, Labor and Welfare)
- Plant, animal inspection (Ministry of Agriculture, Forestry and Fisheries)
- Immigration control (Ministry of Justice)
- Trade control (Ministry of Economy, Trade and Industry)
- Air carriers
- Air transport agents
- Consolidators
- Customs brokers
- Bonded warehouses
- Banks
- Shippers
- NVOCC
- Forwarding agents
Vietnam government has decided to adopt NACCS as its trade / clearance infrastructure and national single window. Both Japanese and Vietnam governments have been working on to adapt the latest NACCS system to Vietnam.

In 2012, NTT DATA was awarded for providing the software called “VNACCS” to Vietnam. The development project successfully completed and went live on April 1st in 2014.

In 2014, NTT DATA was also awarded by Myanmar government as a provider of Myanmar version NACCS which is called as “MACCS”.
Air Traffic Control – air airpalette™
• NTTD provides various kinds of Air Traffic Control systems:
  – Radar Data Processing System (RDP)
  – Air Traffic Flow Management System (ATFM)
  – Air-Route Design System (PANADES)
  – electric Terrain & Obstacle Data (eTOD)
• Those solutions demand high precision, fault tolerance, and reliability.
airpalette™ RDP

- Radar Data Processing System (RDP)
- airpalette RDP was developed based on RBU (Radar Back up Unit) for Japan CAB. Thanks to this origin, it became a cost efficient, handy software solution.
Air Traffic Flow Management System (ATFM)
• An air-route design system, ICAO standard compliant.
• Featured by highly automated functions.
• Specialized functions for RNAV-based regulations.
• Used not only by the Japanese government but also by Indonesia, Thailand, Vietnam, Laos and Myanmar authorities.
• eTOD (electric Terrain & Obstacle Data) provides elevation vector data for all natural or artificial obstacles around airports. It supports air route design and air traffic control. It covers over 3,500 airports worldwide.

• NTT DATA generates eTOD data from satellite image using its own state-of-art 3D mapping technologies.
Government Accounting System – ADAMS
• “ADAMS” is for “governmental Accounting Data Management System”
• ADMAS handles all the governmental budget execution (Revenue and Expenditures) and settlement.
• Electronic online payment is realized in cooperation with “Bank of Japan” and “Zengin Network” which connects all commercial banks in Japan.
• Almost the whole amount of governmental budget is executed, paid online by ADAMS.
• Funded by Ministry of Finance, developed and operated by NTT DATA.
Fully automated business processes of ADAMS eliminates human mistakes and improper operations.
Digital Archive
Digital Archive system overview

- Collecting various digital data and store it to a centralized archive.
- Internet users can access the archive easily and search for a particular content.
- The National Diet Library Digital Archive contains 380T bytes data or 72 million items, which is more than 6 times bigger than Google Book contents.
Digital Archive System enables **long-term preservation** of deteriorating artifacts, also makes it possible to access them online.
Digital Archive for the Vatican Library

- In 2014, Vatican Library and NTT DATA have agreed upon digitizing and managing over 41 million pages of valuable historical manuscripts.
- The Digital Archiving technology, NTT DATA has originally developed for the National Diet Library of Japan, is going to be used for Vatican Library.

Vatican Library and Japanese firm NTT DATA sign accord for digital archiving project

2014-03-20 Vatican Radio

(Vatican Radio) The Vatican Apostolic Library and the Japanese firm NTT DATA on Thursday signed an agreement that will result in the rapid digitalization of 3,000 valuable historical manuscripts over the next four years. It's the first step in the planned digitalization of all the 82,000 manuscripts preserved in the Library. The project was announced at a news conference held in the Holy See’s Press Office that included interventions by Monsignor Jean Louis Bruguès, Archivist and Librarian of the Holy Roman Church, Monsignor Cesare Pasini, Prefect of the Vatican Apostolic Library and by Toshio Iwamoto, the President and CEO of NTT DATA. After scanning and archiving the digitalized manuscripts, all of them will be released on the Library’s website as high-definition image data. The project was described as a new milestone in making available to scholars and the general public the immense treasure of valuable historical manuscripts that the Vatican Apostolic Library is preserving for mankind.
Land Registration
Land Registration System manages all Land Ownership in Japan and its registration document (i.e. maps) electrically. Over 350 million records are registered in 100 TB storage.

- It is a nation-wide system. Connecting 440 offices all over Japan and more than 1500 PC clients.
- Omitting huge amount of paper and manual work.
- It enables automated process. For example, it handled ground shape changes caused by Great East Japan Earthquake.
Land Registration System screenshots
Vehicle Management System - MOTAS
MOTAS outline

MOTAS: MOtor-car Total information Advanced System
It manages all vehicle registration and inspection records in Japan.

- Crime
  - Effective criminal investigation
  - Dealing with recalled automobile
  - Renewal infrastructure from the tax income
- Traffic accident
  - Insurance to help victims & victimizers of car accidents
- Traffic congestion
  - Preventing deterioration of automobile
- Degradation of road
  - Regularly inspect the amount of exhausted gas
- Pollution
  - Lower taxes for eco friendly automobiles
  - Tracking illegal automobile

MOTAS provides key information to execute above administrative activities

Registration and Inspection Records

Make → Buy → Drive → Sell → Dispose → Make
MOTAS provides One Stop Service that enables various procedures to be done at one time. It includes Parking Space Certification, Liability Insurance Certification, Tax Payment and so on.
National Spatial Data Infrastructure System
The NSDI (National Spatial Data Infrastructure) was developed as a nation-wide spatial data infrastructure. It’s accessible both from institutes and from consumers and prevents duplicated investments.

Current data is:
- hard to find
- difficult to access
- hard to integrate
- not up-to-date
- undocumented
- incomplete

Source: Young Joo Lee “Trends of the National Spatial Data Infrastructure”
Government Shared Platform
NTT DATA developed “Government Shared Platform. (“Government Shared Platform”: The project is based on government strategy, to migrate to a consolidate Governmental Private Cloud.)
Government Shared Platform system overview

- Individual Application
  - Human Resource Management System (NPA)
  - Document Exchange System (Gov.-WAN)
  - Document Management System (MoPM)
  - Claim/Consult Management System (MoPM)

- Common Function
  - Government Identification Management System (GIMA) (MoPM)

- Application Platform
  - Common SW
  - Application Execution Platform
  - Business Process Management
  - Data Application Usage
  - Data Exchange

- System A
  - Common Application
  - Government Shared Application

- System B
  - Operating Platform
    - Operating System (OS)
      - Linux, UNIX, Windows, etc.
      - Virtual Platform Software
    - (Protocol) IPv4(IPv6), HTTP
  - Hardware Platform
    - (HW) Server/Storage
      - Server Machine
      - Storage Device
      - Backup Device
    - Network Device (Hub, Router, F/W etc.)

- System C
  - Facility/Data Center
    - Facility/Data Center
    - Electricity Air Conditioning
    - Access Controlled Facility
    - Server Racks

- Security
  - Access Control
  - Encryption
  - Virus Protection
  - Unauthorized Access Prevention
  - Firewall

- Operation Management
  - Backup Management
  - Log Management
  - Network Management
  - Resource & Configuration Management
  - Performance Management
  - Account Management
  - Reporting
  - Provisioning
  - System Failure Monitoring
  - Security Monitoring
  - Traffic Monitoring

- Development & Evaluation Environment
  - Development Environment
  - Protocols (HTTP, SMTP, NTP, TCP/IP)

- Network Service
Disaster Management System
Disaster Management Outline

Monitoring & information collection system
- Prediction & detection system
  - Earthquake Early Warning System
    - Seismic device
    - Sensor signal reception & analysis device
    - Earthquake early warning
- River information system
  - Rain gauge
  - Water gauge
  - Sensor signal reception & analysis device
- Heli-tele system
- Disaster countermeasure & rescue system
  - Digital disaster management radio system
    - (Digital circuits)
      - Base station
      - Mobile station
- Analysis & decision making system
- Multicasting & announcement system
  - Digital multicasting disaster management radio system
  - “Area Mail”
  - Using Satellite
    - Satellite
    - Residents
    - Fire brigades & flood prevention team

Overview of damages

Damages of a public-owned building

Analysis using GIS
The diversification of information delivery:
The new generation “multi-media disaster information platform”

Reliable information delivery with multi-media

One source, Multi uses.

Disaster information on car navigation terminals

Early warning mails

Video picture on “One-Segment” TV receiver.

Disaster information on TV

Broadcasting by speakers

Connection with fire alarms

Radio

Fire alarm

Loudspeakers

Car navigation system

Smart phones

Cellular phones

PC

TV

* This feasibility study was funded and supervised by Ministry of Internal Affairs and Communications of Japan in fiscal year 2012.
Japan-ASEAN Public-Private Partnership Committee - Feasibility Study in Indonesia

Data Gathering

Sensor Network System
- Communication Satellite
- Water Level Sensor
- Flood Monitoring Camera
- Weather Information
- Governmental organizations

Information Sharing, Processing/Analysis, Support of Decision-Making

Cloud Data Center
- River stage Information/Precipitation Information of Various Area, etc.
- Surveillance camera
- Satellite Image and Weather Information

Distributing Information to Residents

Disaster Information Delivery System
- Rural Region ICT projects (USO Project, etc.)
- Satellite
- Rural Region
- Disaster Information/Weather information
- Speaker
- Mobile digital TV
- Siren

* This feasibility study was funded and supervised by Ministry of Internal Affairs and Communications of Japan in fiscal year 2011 and 2012.
This feasibility study has verified that the disaster information distribution can be realized with new technologies and the existing ICT infrastructure of Indonesia.

The information distribution test below, an example of information distribution tests of this feasibility study, realized distribution in less than one minute.

* This feasibility study was funded and supervised by Ministry of Internal Affairs and Communications of Japan in fiscal year 2011 and 2012.