Innovation for Intelligent Public Services: Case of the Virtual Assistant Service for the Public
Table of Contents

01 Background
02 Overview of the Virtual Assistant Service for the Public
03 Service status and cases
04 Future plans
01 Background

Need to address the hassle involved in users searching for the systems they need by themselves.

Need to reduce limitations on the provision of digital services and sharing of data across organizations.

There is a need to encourage the public sector to use private-sector digital services commonly used by the public and expand those services by linking them with existing public services.

Despite the high demand for the introduction of digital assistant chatbots for civil petition consultation in the public sector, there have been few successful cases, calling for government-wide adoption based on common infrastructure.
02 Overview of the Virtual Assistant Service for the Public

Creation of a virtual assistant service that informs the public of the administrative information they need in advance and handles inquiries.

1 Notification services

Services to provide timely notifications of daily life-related information via applications commonly used by citizens (KakaoTalk, Naver app, Toss, etc.)

2 Consulting services

Non-face-to-face text and voice-based consulting services to answer people’s questions about civil petitions and provide relevant instructions in real time.
Overview of the Virtual Assistant Service for the Public: concept

Channels commonly used by citizens

- SMS
- Talk
- Toss
- PASS
- AI assistant

Virtual Assistant Service

Notification services
- Notification transmission module
- Personalized recommendation
- Notification management and integration
- Page for notification details (html)
- Interactive notification service
- Interactive service

Interactive services
- Knowledge base
- Knowledge base for notification services

Connected organizations (notification services)
- KNPA
- Road Traffic Authority
- KNPA
- Ministry of the Interior and Safety

Connected organizations (interactive services)
- KNPA
- Ministry of the Interior and Safety
- Korea Forest Service
- Korea Customs Service
- Military Manpower Administration
02 Overview of the Virtual Assistant Service for the Public:
features

Provides public services accessible from anywhere

- The public virtual assistant service enables people to get information on or apply for all services available to the public via a single channel.
- It digitizes the processes of sending notifications and receiving payments and enables easy payment for various government services.

Proactively provides personalized services

- Expands welfare membership by providing welfare services to individuals and households more proactively and streamlining the application processes.
- Expands the “Subsidy 24” service, which allows people to check which government benefits they are eligible for all at once when they log in to GOV.KR or visit a community center.
03 Service status:
progress on system establishment

- Re-designed administrative services to realize intelligent e-government (ISP, 2018)
- Implemented first phase of the project to create the virtual assistant service (Jul. 2020 to Feb. 2021)
- Launched the virtual assistant service for notification services (http://ips.go.kr) (Mar. 29, 2021)
  - Providing seven types of daily life-related information services, including traffic penalties, health checkups, and driving license renewal
- Launched notification service for COVID-19 vaccination appointments (Mar. 31, 2021)
- Began to offer notification service for the government’s COVID-19 Relief Payment (Aug. 30, 2021)
- Started to provide personalized notifications for benefits through the Virtual Assistant Service for the Public (Welfare Membership)*
- Launched pilot version of the virtual assistant service consulting services (May) and continued operation of pilot services (by Sept.)
  - Opened civil petition-related consulting services in 11 types of administrative areas across 8 organizations, including information on recreational forests
## Service coverage

<table>
<thead>
<tr>
<th>No.</th>
<th>Name of institution</th>
<th>Name of notification service</th>
<th>Scope of service</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Notification</td>
</tr>
<tr>
<td>1</td>
<td>Korean National Police Agency</td>
<td>Notification before the traffic penalty payment deadline</td>
<td>○</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>Notification before the traffic fine payment deadline</td>
<td>○</td>
</tr>
<tr>
<td>3</td>
<td>National Health Insurance Service</td>
<td>General health checkup date (including cancer checkup date)</td>
<td>○</td>
</tr>
<tr>
<td>4</td>
<td>Korea Road Traffic Authority</td>
<td>Driver's license renewal</td>
<td>○</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>School bus driver training</td>
<td>○</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>Senior driver training</td>
<td>○</td>
</tr>
<tr>
<td>7</td>
<td>Ministry of Health and Welfare</td>
<td>Welfare membership (customized salary)</td>
<td>○</td>
</tr>
<tr>
<td>8</td>
<td>Korea Disease Control and Prevention Agency</td>
<td>COVID-19 vaccination appointment information</td>
<td>○</td>
</tr>
<tr>
<td>9</td>
<td>Korea Student Aid Foundation</td>
<td>Application for national scholarship</td>
<td>○</td>
</tr>
<tr>
<td>10</td>
<td>Ministry of the Interior and Safety</td>
<td>COVID-19 relief fund</td>
<td>○</td>
</tr>
</tbody>
</table>
03 Service status 1:
7 types of daily life-related information

Flowchart of notification services

- Users
  - Virtual assistant service application data
    - Apply for notification

- Private-sector channels
  - Receive notification data
  - Transmit notification data

- Virtual assistant service
  - Store application data
  - Transmit notification data
  - Generate notification data

- Organization
  - Receive application data
  - Receive notification results
  - Receive notification results
Reference:
How to sign up for the Virtual Assistant Service for the Public through simple authentication

1. Access the virtual assistant service
2. Select authentication services and enter information
3. Conduct authentication process
4. Complete
Proactive notification scenario (2021): KakaoTalk

1-1 Proactive notification

Notification
November 9, 2020, Monday

[Virtual assistant service] Notification regarding national scholarship application

Hello, Mr. Hong Gil-dong. Do you want to check the notification?

Check

1-2 View details

Notification
November 9, 2020, Monday

[Virtual assistant service] Notification regarding national scholarship application

Hello, Mr. Hong Gil-dong. This is Public virtual assistant service, a service for communicating with the public. Don't forget to apply for the national scholarship for the first semester of 2021!

View Details

1-3 Check details

Public virtual assistant service

November 9, 2020, Monday

[Virtual assistant service] Notification regarding national scholarship application

Hello, Mr. Hong Gil-dong. Here are the details of the national scholarship application for the first semester of 2021:

- Period: Nov. 30 to Dec. 15, 2020
- Method: website of Korea Student Aid Foundation (www.kosa.f.go.kr)
- Eligibility: students with scores of 80 or higher (B grade or higher) from the previous semester (including students returning to school after taking the previous semester off, freshmen, and transfer students)
- Contact: 1599-2000

Go to Apply
Reference: Example of notification services (2/2)

**Fine notification scenario (2021): KakaoTalk**

### 2-1 General notification

- Notification Content
  - Monday, November 9, 2020
  - General notification
  - Hello, Mr. Hong Gil-dong, Do you want to check the notification?

### 2-2 View details

- Notification Content
  - Monday, November 9, 2020
  - General notification
  - Hello, Mr. Hong Gil-dong, This is Public virtual assistant service, a service for communicating with the public. I'd like to notify you that your vehicle violated the bus-only lane rules, resulting in a traffic fine.

### 2-3 URL + date of birth

- My own Public virtual assistant service
  - Monday, November 9, 2020
  - Hello, Mr. Hong Gil-dong. Here is your pre-notice for the traffic fine.
  - Payment period: November 25, 2020
  - Violation: 50,000 won
  - Violation date: October 18, 2020
  - Violation location: Eoin intersection, Hanmun-dae, Jeong-dong
  - License plate number: 12 Bu 1234
  - Payment amount: 50,000 won
  - Virtual account: Shinh | 0723-4567
  - Payment method: Bank transfer

### 2-4 Check details

- My own Public virtual assistant service
  - Monday, November 9, 2020
  - Data of birth: [ ] [ ] [ ]

### 2-5 Easy payment

- My own Public virtual assistant service
  - Monday, November 9, 2020
  - Go to Pay

- My own Public virtual assistant service
  - Monday, November 9, 2020
  - Settle payment
Service status 2: information on vaccination appointments

Service overview

- The Korea Disease Control and Prevention Agency and Ministry of the Interior and Safety built a cooperation mechanism to manage all aspects of the nationwide vaccination program, from making appointments and providing instructions on vaccination to issuing vaccine certificates.

Roles and operation systems of each organization

- **KDCA**: manages vaccination appointments (COVID-19 Vaccination System) and issues COVID-19 vaccine certificates (via “Coov” app)
- **MOIS**: provides instructions on vaccination (Public virtual assistant service services) and issues COVID-19 vaccine certificates (printed out from GOV.KR or issued as an e-certificate)
- **Private-sector apps**: sends vaccination notifications via KakaoTalk, Naver app, Toss, or text message
03 Service status 2: information on vaccination appointments

Vaccination notification process

- COVID-19 vaccination system → the Virtual Assistant Service for the Public → Send notification via private-sector apps

- Total of 7 notifications sent to each user,* with 166.9 million notifications sent to 27.83 million people who applied for the notifications (as of Sept. 9)

* Notification content

- **First dose**: appointment results, notification one day before vaccination date, results of vaccination on vaccination date, and guidance on reporting adverse effects

- **Second dose**: notification one day before vaccination date, results of vaccination on vaccination date, and guidance on reporting adverse effects
Reference:
Flowchart of vaccination notifications

- **Apply for the public virtual assistant service notifications**
- **Application details**
- **Private-sector apps**
  - ① Pre-notifications (based on simulations)
  - ② Vaccination appointments  ※Apply for Public virtual assistant service notifications
  - ③ Manage appointments  ⑤ Manage vaccination status
  - ④ Vaccination notifications (text message) (date, location, etc.)
  - ④ Vaccination notifications (private-sector apps) (date, location, etc.)

- **Vaccination Appointment System (KDCA)**
  - ① Manage appointments  ⑤ Manage vaccination status
  - Vaccination data (date, location, etc.)

- **Manage vaccination status Virtual assistant service System (MOIS)**
  - Vaccination data (date, location, etc.)
03 **Service status 3:**

notifications regarding COVID-19 relief payments

---

**Service overview**

- With the bill on “COVID-19 Relief Payment” passing the National Assembly (Jul. 25, 2021), a notification service for the payment was provided under the pan-governmental framework to address the challenge swiftly.

  ✓ A total of 1.1 trillion won was handed out to households in the bottom 80% income bracket (20.34 million households, 88% of the entire population). The application process started in early September and the payments began to be made in mid-September through card companies, administrative agencies, etc.

---

**Roles and operation systems of each organization**

1. **National Health Insurance Service**: built a database of eligible citizens
2. **Sido and SAEOL Administrative Information Systems of MOIS**: check eligibility, determine payment amount, and make payment
3. **Virtual assistant service**: provide notification of eligibility, payment amount, application period, and validity period
# Service status 3:
notifications regarding COVID-19 relief payments

## Details of the virtual assistant service subscription and notifications for COVID-19 relief payments

<table>
<thead>
<tr>
<th>Type</th>
<th>Total</th>
<th>Naver app</th>
<th>KakaoTalk</th>
<th>Toss</th>
<th>Text message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of subscribers to the virtual assistant service (10,000)</td>
<td>1,274 (100%)</td>
<td>180 (14%)</td>
<td>332 (26%)</td>
<td>741 (58%)</td>
<td>21 (2.0%)</td>
</tr>
<tr>
<td>Notifications sent (10,000)</td>
<td>1,337 (100%)</td>
<td>207 (15.5%)</td>
<td>319 (23.9%)</td>
<td>795 (59.5%)</td>
<td>16 (1.2%)</td>
</tr>
</tbody>
</table>
Reference:
Flowchart of COVID-19 relief payment notifications

- Ministry of Health and Welfare
- h-well NHIS
- Ministry of the Interior and Safety
  - Administrative divisions (develop SAEOL System)
  - Card company's webpage
- Pre-built DB
- Migration
- Processing DB
  - Household composition, payment amount, administrative divisions, payment status, etc.
- Notification DB
  - Household composition, payment amount, administrative divisions, etc.
- Notification System for Relief Payment
- Virtual assistant service
- Partnered bank (card window)
- Public

- Apply for the virtual assistant service notification services (private-sector apps and the public virtual assistant service webpage)
- Send notifications for Relief Payment (eligibility status, application methods, precautions, etc.)
Chatbot services are individually developed by organizations with low service quality. People need to use different chatbots for different topics.

People can use consulting services from anywhere 365 days a year.

Design easy-to-use chatbot services and accumulate relevant know-how.
Reference:
Process of handling inquiries for consulting services

1. Inquiry
2. Answer
5. Inquiry
3.1. Inquiry
4.2. Process inquiry and generate answer
3.2. Select knowledge base
2. Chatbot divergence
5. Inquiry

Chatbot Common Infrastructure

Chatbot Common Infrastructure

Web channels
(Civil Petition 365 Portal)

User
(general public, civil servants)

Chatbot Engine
Natural Language Understanding (NLU)
Natural Language Processing (NLP)

Chatbot for Military Affairs #1
(individually built)

Chatbot Engine
Natural Language Understanding (NLU)
Natural Language Processing (NLP)

Established Chatbots #2
(individually built)

Established Chatbots #3
(individually built)

Common knowledge base

Common area

Knowledge bases by chatbot service

Chatbot consulting on E-customs civil petition consulting laws
Chatbot consulting on local contract-related civil petitions
Chatbot consulting on open sharing of public resources
Chatbot consulting on private data protection laws
Chatbot consulting on recreational forests
Chatbot consulting on settlement support for North Korean defectors
Chatbot consulting on police civil petition consulting chatbot
Chatbot consulting on public servant pension
Chatbot consulting on cybercrimes

Connection
How to use consulting services (1/2)

Access the virtual assistant service as part of consulting service

Inquiry and Answer by Area

1. Designate a chatbot for a selected service area and ask a question.
2. Configure the Autocomplete feature.
3. Send this conversation with Guppi via your email.
4. Complete the consulting session, collect the user’s review of the service, and display the home screen.
5. Autocomplete inquiries, display recent inquiries.
The virtual assistant service for the public exceeded the operational target by 1,200% in government-wide response to social issues.
Future plans

- Short-term goals
  - To expand notification and consulting services* in areas closely related to people’s lives and add e-bill notification service that can replace paper bills
    - Notification
      (2021) 10 types including vaccination information → (2022) Over 38 types including dormant saving account notification (cumulative), 41 types of electronic notification from the Korean National Police Agency, including confirmation of traffic law violations (new)
    - Consulting
      (2021) 11 types of administrative consultation, etc. →
      (2022) 22 types, including consular service information (cumulative)
  - To increase service accessibility by expanding associated private channels (apps)* and allow for the selection of multiple apps to receive notifications
    * (App) 3 kinds such as Naver App, KakaoTalk, and Toss in 2021 → Over 5 kinds in 2022 (cumulative)

- Long-term goals
  - To expand the virtual assistant service in a more personalized way by using intelligent technologies (AI, chatbots, etc.) in order to provide administrative services anytime, anywhere.
Thank you

The Door to a Better World