Creating Values through Flow of Open Data in Smart City Applications

─ Balancing between Values and the Orwellian Nightmare

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Basic Characteristics of Smart City

- Internet of things
    - Sensors
    - Smart objects
    - Terminal devices

- Inter-networking

- Software

- Collecting large amount of data
    - Never before achievable

Value Creation

- Values within an application

- Value created through sharing of data
  - Inter-Government agencies
  - Open data

- Value derived through NOT sharing
 - Privacy protection
  - Security

Smart City Applications in Taiwan

- To get things started: Government initiatives
  - Government projects, BOT (build-operate-transfer)
  - Government supported projects by the businesses
- To setup demonstration application sites
- To share financial risks of new projects
- Central government, local governments
- Examples of Nation-wide applications
  - ETC: Electronic Toll Collection
  - eInvoice: Issuance of transaction based invoices

Local Examples: Taipei City

- 119 Peace of Mind: Road pipeline intelligence, disaster prevention
- WORK SMART: Smart policing, the nation's first initiative
- iTrash: Smart City Garbage Recycling Integration System Pilot Program
- Car Networking: A self-driving demonstration field
- Intelligent parking: Smart payment to improve roadside and off-street parking
- Jade Reservoir Management: Utilizing Internet of Things
- IoT Smart Living experimental platform
- Relief for disaster victims: tracking, accommodating, donations, etc.
- Taipei City Government Open Data X Citizen Collaboration
- i-Voting: cast your voice
- Smart water meter network
- Cloud-based Elderly Care Service
- Lohas Taipei (UI-Taipei): Lifestyles of Health and Sustainability
- One Finger Smart Transportation
- Smart energy conservation and environmental protection - recycling used resources
- Smart energy-saving air conditioning system
- Electronic invoices and smart life
- Taipei Dynamic Bus Information
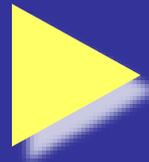
Open data

- Values created through sharing of data between Smart City applications

- Many Smart City applications are related to the communities, and thus have government involvements

- Open data is the obvious way for data exchange

The Value Dilemma

- Government efficiency / Public value / Common good vs. Individual rights

- At the one end, extreme efficiency may result in the Orwellian Nightmare

  - Where every one is monitored

Handling Privacy Issue

- Legislation
    - Privacy Acts
    - In Taiwan: Personal Information Protection Act (2015)
- International regulations
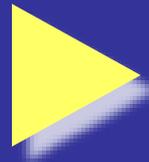   - European GDPR (2018)
- Some privacy issues
    - Cookie, IP addresses, GPS, …
    - Daily behavioral data (transportation, payments, etc.)
    - Matching of data from different sources
    - Security breach: mass exposure of sensitive data
- Protection includes:
    - Anonymization, Pseudonymization, etc.

An example: ETC

- ETC in Taiwan
    - Each car is given an RFID tag
    - At entrance, exit and on the way, cars are tracked
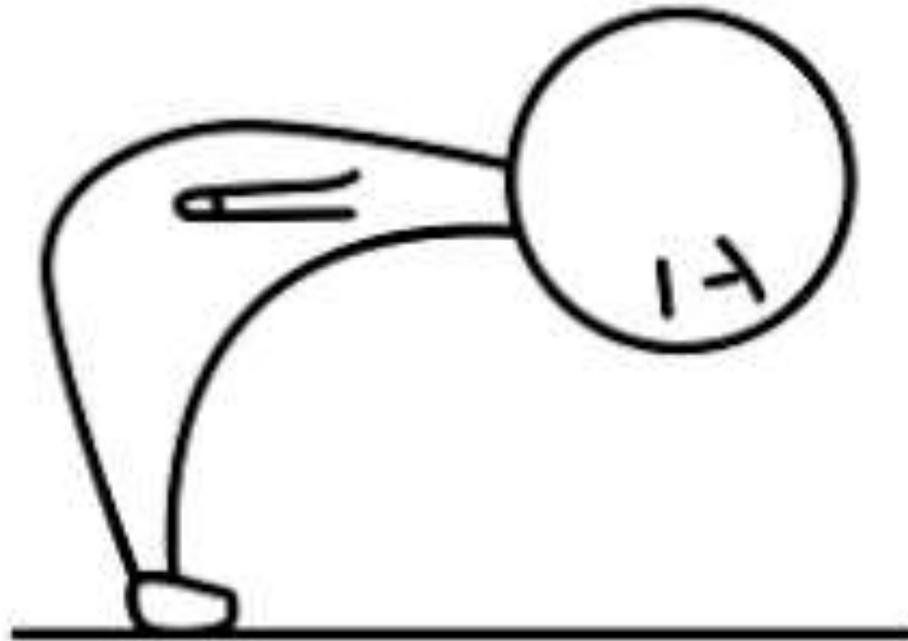- Positive value
    - End-to-end tallying of toll, no toll gate, no stopping along the way
    - Private car park making use of the same identification
    - Track and trace of suspects
    - Potentially identification of speeding vehicles
- Potential Negative values
    - Location tracking of individuals
- Regulation against usage of data beyond toll collection

Thank you!