

Press Release

Development of a New High-precision AI-based Translation Engine Specialized for the Financial Sector

– High translation accuracy achieved through collaboration between NICT and JFSA –

[Points]

- The NICT and the JFSA have developed a new high-precision AI-based translation engine that can translate documents in the financial sector between Japanese and English.
- The JFSA has collected a large quantity of bilingual documents from a variety of stakeholders, which contributed to improving the percentage of the highest-quality translations from 20% to 50%, and which reached the level of professional translators specialized in the financial sector.
- Improving translation accuracy in highly specialized financial fields is expected to contribute to strengthening Japan's roles as an international financial center.

The National Institute of Information and Communications Technology (NICT) (President: TOKUDA Hideyuki, Ph.D.) and the Financial Services Agency of Japan (JFSA) worked together to develop a new AI-based translation engine that can translate documents between Japanese and English in both directions with high accuracy. The JFSA has collected, and provided to the NICT, a large number of translation documents owned by the JFSA and financial industry groups. The NICT has refined them into data suitable for deep learning to develop the high-precision AI-based engine. The NICT has started technology transfer of this engine to private companies since March 1, 2022. The new engine will enable users to translate documents with high accuracy. According to our research, the ratio of highest quality translations that have reached the level of professional translators specialized for the financial sector has improved from 20% to 50%. It is expected that this engine will contribute to strengthening Japan's roles as an international financial center.

[Background]

The NICT has been demonstrating the effectiveness of its Translation Bank*¹, which collects bilingual documents that form the basis of AI translation, in order to improve translation accuracy in multiple fields of industry. As part of the "International Financial Center Initiatives," the JFSA has also decided to strengthen its capability for communicating in English and further enhance the sophistication of its financial sector policy.

[Achievements]

The NICT and the JFSA worked together to collect a large quantity of bilingual documents in the financial sector through public-private cooperation. This has improved the accuracy of AI translation between Japanese and English by making better use of the data collected.

Specifically, under the leadership of the JFSA, various sets of Japanese and English documents were collected from financial industry

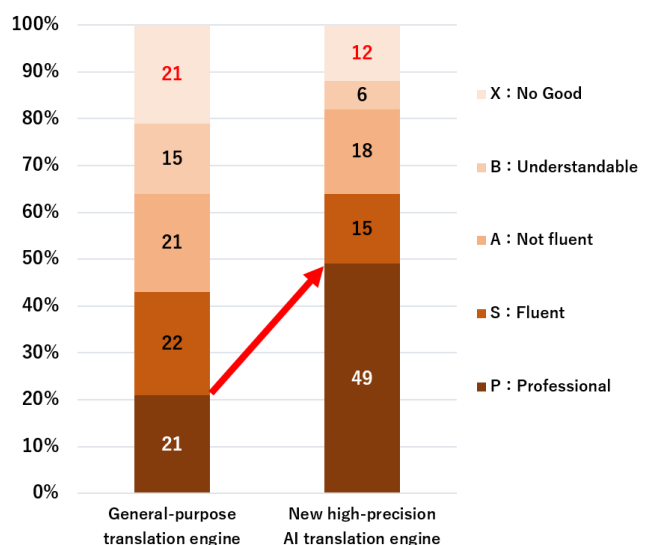


Figure 1: Comparison between two engines

groups. The NICT has refined these documents into data suitable for deep learning to develop a new high-precision AI-based translation engine.

When we compared the quality of the translation of the same text between the new AI engine and a general purpose one, we found that the ratio of the highest quality translations reaching the level of professional translators specialized for the financial sector has risen from 21% to 49%; the ratio of the NG (No Good) level was also reduced by half from 21% to 12%, thus achieving overwhelmingly higher precision (See Figure 1).

On March 1, 2022, the NICT commenced technology transfer of its new engine to private enterprises. Since the new engine delivers a practical solution, it will be popular and widely used, which will enhance bilingual communication in Japan's financial sector.

[Future Prospects]

The NICT aims to further expand its business in the future, following the success in the financial sector this time.

The NICT will also continue to collaborate with the JFSA on the collection of finance-related translation documents, and implement an eco-system to improve the quality of translation, including responses to continuously emerging new words and concepts in the financial sector.

<<Examples of improved translation>>

Japanese original text	Translation by a general-purpose engine <Understandable>	Translation by the new AI-based engine specialized for the financial sector <Professional>
保険契約に解約価額がある場合、契約を解約する保険契約者に損失を負担させることを可能にするための解約時の契約価額の削減	where insurance contracts have a surrender value, reducing the value of contracts upon surrender to enable losses to be imposed on policyholders that surrender their contracts.	A reduction in the value of policies at surrender to enable policyholders who surrender policies to bear losses if they have a surrender value ;
なりすましに対抗するため、各参加者に固有の生体認証番号 (BIN) が作成されている。	A unique Biometric Identification Number (BIN) is created for each participant to counter identity fraud.	To counter identity theft, a unique Biometric Identification Number (BIN) is created for each participant.

The JFSA commissioned this research to the NICT under the "Commissioned Research on the Construction of a New AI-based Translation Engine Specialized for the Financial Sector."

[Glossary]

*1 Translation Bank

The higher accuracy of AI translation necessitates not only improving the algorithm of neural networks but also securing a large quantity of translation data in various fields of industry. The NICT, together with the Ministry of Internal Affairs and Communications, is working on high-accuracy Japanese translation technology for multiple fields of industry by accumulating translation data through Translation Bank.

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