![Minnesota IT Services logo]

# Revamping Access: How AI is Enhancing Driver and Vehicle Services for Minnesota Communities

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## Executive Summary

In his first week in office, Minnesota Governor Tim Walz issued Executive Order 19-01 to establish a One Minnesota Council on Diversity, Equity, and Inclusion (DEI). The order stated, "As long as inequities impact Minnesotans' ability to be successful, we have work to do." Minnesota IT Services (MNIT) and the Department of Public Safety-Driver and Vehicle Services (DPS-DVS) took up that call. In March 2023, Minnesota launched its Language Access Project, which added a virtual assistant to driver and vehicle processes, modernized the system, and translated three prominent languages for Minnesotans: Hmong, Cushite-Beja-Somali (Somali), and Spanish. By leveraging Google Enterprise translation technologies, DPS-DVS creates greater access for more customers through a single integrated system incorporating chat in all of these languages and speech-to-text for English and Spanish.

In 2022, Minnesota ranked 19th among states with the highest resettlement of refugees and the number one state for "secondary migration." With this project, Minnesota became the first state in the nation to translate a virtual assistant for driver and vehicle processes into Hmong and Somali to improve access. These languages, alongside Spanish and English options, enable people, regardless of the language they speak, to have the same resources and capabilities as any other resident in Minnesota.

The new virtual assistant helps Minnesotans communicate in a language that is easier for them to read, write, and speak while gathering information about driver and vehicle services. But this is not just a translation project. The AI technology and large language model convey message intent, which allows their ethnicity to retain some of their cultural identity and inter-generational conversation. Over 300,000 Minnesota residents who rely on a language other than English can now more easily receive services from DPS-DVS.

> **Why it matters:** Used new AI technology to develop a driver and vehicle services virtual assistant that is available in English, Hmong, Somali, and Spanish and provides eServices to 67% of Minnesota's non-English-speaking population.

## Idea

Minnesota's Driver and Vehicle Services (DVS) provides services in person, online, and through mail and email. Over the past few years, DVS strived to improve customer service by increasing access to services both in times of day and language.

### DVS by the Numbers (2022)

- Served 10M customers
- Issued 1.5M titles and 2.6M license plates
- Sent 2.6M and received 650K mail items
- Processed 39K records requests
- Received 1.1M calls
- Processed 2.4M eService requests

## Why Language

The Minnesota Department of Education reported that over 334 different languages are spoken in Minnesota homes and that over 10% of Minnesotans don't speak English. Minnesota ranks 19th among the highest refugee resettlement population and is the number one state in the nation for "secondary migration." Non-English speakers face tremendous challenges in accessing important information.

The State of Minnesota faced a lofty challenge. Before even visiting a DVS facility, these Minnesotans had to make an appointment to have a human translator present or bring a family member or friend to be the translator for them. Mobile translation tools and a previous iteration of a virtual assistant helped, but they weren't fully serving Minnesotans in a way that met their needs.

## One Minnesota

DVS realized that if they didn't address language barriers, many Minnesotans would have a difficult time conducting a range of business transactions, securing employment, traveling safely throughout the state and country, accessing educational resources, and more. DVS services affect Minnesotans in all facets of their lives. Tackling this was not only important for DVS, but it was necessary to further the One Minnesota goals of Governor Walz. The project was driven by MNIT's Chief Business Technology Officer who serves DPS and is part of MNIT's CIO Office, aligning with DVS and the One Minnesota vision of Governor Walz.

This initiative sought to ensure all people, regardless of the language they speak, have access to the same resources and capabilities in Minnesota. This extends to providing Minnesotans equitable use of digital government services. Technology modernization and customer service play a key role in helping fulfill the Governor's vision.

## More Than Translation

Minnesota overhauled its driver and vehicle system with a system called MNDRIVE in November 2020. As part of the overhaul of MNDRIVE, DVS updated the Driver and Vehicle Services landing web page to provide links to self-service features available to Minnesotans, and to provide easy-to-access information on rules, regulations, and the administrative policies of DVS. The new landing page is device-aware, so anyone can access the information from a laptop, tablet, or phone,

and integrates a chatbot. The chatbot, Technology Assisting MNDRIVE Inquiries (TAMI), had over 180,000 usages in its first year. TAMI and MNDRIVE laid the foundation for an all-in-one system to process driver and vehicle services for Minnesotans – but there were no translation capabilities.

The Language Access Project helps Minnesotans communicate in a language that is easier for them to read, write, and speak while gathering information about driver and vehicle services. The most innovative part of this project is that it's more than a translation project. Additionally, no other project like this tackled Hmong and Somali languages. Minnesota has the largest population of Hmong and Somali speakers. The translation teams needed to be respectful of how the language is used in Minnesota. In particular, the Hmong language has only become a written language in the past 60 years. Many English words don't have a 1:1 translation in Hmong, including motor and vehicle services vocabulary, and needed to be phonetically produced by working with community members. For example, "**vehicle registration**" is "**npe tsheb.**" When translated back to English, it is "**car name**." Without the direct translation, DVS had to translate the word phonetically (i.e., the term 'vehicle registration' has English slang for tabs/stickers) or conceptually (i.e., explain the meaning behind the term).

The solution was built in a way that met these unique language challenges, while also creatively planning to scale for the future – creating a blueprint for how other agencies and states can adopt similar emerging technology.
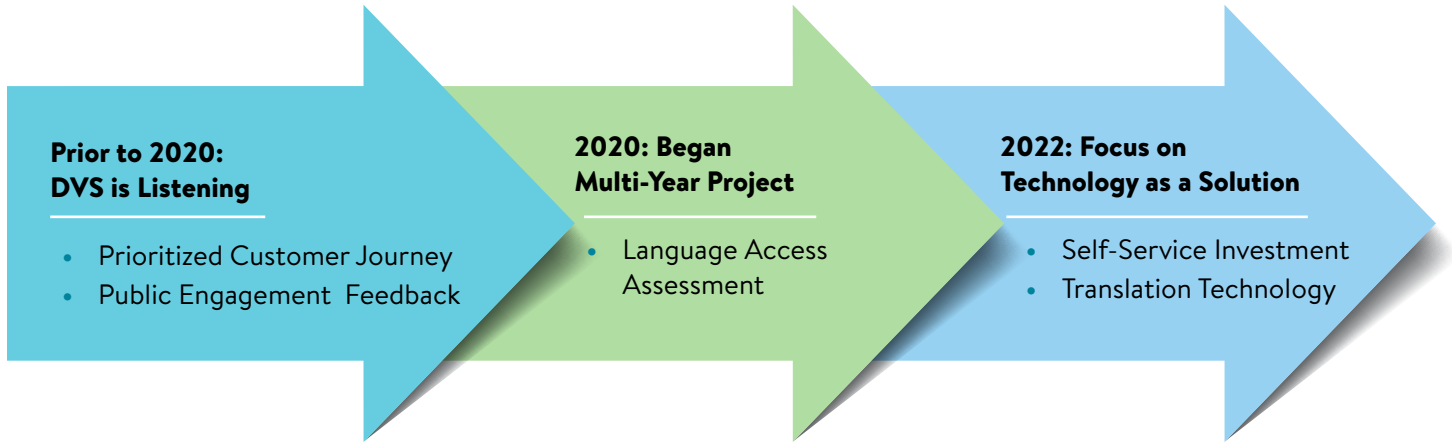
## Implementation

Before this project, DVS prioritized the customer journey. Through public engagement initiatives, such as community meetings, town halls, and the agency's public engagement office, they found that language access was a clear challenge for Minnesotans with limited English proficiency.

In 2020, DVS and MNIT began this project by participating in a language access assessment, conducted by Minnesota Management and Budget. The State CIO participated in this assessment and looked at five state agencies to identify areas of service improvement. Key areas of opportunity for DVS and MNIT to focus on included: language access on the website, using more plain language, and increasing reach and awareness among limited English proficiency communities.

The Language Access Project will be completed in phases. Phase 1 launched the virtual assistant and started with the four languages of Hmong, English, Somali, and Spanish. The phased approach will allow DVS to achieve its goal of supporting additional languages and features that will serve populations that rely on language translations to access services.

# Language Access Project Phases

| Prior to 2020: DVS is Listening | 2020: Began Multi-Year Project | 2022: Focus on Technology as a Solution |
|---|---|---|
| • Prioritized Customer Journey<br>• Public Engagement Feedback | • Language Access Assessment | • Self-Service Investment<br>• Translation Technology |

## Selecting Languages

Languages are spoken at home in Minnesota (Source: By immigrant group | MN Compass)

| Language | Number of people |
|---|---|
| Spanish | 201,151 |
| Cushite-Beja-Somali | 78,820 |
| Hmong | 69,744 |
| Total Non-English | 515,181 |

**67%**
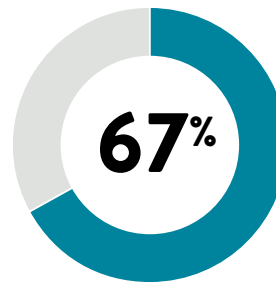
**Percentage of Minnesota's non-English-speaking population who speak Spanish, Cushite-Beja-Somali, or Hmong at home.**

MNIT and DVS evaluated census data of the total population of Minnesotans that speak a language at home other than English to select Hmong, Somali, and Spanish. By focusing on these three languages, Minnesota could serve 67% of the non-English-speaking Minnesota population.

## Implementation Timeline

The MNIT and DVS teams worked on an aggressive timeline and with multiple vendors to ensure that funding, resources, and timelines were met.

- **Selected Technology Vendor (Winter 2021):** MNIT and DVS researched vendors and selected the Google Enterprise Platform because it could support all of these non-English speaking populations and could scale to the top 30 languages DVS considered.

- **Prepared Documents (May 2022):** Before DVS launched the virtual assistant, it put all its customer-facing correspondence through a plain language process. In total, this made sure that 499 documents were as clear and succinct as possible to translate into other languages. A portion of these completed letters was also translated to help build into the glossary for each language.

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- **Selected Implementation Vendor (Spring 2022):** MNIT and DVS researched vendors that could provide and implement the Google Enterprise Platform. The teams worked with Insight to design a roadmap that prioritized the customer journey while integrating Google technology.

- **Executed Contracts and Project Kickoff (August 2022):** Upon execution of licensing and professional services contracts, resources were secured by DVS, MNIT, and the respective vendors.

- **Designed and Built Self-Service Flows (Fall 2022):** DVS prioritized self-service actions from eServices to be conducted within the virtual assistant in all languages.

- **Created DPS Google Cloud (Fall/Winter 2022):** Minnesotans needed assurance that their information was protected, so MNIT cybersecurity experts, DPS legal teams, and Google Cloud experts partnered to ensure the architecture, data flow, and levels of security were in place to support the information the chat feature used.

- **Translated Virtual Assistant Content (Fall/Winter 2022):** All content (i.e., FAQs) was first machine-translated, then reviewed by certified translators, followed by a review from members of the local Minnesota community in each respective language.

- **Community Engagement & Testing (February 2023):** DVS worked with an external community vendor to identify participants in each of the targeted communities to gauge feedback on the usability of the feature, quality of the language translation, and how well the system responded to questions and directs the customer.

- **Replaced TAMI with the Virtual Assistant (March 2023):** Customers can complete five types of transactions within the virtual assistant. MNIT and DVS moved these eServices from TAMI to the new chatbot and built the framework for future language glossaries for these transactions to be successful:

  - Checking on your title, driving privileges, or license plate status.

  - Update your insurance.

  - Mark a vehicle as sold, donated, or removed.

- **Speech-to-Text (STT) for English and Spanish (March 2023):** By including the microphone feature on the chatbot interface, customers using English or Spanish can leverage speech-to-text to transcribe their verbal statements, reinforcing the mobile-friendly features.

- **Integrated Google Maps and Search (March 2023):** Integrating the virtual assistant with Google Maps and Search results allows DVS customers another access point through Google Business Messages. It provides a chat option that will lead them to DVS' eServices website and load the virtual assistant.

- **Virtual Assistant Live (March 2023):** Since launch, DVS has seen a 21% year-over-year increase in the usage of the chat feature.
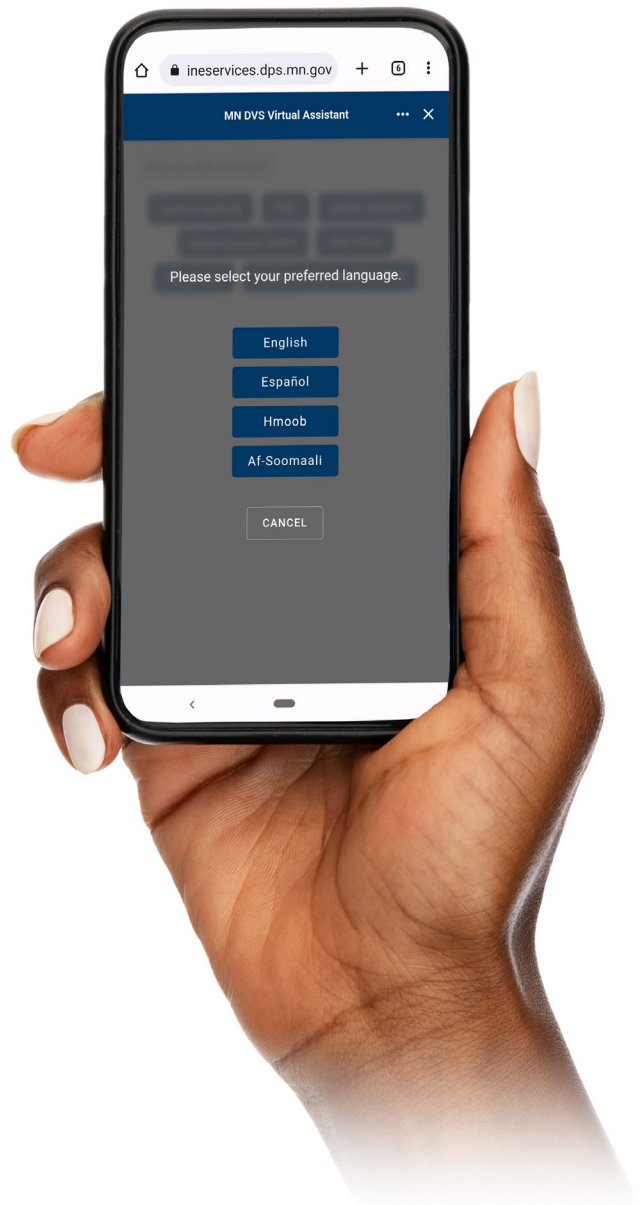
## Getting Ready for Launch

The complexity of the project required a personalized plan for a diverse range of uncommon languages. With several partners maintaining flow was difficult and took some time. The vendor partners became trusted advisors, in some cases providing professional services to support the broader goal to develop a virtual assistant that could meet the needs of constituents and the Governor's One Minnesota initiative.

DVS leadership and the MNIT CIO Office, led by the DPS-based CBTO, ensured that the project team managed potential cost increases and scope adjustments – mitigating them to ensure minimal impact on the overall budget and project timelines.

The teams used sprints to perform vendor and DVS/MNIT-led user acceptance testing. This allowed DVS to identify gaps that could impact their business process or the customer journey. The entire ecosystem includes Google Cloud with Google Language Services, Google Translate API, Google Cloud's Distributor, Dialogflow CX, CCAI Insight, and Looker.

## Community Involvement

MNIT and DVS also engaged Hmong, Somali, and Spanish communities to make sure the final product met their needs. For Hmong and Somali, this was especially important because of the potential number of dialects that the translation needed to address and account for legal concepts, phrases, and terms that did not previously exist in their culture.

The teams:

- Participated in an Immigrant and Refugee Affairs Forum, Latine Day, and the Governor's Office Latine Leaders Meeting.

- Engaged the statewide Public Engagement cohort that is responsible for engaging the community.

- Created community engagement meetings for Hmong, Somali, and Spanish speakers at libraries, PTA meetings, and a city hall.

Altogether, the teams engaged over 290 individuals from its identified key audiences such as non-English-speaking and English-speaking Minnesotan vehicle drivers and owners, college students, and K-12 parents and students. These individuals represented diversity in age, comfort with technology, literacy level, and gender.

This project allowed MNIT and DVS to engage the public and community members differently. DVS plans to continue to increase these touchpoints and opportunities to ensure the solutions and direction meet the needs of customers.

## Impact

The State of Minnesota, in partnership with its vendors, modernized its virtual agent to allow more customers to use their language of choice for self-service vehicle and driver services. Minnesota is overcoming language barriers and improving access to DVS information and services.

Minnesota has already rolled out its first four languages. As new languages roll out, Minnesotans can feel at ease as language barriers decrease and people have access to information and proper identification. With the success of the program, DVS established itself as a trailblazer among State of Minnesota agencies and DMVs across the country.

With this technology, regardless of the language spoken, customers can communicate and exchange information promptly. Over 300,000 more Minnesotans – 67% of the state's non-English speaking population – now have a 24/7 feature that helps connect them to information about and access to DVS services. Customers are provided a better forum to understand what is needed, when, and how. The project saves DVS, customers, and the State time and money.

This brings Minnesota and all its residents one step closer to Governor Walz's One Minnesota, which it is the duty of the CIO Office to carry out. "In Minnesota, we know we are all better off together … Diversity, inclusion, and equity are therefore essential core values and top priorities to achieve One Minnesota."

## Meeting Customer Needs

The virtual agent is already more successful than its previous chatbot iteration. Year-over-year chat usage on the eServices website represents a 21% increase, 14% of which used one of the self-service actions:

- **March 15-April 15, 2022 on TAMI:** 12,586 chats
- **March 15-April 15, 2023 on new Virtual Assistant:** 16,076 chats

One of the most fulfilling aspects of the virtual assistant for the Minnesota community has been the overwhelming response from individuals about how the project made them feel as a human being. Members of the community engagement sessions, and many community members at large, repeatedly shared that they felt more worthy as a member of the Minnesota community because DVS was putting forth the effort, time, and resources to improve their ability to engage with a state agency. People told DVS that the virtual assistant helps them communicate in a language that is easier for them to read, write, and speak while gathering information about driver and vehicle services.

## Preparing Systems for the Future

The State's approach allowed DVS to focus on the customer journey - to meet the customer where they are using their preferred communication channel. The selected solution laid the groundwork to build into other channels and leverage the technology to integrate into telecommunications systems.

**By integrating voice technologies, this project enables an incredible near-term reality: Someone can chat or speak to the virtual assistant, or call a contact center agent, in the language of their choice, and easily complete their driver and vehicle transaction because the language was not a barrier.**

As part of the program's ongoing evolution, DVS is also looking to add more languages, and collect metrics around frequently asked questions to create virtual agents capable of addressing common and often unanswered inquiries. This will result in long-term tax savings for constituents over time. And it will have a major impact on the two largest counties in Minnesota, Hennepin, and Ramsey, which represent about 30% of the population of the state. Of the available languages, DVS is considering adding Vietnamese, Russian, Chinese, Dari Persian, Pashto, or Arabic next.

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*"This work is so critical and important to me and my community where English is not their first language."*

**– Pang Shoua**
(Hmong feedback session attendee)

*"I have learned that the government thinks about everybody including me, who doesn't speak any English."*

**– Farah Mohamed**
(Somali feedback session attendee)