1. The challenges of a multilingual community

AI-Powered eGovernence is happening right now in Latvia country located in the Baltic region of Northern Europe with a population of 1.9 million most of whom speak Latvian. Economic ties, fast growth, and free movement within EU is behind a significant incoming migration in the last decade.

Up until recently, most Latvian public sector and e-service content has been in one language, Latvian, which limits access to information for, e.g. ex-pats and foreign partners. For example, Latvija.lv the national digital services platform where anybody can access more than 600 services and information provided by Latvian state institutions and municipalities, was only partially available in English and Russian.

Additionally, since information traditionally has been only in written form it is not accessible to people with sight disabilities. This is an ethical issue that brings attention to how the government includes all members of society to create an environment where everyone can access public services independently.

2. *Automation in civil service*

Another aspect of the challenges that the project had to resolve was automating civil service translation workflow. Civil service requires a high volume of translation, and automation increases the speed, mobility, and productivity of the translation while speech recognition can significantly increase text transcription for legal materials. Often, text translated by public administration are sensitive and confidential as, for example, translations for procurement documentation, contracts, etc., and generic online translation service providers do not pay enough attention to data privacy and security. A translation platform owned by the state would manage the processed data, therefore, ensuring that there is no leakage of sensitive data.

3. *Introduction of a multi-language technology platform – Hugo.lv*

With all the previously mentioned challenges faced by the Latvian public and civil service, the Latvian administration, represented by the Culture Information Systems Centre reached out to Tilde, a leading European language technology company, to develop a multi-language technology platform which had to resolve two challenges at once – increase accessibility to public services for expats, foreign partners, and people with visual impairment, as well as help automate the translation process for civil service.

It offers 3 main functionalities - text translation, speech recognition (audio to text), and speech synthesis (text to audio). In addition, it includes the management and digitalization of language resources.

The translation functionality is based on Tilde's multi-awarded Neural Machine Translation technology (winner of WMT2017 and WMT2019) and it provides text, document, and website translation, as well as the functionality can be used as an internet browser add-on, translation software (SDL Studio), mobile app as well as API integration is possible.

The Neural MT technology can be used in combination with Automatic Speech Recognition (ASR) - users can upload a document to translate it, and then to convert the text to speech, which increases accessibility of public services for the visually impaired.   Text to Speech (TTS) enables the transcription of audio files and conversion of any textual information into audio format.

All functionalities are powered with Deep Learning technologies such as Neural Machine Translation (NMT), Natural Language Understanding (NLU), and Natural Language Processing (NLP).

4. Benefits of language technology platform

The   language   technology platform provides a   number   of major   possibilities   and improvements for the public service, such as:

For the Public:

- Increased multilingual access to content originally written in a single language.
- Better access   not   only   to   textual,   but   also   audio information, thus enabling people with visual impairments to access different types of content and e-services.
- Users' data   for speech   and   translations   are   processed   in a controlled and secure environment.
- API access, the language technology can be integrated into other systems and platforms.

For the Service:

- According to   several   studies, the use   of neural   MT tools increases   speed of translation and lowers the related costs by up to 35%.
- Collecting Neural MT translation memories ensures correct and consistent use of terminology and provides data for further development of the MT systems.

5. Results

Since its launch, the platform has quickly become extremely popular with civil servants, ex-pats, foreign partners and all residents of Latvia. Though it received only organic media promotion, and information about has spread mainly by word of mouth, the platform has been visited **267k times** in **3 months**, which translates into approx. **3k visits per day**. Overall, **352h** or **14 days** have been spent on pronunciation and **749h** or **31 days** on speech recognition. While overall **77 million** words have been translated with the automated translation system, **2.8 million** words have been spoken and **3.1 million** recognized during the 3 months period. Representatives of the Latvian administration highlighted the quality and advantages of the platform: "**Hugo.lv has considerably improved the availability of Latvian e-government services to customers from Latvian, English and Russian language communities in Europe and the whole world.**" affirmed the **Minister of Foreign Affairs of Republic of Latvia**, **Edgars Rinkevics**.

6. The next phase of the project

The project intends to use the infrastructure that has already been created and to introduce further improvements by adding a virtual assistant or a chatbot functionality. Overall the next

phase will involve developing 9 intelligent virtual assistants which will be trained to help with the various administrative formal inquiries. Together with already available translation and speech technologies, the upcoming update with virtual assistants will significantly increase the accessibility of public services to ex-pats and foreign partners living in Latvia, as well as make the platform an indispensable tool for people with visual impairments. **The project will result in a conversational AI based public service accessible to everyone.**