Master plan and Pilot Operation for the
Bus Terminal Modernization in Indonesia

World Bank ‘The 8th Korea Green Innovation Days’
〈MOLIT ODA Session〉

May 10th, 2022
Terminal Transport Samchully
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1. Revitalizing Intercity Bus & Green Growth

1. Transportation issue in Indonesia
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3. 2020-2024 National Medium-Term Development Plan of MOT Indonesia
Transportation issue in Indonesia

Vehicle types registered in Jakarta (Statistics Indonesia, 2015)

<table>
<thead>
<tr>
<th>Type of vehicle</th>
<th>No. of vehicle (unit)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motorcycle</td>
<td>13,980,000</td>
<td>74.94</td>
</tr>
<tr>
<td>Private car</td>
<td>340,000</td>
<td>18.58</td>
</tr>
<tr>
<td>Truck/Lorry</td>
<td>706,000</td>
<td>3.78</td>
</tr>
<tr>
<td>Bus</td>
<td>363,500</td>
<td>1.95</td>
</tr>
<tr>
<td>Special vehicle</td>
<td>139,800</td>
<td>0.75</td>
</tr>
</tbody>
</table>

The number of intercity buses in Indonesia is decreased by 11.38%
(Statistics Indonesia, 2016–2020)

Number of registered vehicles by public transport
(Statistics Indonesia, 2016)
### Traffic jam ranking by country

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>Avg. Traffic Jam Duration</th>
<th>Avg. Traffic Congestion (INRIX Index)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Thailand</td>
<td>61</td>
<td>10.6</td>
</tr>
<tr>
<td>2</td>
<td>Indonesia</td>
<td>47</td>
<td>9.3</td>
</tr>
<tr>
<td>3</td>
<td>Columbia</td>
<td>47</td>
<td>8.8</td>
</tr>
<tr>
<td>4</td>
<td>Russia</td>
<td>42</td>
<td>8.7</td>
</tr>
<tr>
<td>5</td>
<td>USA</td>
<td>42</td>
<td>7.4</td>
</tr>
<tr>
<td>6</td>
<td>Venezuela</td>
<td>39</td>
<td>6.3</td>
</tr>
<tr>
<td>7</td>
<td>South Africa</td>
<td>38</td>
<td>4.7</td>
</tr>
<tr>
<td>8</td>
<td>Brazil</td>
<td>37</td>
<td>7.5</td>
</tr>
<tr>
<td>9</td>
<td>Puerto Rico</td>
<td>37</td>
<td>5.5</td>
</tr>
<tr>
<td>10</td>
<td>Turkey</td>
<td>34</td>
<td>6.3</td>
</tr>
</tbody>
</table>

### Most Polluted City: Jakarta

#### Most Polluted Regional Cities

- **Jakarta, Indonesia**

- **2018 AVG**

- Source: INRIX 'Global Traffic Scorecard (2016)
- Source: Greenpeace Indonesia (2019)
2020–2024 National Medium-Term Development Plan of MOT Indonesia

**Transportation**
- Development of intermodal transportation & inter-regional connectivity

**House & Road**
- Providing safe & convenient residential access

**ICT**
- Promotion of application of integrated transportation system and communication system

**Energy**
- Green transportation & eco-friendly transportation construction

- Multimodal Hub
- New town master plan based plan
- Digital-based transportation
- Eco-friendly transportation
2. Intercity Bus & Terminal in Indonesia

1. Indonesian citizen survey
2. Operation status & Issue of Bus Terminal in Indonesia
Result of Indonesian citizen survey

Reasons for avoiding terminal visits

- Never use: 14%
- Hard to approach: 14%
- Dangerous to use: 10%
- Inconvenient to use: 13%
- Cannot purchase online ticket: 8%
- Hard to get bus schedule information: 12%
- No available route: 11%
- No available route for the desired time slot: 9%
- Other: 9%

Intention to use digital kiosk

- Don’t want to use: 3%
- Will not use: 19%
- Hesitant to use: 29%
- Unconditionally use: 48%
- Use: 1%

Intention to purchase tickets using the app

- Will not use: 11%
- Hesitant to use: 36%
- Unconditionally use: 52%
- Use: 1%

Survey Period: Oct 1st - 31st 2021 (30 days)
Method: For 3,000 Indonesians. Online and face-to-face (by our company itself)
2. Operation status & Issue of Bus Terminal in Indonesia

Current issue in Indonesia

1. Modernization is urgently needed as tickets are issued manually
2. Severe traffic congestion around the terminal
3. Irregular and inaccurate bus operation
4. Inconvenience in using buses for Indonesian citizens is intensified

Need to relieve users inconvenience and traffic

※ ODA
“Introduce & Operate the system by grafting the IT-based bus terminal operation method in Korea”

Bus terminal view in Indonesia

Boarding Gate in Bus Terminal

Ticket Office in Bus Terminal
3  

Operation status & Issue of Bus Terminal in Indonesia

Bus passengers getting on and off at the highway shoulder

A terminal in danger of being abandoned in need of revival

- MOT Indonesia, “Plan to revitalize bus terminals so that land transport can become an ideal for local communities”
- Bus agents indirectly reduce terminal activity because passengers do not have to visit the terminal to use transportation services, and this causes the terminal economic ecosystem to slowly decline.
- In addition to physical improvements to the terminals, several regulations will be tightened, including the enforcement of bus agents outside the terminals.
- The first application step for the revitalization of the terminal is the conversion of ticket purchases from cash to digital formats (e-money, e-ticketing).
- Directorate General of Land Transport, “I hope to create a concept of using a terminal for business ecosystem, entertainment, and lifestyle rather than just a terminal.”

※ Source : kompas.com  
※ Source : detik.com
3. Our ODA Project

1. Project Introduction
2. Project History
3. Project Method
4. The 7 systems
# Project Introduction

**Project Name**
Master Plan & Pilot Operation for the Bus Terminal Modernization in Indonesia

**Target Area**
 Indiesia 「Java Island」

**Demonstration Terminal**
2 A type terminals: Kampung Rambutan (Jakarta), Leuwipanjang (Bandung)

**Period**
April 14th 2021 – December 13th 2023 (32 months)

**Background**
- 2017: Signing MOU for cooperation in the domain of transportation between Korea-Indonesia
- 2018: Reinforce cooperation in land transport area between Korea-Indonesia via the 1st transport cooperation & ITS cooperation conference

**Purpose**
By grafting Korea’s advanced IT-based terminal operating system to local methods, a modernization system was built in type A terminal in Indonesia and establishment of a final master plan through pilot operation.

**Enforcement situation**
1. Developing the modernization system
2. Establish the system & Proceed the pilot operation
3. System concession & Establish MP
The progress of the Indonesian terminal modernization project

- **Nov. 2017**: Signing MOU for transport cooperation 「Korea·Indonesia」 (Nov. 9th 2017)
  - Promotion of exchange and cooperation projects in the field of land transportation

- **Mar, Apr. 2018**: The 1st 「Korea·Indonesia」 transport cooperation conference & ITS cooperation (Mar 23rd 2018)
  - Discussion of cooperative measures in the transport sector and infrastructure

- **Dec 2018**: Suggest the Indonesia Bus Terminal Modernization Project to MOLIT Korea

- **Dec. 2019**: Indonesia Bus Terminal Modernization Project is confirmed as ODA

#### 「Jul 2019~」 Feasible Study
- Investigate operation status of bus terminal in Indonesia
- Investigate the bus terminal system

#### 「Apr 2020~」 Bus terminal basic service design
- Start the bus terminal basic service design
- Field study of A type terminal & select the final pilot operation terminal
  - Kampung Rambutan, Leuwipanjang

#### 「Apr 2021~」 Start the terminal modernization project
- Identification of requirements for pilot operation terminal and operation design
- Develop the terminal modernization system
- Purchase the equipment for IDC
Establish the accurate & efficient MP for Bus terminal in Indonesia through system construction and pilot operation

1. Establish a modernization system
   - Establish the bus terminal modernization system
   - Develop the customized terminal system for Indonesia

2. Pilot operation & Training
   - Operate the modernization system for pilot operation terminal
   - Operate the terminal system with MOT Indonesia

3. MP establishment
   - Establish the MP through pilot operation
   - Modification & improvement of problems through pilot operation (Operate the customized system)

System Transfer
Grant the System+Product +Program etc. for free

Bus terminal modernization project = Green transportation project
Each system operated at the bus terminal in Korea is built as a system suitable for the environment of Indonesian users and managers.

### Basic construction direction

- **Build the system that users who use the pilot operation terminal can conveniently check the bus operation information and easily get a bus ticket so that they can comfortably board the desired bus**

<table>
<thead>
<tr>
<th>Division</th>
<th>Location</th>
<th>Function</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Ticket printing system</td>
<td>Ticket office</td>
<td>Sell bus tickets by cash &amp; card</td>
<td>The core system of the integrated ticketing system</td>
</tr>
<tr>
<td>2 Digital Kiosk system</td>
<td>Terminal waiting area</td>
<td>Sell bus tickets by card &amp; print out the reserved tickets</td>
<td>Selling bus ticket at places other than the ticket office, Relieve congestion at ticket offices and expand offline sales outlets</td>
</tr>
<tr>
<td>3 Online reservation system</td>
<td>IDC</td>
<td>Purchase bus tickets in advance by internet &amp; mobile</td>
<td>Increase the usage rate &amp; convenience of passengers via online reservation</td>
</tr>
<tr>
<td>4 Terminal Management system</td>
<td>Terminal management office</td>
<td>Register status of bus ticket printing, reservation &amp; to raise the no. of bus</td>
<td>Efficient and reliable terminal management</td>
</tr>
<tr>
<td>5 Terminal Voice Broadcasting system</td>
<td>Inside the terminal</td>
<td>Broadcast bus operation information via voice</td>
<td>Increase convenience and information provision by broadcasting the passengers’ bus operation information</td>
</tr>
<tr>
<td>6 Terminal bus information system</td>
<td>Above the ticket office</td>
<td>Indicate the bus operation information via LED display</td>
<td>Increase convenience and information provision by indicating bus operation information of passengers</td>
</tr>
<tr>
<td>7 Integrated Operation Management system</td>
<td>IDC</td>
<td>Process &amp; control the data of each system in real time</td>
<td>Process &amp; control the whole data through real time monitoring</td>
</tr>
</tbody>
</table>
5 Ticket printing system

1) Ticket printing system (Ticket printing program & component)

Ticket printing program

<table>
<thead>
<tr>
<th>Division</th>
<th>Product image</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ticket printing program</td>
<td></td>
</tr>
<tr>
<td>Computer</td>
<td></td>
</tr>
<tr>
<td>Printer</td>
<td>Printer image</td>
</tr>
<tr>
<td>Card reader</td>
<td>Card reader image</td>
</tr>
<tr>
<td>Ticket</td>
<td>Ticket image</td>
</tr>
</tbody>
</table>
2) Online reservation (Web+Mobile)
7 Digital Kiosk system

3) Digital Kiosk
4) Terminal management system & Integrated operation management system

<table>
<thead>
<tr>
<th>DAY</th>
<th>TIME</th>
<th>WRITER</th>
<th>TITLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2021/7/19</td>
<td>00:00</td>
<td>s01-admin</td>
<td>terminal sample notice</td>
</tr>
<tr>
<td>2021/7/19</td>
<td>00:00</td>
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</tbody>
</table>

**INFORMATION**

- terminal sample notice
- terminal sample notice
- terminal sample notice
- terminal sample notice
- terminal sample notice
- terminal sample notice
- terminal sample notice
- terminal sample notice
- terminal sample notice

**DATA CENTER - NOTICE**

<table>
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<tr>
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<th>TIME</th>
<th>WRITER</th>
<th>TITLE</th>
</tr>
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<td>s01-admin</td>
<td>terminal sample notice</td>
</tr>
</tbody>
</table>

**INDONESIA BUS 관리자**

**Login**

- User ID: SCN45
- Password: **********
5) Terminal bus information system

6) Terminal voice broadcasting system
- Make sure that electricity & communication environment which help to communicate each system in pilot operation terminal is stable
- Make sure to enhance the security by installing VPN for each system that is communicating with IDC so that it can block the malicious code intrusion
- Install & test integrated operation management system through IDC establishment

☑️ Establish the IDC

※ Process/save the whole data in Data Center (IDC) by Centralized system

All data such as ticket printing system, digital kiosk and online reservation system of the pilot operation terminal are processed at the data center (IDC) and the results are stored

Data from IDC & each system synchronized in real-time & process the same information
Master plan and Pilot Operation for the Bus Terminal Modernization in Indonesia

4. Alternatives to Sustainability

1. Expansion plan for green transportation project
2. Promotion strategy & Connectivity of ODA in Korea
**Expansion plan for green transportation project**

Lay the groundwork for Green Growth by increasing **① Necessity ② Expandability** of system by jointly participating in all process of terminal modernization.

<table>
<thead>
<tr>
<th>Participate in master plan establishment</th>
<th>Participation in pilot operation</th>
<th>Periodic training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participation in system improvement such as laws/regulations</td>
<td>System operation and status sharing</td>
<td>Ongoing system training</td>
</tr>
<tr>
<td>Requirements for system building, research participation</td>
<td>Joint response to failure handling</td>
<td>Invitational training / seminar</td>
</tr>
<tr>
<td>※ Participants</td>
<td>※ Participants</td>
<td>※ Participants</td>
</tr>
<tr>
<td>① Indonesian government, MOT, public officer</td>
<td>① Indonesian public officer, computer manager</td>
<td>① Indonesian public officer, computer manager</td>
</tr>
<tr>
<td>② Terminal/Bus company manager</td>
<td>② Terminal/Bus company manager</td>
<td>② Terminal/Bus company manager</td>
</tr>
</tbody>
</table>

“Increase the need for system expansion by participating in all process”

- **Citizen**
  - Bus ticket purchase
  - Use online reservation

- **Bus company**
  - Bus operation method
  - Establish plan for route operation etc.

- **Terminal**
  - Establish efficient plan by effect of pilot operation

Expand the necessity of Green Growth

Can expand the modernization continuously in the future
Overall conditions for sustainable green transportation

System improvement
- Related law
- Terminal modernization operation & utilization regulation
- Definition of terminal modernization operation facility

Terminal modernization system standardization
- Defining modernization systems for users
- Manualization of terminal modernization system

Public use and understanding
- Modernized system experience through pilot operation
- Online mobile bus ticket reservation
- Confirmation of bus operation information at the pilot operation terminal

Which is sustainable

Indonesian government & local private companies
- Encouraging participation of local transportation agencies & private companies
- Implementing policies to meet the needs of the people and advance possible

Prepare for green transportation project

Expand to 500 terminals Nationwide
Development of green transportation
2 Promotion strategy & Connectivity of ODA in Korea

<table>
<thead>
<tr>
<th>New Southern Five Major Programs</th>
<th>SDG</th>
</tr>
</thead>
<tbody>
<tr>
<td>🔄 Digital Partnerships</td>
<td>9</td>
</tr>
<tr>
<td>for Inclusive Development</td>
<td>16</td>
</tr>
<tr>
<td>☑ Higher education for a better future</td>
<td>4</td>
</tr>
<tr>
<td>☑ Inclusive and sustainable rural development and mine clearance</td>
<td>2, 9</td>
</tr>
<tr>
<td>☑ Smart city development where nature and people coexist</td>
<td>11, 13</td>
</tr>
<tr>
<td>☑ Inclusive Transportation Drives Balanced Growth</td>
<td>11, 13</td>
</tr>
</tbody>
</table>

※ Source: 2020 ODA White paper
5. Company Profile

1. General status and major history of the company
2. History of participation in major research projects
## General status

<table>
<thead>
<tr>
<th>Company Name</th>
<th>Samchully Networks Co., Ltd</th>
</tr>
</thead>
<tbody>
<tr>
<td>Established Date</td>
<td>Oct 1st 2014</td>
</tr>
<tr>
<td>CEO</td>
<td>Lim Chin Hyuk</td>
</tr>
<tr>
<td>Address</td>
<td>4th Fl. JH Building, 40, Magokjungang 6-ro, Gangseo-gu, Seoul, Korea</td>
</tr>
</tbody>
</table>

## Major history

<table>
<thead>
<tr>
<th>Year</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2021</td>
<td>Indonesia Bus Terminal Modernization System Main Project Order ($5M) Established a local corporation in Indonesia (Jakarta)</td>
</tr>
<tr>
<td>2020</td>
<td>Selected as a small strong company by the Seoul Metropolitan Government, selected as a small strong company by the Ministry of Labor and Employment Launch of ‘Oligo’, a transportation platform in the construction sector Launched ‘24 Hour Environment’, a transportation system for tracking waste vehicles in the construction sector On-site inspection and investigation of 100 bus terminals in Indonesia Cambodia Phnom Penh bus stop establishment and bus terminal, BIS feasibility study</td>
</tr>
<tr>
<td>2019</td>
<td>Registered as a KOVA venture company, acquired Main Biz certification Automated vehicle system patent acquisition, Samchully PAY platform development and launch Mongolia Ulambastar ITS feasibility study verification and complex terminal feasibility study Indonesia bus terminal modernization system feasibility study in 10 cities</td>
</tr>
<tr>
<td>2018</td>
<td>Cloud-based ticketing system design and development</td>
</tr>
<tr>
<td>2017</td>
<td>Opened 25 nationwide transportation platform branches and agencies</td>
</tr>
<tr>
<td>2016</td>
<td>Development and maintenance of the guideline ship ticketing system by the National Federation of Cable Industry Development and launch of integrated intelligent transportation platform : Call taxi, general cargo, moving cargo, construction heavy equipment transport vehicle tracking and information delivery</td>
</tr>
<tr>
<td>2015</td>
<td>Design and development of wireless communication relay (TRS) solutions for KT, KT Powertel, etc. Launched vehicle dispatch transportation platform using Mobile : Opened transportation integrated call center</td>
</tr>
</tbody>
</table>
History of participation in major research projects

- Seoul, Gwacheon, etc. RF parking system and network, integrated control system—Establishment of taxi card system in Incheon City (January 2003 ~ June 2003)
- Establishment of new transportation card system in Seoul (January 2004 ~ October 2004)
- Establishment of Gyeonggi/Incheon new transportation card system (December 2004 ~ July 2005)
- Nationwide intercity bus RF card system establishment (March 2007 ~ August 2007)
- Development of national maritime transportation card system (February 2007 ~ May 2007)
- Development of transportation card systems in Ecuador, Colombia, Kazakhstan, etc. (October 2006 ~ June 2007)
- Development of Green Growth U-BIKE (Public Unmanned Bicycle) System (June 2009 ~ September 2009)
- Construction/operation of a payment terminal and payment system for freight/express transportation costs (March 2010 ~ December 2011)
- Establishment/operation of integrated computer network system for intercity bus ticket and issuance nationwide (February 2011 ~ December 2013)
- Establishment/operation of national intercity bus transportation card payment system (November 2010 ~ December 2013)
- Establishment of online reservation and ticketing system at the National Cultural Agency (Seoul Arts Center, Sejong Center for the Performing Arts, Gwacheon Science Center, KBO, etc.)
- Establishment and operation of an integrated ticketing system for guided cruises nationwide (September 2016 ~ December 2019)
- Korea National Tax Service cash receipt system establishment project
Thank you.

Kim So Eun (Researcher)
Global Business Team Samchully Networks