Nippon Telegraph and Telephone Corporation Smart City Initiatives

Submitted by: Nippon Telegraph and Telephone Corporation
NTT Smart City Initiatives

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NIPPON TELEGRAPH AND TELEPHONE CORPORATION
Our Vision: Medium-Term Management Strategy

To resolve social issues through our business operation, NTT Group works together with our partners, as “Your Value Partner.”

Contribute to Realization of Smart World/Society 5.0

Social Issue Resolution through business operation

Digital Transformation × CSR

Partners

Towards a sustainable society/SDGs

R&D Capabilities
Human Resources
Brand Image

ICT Infrastructure
Financial Base
Customer Base

NTT Group

As a Public Utility and a Private Company
A Digitalized Society = Smart World

- **Smart Mobility**
  - Eliminate rush/traffic jams
  - Energy saving

- **Smart Factory**
  - Minimize downtime
  - Increase productivity

- **Smart Sports**
  - More excitement
  - Create new experiences

- **Smart City**
  - Safe, comfortable living environment
  - Efficient city operation

- **Smart Healthcare**
  - Maintain/improve health
  - Improve quality of healthcare

- **Smart Agri**
  - Pass on technology/know-how
  - Improve productivity/quality

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NTT Group’s Capabilities in Smart City

Environment, Energy
- Resource circulation
- Smart grid VPP
- Renewable energy
- Smart streetlight
- Remote education
- Cultural heritage conservation, Digital archive
- Esports
- Smart agriculture
- Smart factory
- People-flow analysis, Tourism promotion
- Cashless payment

Traffic, transportation
- Demand responsive transport
- Drone management service for logistics
- Indoor navigation system
- Remote medical care
- Wearable devices for health promotion
- Crime prevention
- Streamlining government workflow
- Auto-answering system
- Road surface diagnosis

Education, Culture
- NTT EAST
- NTT WEST
- docomo
- NTT Communications
- NTT DATA
- NTT Anode Energy
- NTT Urban Solutions

Industry
- NTT Group

Public Sector
- NTT Group

Life, Health
- NTT Group

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Key Points in Creating Smart Cities

1\textsuperscript{st} : Redesign Society from user’s standpoint
2\textsuperscript{nd} : Make data public goods (‘‘Digital Data Trust’’)

For Users
- Complex processes
- Many access points
- Time consuming

Society from user’s standpoint

Redesigning

Data Linkage Platform

~Digital Data Trust ™~

For Users
- Simple processes
- Single-stop access
- Quick
Cases: Redesign Smart Cities

**Living(Moving)**
- Single-stop procedures for moving
- Data Linkage Platform
- Post office
- Municipality
- Bank
- School
- Electricity
- Gas
- Telecoms
- Various other services

**MaaS**
- Seamless travel and sightseeing with one digital ticket
- Data Linkage Platform
- Transportation
- Tourist spot

**Healthcare**
- Personalized medicine by sharing data among patients, hospitals, and pharmacies etc.
- Data Linkage Platform
- Hospital
- Pharmacy
- Nursing facility
- Clinic
- Commercial facility
- Tourist spot
- Commercial facility
- Various other services
NTT’s “brown field” type of smart city projects with local governments in Japan

- Promote smart city projects based on comprehensive partnership agreement with 111 local governments (July, 2021)

**Major cases:**

**Sapporo (1.97 mil.)**
- Expand tourism business through cross-domain data analysis
- Promote sightseeing tours using MaaS

**Sendai (1.09 mil.)**
- Implement disaster prevention and mitigation initiatives

**Chiba (0.98 mil.)**
- Promote sightseeing tours using MaaS
- Enhance resilience through smart energy

**Yokohama (3.76 mil.)**
- Promote sightseeing tours using MaaS
- Implement health promotion initiatives through wearable devices
- Increase efficiency of infrastructure maintenance and repair

**Kobe (1.53 mil.)**
- Develop safe and secure urban districts
- Increase efficiency of local government administration through AI

**Fukuoka (1.60 mil)**
- Promote sightseeing tours
- Strengthen disaster response measures

**Kumamoto (0.74 mil.)**
- Resolve issues by interlinking data on flows of people with traffic data

( ): population
People-flow analysis for inbound marketing

Created data collection and analysis platform that has various regional data owned by public and private sectors, and realized “local production for local consumption” of data in Sapporo City.

“REGIONAL DATA”
produced through various activities

“DATA STANDARD”
standardization function for data circulation

“DIGITAL DATA TRUST”
Government supported organization for promotion of ICT utilization

People flow

Survey data

SNS

① Formatting data
② Deleting personal info
③ Categorizing
④ Analyzing
⑤ Visualizing
⑥ Automatic coordination among modules

Hotels
Retail stores
Tourist attractions
Restaurants

Sales of stats data
Subsidy of Sapporo city
Membership fee of 30+ companies
Sapporo DX for Commerce

Case in Sapporo City

Marketing Action

Increase of Revenue, Promoting tourism

Data collection and utilization

Value Chain in Regional Economic Area

New data

Potential market

Data
The City of Las Vegas: Pain Points.....

to reduce response time

① Sensor information is too complicated to analyze in real time

② It takes time to deploy/set up ICT resources such as NW/Servers, when transmitting sensor information to Data Center of the City

On site

Data Center of the City

Internal Dispatch Systems
Case in Las Vegas City

NTT Public Safety Solutions.... improve the City’s response time to incidents

① Advanced Analytics
- Detection
  - Micro Data Center (Edge)
  - Sensor Information
- Prediction
  - Core Analytics (Prediction)
- NTT Data Center
  - Flexible ICT
  - Cognitive Foundation

② Cognitive Foundation

On site

Reduce Response time

NTT Public Safety Solutions

Internal Dispatch Systems
According to customer request, by utilizing "Cognitive Foundation", a mechanism that enables remote, rapid, flexible deployment, setting, management, and operation of ICT resources that cover multiple layers, from devices and networks to the cloud.
Our Vision of Smart City: Digital Twin Computing

Freely interconnect people and objects in virtual spaces, resolve social issues, and create innovative services.

Data Linkage Platform

- Building information modeling (BIM)
- Energy
- Security
- City
- People
- Objects
- Community
- Personal
- Position
- Action
- Personality
- Hobbies
- Purchases, etc.

Interaction between Real and Virtual environments.