
RESEARCH ARTICLE

Artificial Intelligence Impact on Human Translation: Legal Texts as a Case Study

Tahseen Ali Hussein Al-Romany¹ ✉ and Maryam Jawad Kadhim²

¹Lecturer, College of Arts Department of Translation, Wasit University, Iraq

²College of Computer Science and Technology, Iraq

Corresponding Author: Tahseen Ali Hussein Al-Romany, **E-mail:** talkubachi@uowasit.edu.iq

ABSTRACT

The recent paper highlights the impact of artificial intelligence on Machine Translation without the interaction of Humans. The use of Google Translator, Bing, Microsoft Translator, Systran Translate and Amazon Translate has become widely spread (CAT Tools). This study aims to reveal the contrast between Artificial Intelligence and Human Translation in the legal field. A hypothesis of the difference between Artificial Translation and Human Translation was raised. The concerns about the lack of a translator increased, and machine translation was selected as the most selected option. Local and foreign contracts were selected and subjected to Human and Machine translation. Strengths and weaknesses points were selected and analyzed. The previous studies in the legal translation field were considered. The results revealed the gap between human translation and machine translation, and human translation is dominant in the light of accuracy and the existence of legal language. The findings also focused on the Translators' experience and knowledge in the translation field.

KEYWORDS

Artificial Intelligence, Human Translation, Machine Translation, Cat Tools, Legal Translation.

ARTICLE INFORMATION

ACCEPTED: 25 April 2024

PUBLISHED: 20 May 2024

DOI: 10.32996/ijllt.2024.7.5.11

1. Introduction

Artificial Intelligence has become dominant in most fields of life. On the other side, humans still compete on some important tasks that require human thoughts and intellect. In the 1980s, a software program was developed by an American company, and a translator team was requested to translate from English to other known languages like French, Spanish, and German. These years witnessed limited Translation activities among popular languages but on a law scale. Conditions were reserved; however, the market expanded more and more (Pym, 2010: p121). The software translation started to be done in a way that matched the local standards and target audiences' languages. According to these changes, the developers of software and hardware started work on an international level, which popularized a new term, localization, in addition to translation (Esselink. 2006:22).

Previously, translators were only translators who did not rely on any technological tools. The main point in this current paper is whether translating legal texts needs machine translation or human translation (date of access:17-11-2023). Translating legal documents is not only rendering from one language to another; it includes the interpretation of the legal aspects. Human translators offer greater accuracy than machine translation, and that is what we are going to improve in this paper. It is not hidden that machine translation is faster than human translation (unbeatable). Machine translation can convert many lines in a shorter time than humans do, but our main point and discussion is accuracy and correct translation. On the other side, some translators have positives in translating legal documents depending on their qualifications, knowledge, experience and background. It is remarkable that artificial intelligence (IA) translators have less accuracy than human translators (Hinkle Millissee, date of access:16-11-2023).

McConnell and Choudhury (2013) stated that machine translation, or line community, consider the struggle for quality, balance expense and quickness. So, the current study aims to contrast texts translated by humans and artificial intelligence programs, especially legal documents. Regarding the previous studies, the popularization of the computer changed actually the way the translator follows the translation process through the appearance of useful translator tools, including translation memories, terminology databases, translation management programs, electronic corpora and so forth (Odacioglu, 2015:p-1). Essilink stated that the software started to be utilized in a way that matched the languages and local standards of target receptors(2006). As related to the above studies, the impact of the internet and globalization has already popularized fast translation in different fields: technical manuals, web pages, and other means of communication into other languages (Hatem & Mundy,2004:p-112). Tahseen and Muhannad showed in their published research the linguistic features used by the translators (2019:459). In a recent study, the translation machine came to replace those who translate like machines, and the translation from SL to TL needs a sufficient and experienced translator in both languages (Tahseen et al., 2020:p-2).

1.1 The goal of the paper

- 1-Specify the differences between artificial intelligence and human translation in the field of translating legal documents
- 2-Identify the differences between artificial intelligence translation and human translation in the field of translating legal documents.

2. Literature review

Artificial intelligence is used by most students, Universities, colleges, Media, Schools and industrial fields. Artificial intelligence has developed since the rise of robots, as stated by (Ramesh et al., 2004:433). Intelligent technology can imitate the tasks that humans do, relying on many aspects. To make artificial intelligence successful. Russell (2016) presented two prerequisites: intelligence and artifact. According to the set guidelines, unedited machine translation shouldn't be used for materials to take a formal role, for example, in court proceedings or as exhibits (Chauz,2008:323). Machine translation is a non-compatible translation type, as stated by the Immigration and Refugee Board of Canada (2014); for that reason, it was dismissed from the law cases and translating legal documents. On the other side, artificial translation or machine translation should give a man a professional translation (Giordanom 2013:467).

Some requirements were mentioned on how accurate translation must be as a predicted danger may occur by using machine translation in legal texts (Wahler,2018:138). Kit and Wong overdo the issue by claiming that automated evaluation is " the most authoritative method of machine translation assessment (Kit and Wong,2006:317). Such problems can be avoided by human evaluation (Callison-Burch et al.,2007). With the development of automated translation tools, artificial intelligence has appeared as a new concept (Yang:2022).

3. Methodology

The current paper highlights the differences between human translation and machine translation. Some applications in this paper were applied. Google Translator, one of the wider use applications that can translate and support more than 133 languages, was launched in 2006 (Wigger,2002). Many steps were followed in this paper, including correcting, comparing, and processing analysis to answer all the questions presented. Three artificial programs were used, and three certified translators took part in translating these legal texts. The selected texts were chosen from various legal texts, and the selection of translators was made according to their experience and academic career in the translation department. The reason for selecting such professors is to get precise and correct translations. Microsoft Translator, through cloud services, is used by businesses. This kind of service depends on writing explicit rules for natural language translation; algorithms were involved and trained to be understood (Antonio et al., 2011). This service also supports and offers several speech translation systems, such as Skype translation and Skyper for Windows desktops. Machine translation is used by Microsoft translators to create immediate translation from one language to another (source to target language). The BLEU scores method was used to measure Microsoft Translator's machine translation. It is considered the most popular automated and inexpensive metric. In this type, quality is considered to be the correspondence between the output of the machine and humans (Wendit and Lewis,2001:30). Bing bar translator is a free translation service. It is used to translate text on websites into another language. This kind of machine translation is useful for a non-native speaker; its target is just to get the content of information, but it is not a native speaker, and the translation output will be accurate (Date of access:17-11-2023).

4. The Hypothesis of the study

The researcher tries to find out if there is a statistical difference between the human and artificial intelligence translation in Arabic and if there are statistical differences between the human and artificial intelligence in English. These differences will be revealed through the analysis of the legal texts below.

5. Selected Data

In this section, all the questions will be answered by collecting the answers from the translators and machine translation. These criteria were adopted by the model of Prieto (2015) to evaluate the quality of legal text translation. This model ensures quality for legal texts. The reason behind using this model is to reduce subjectivity and explain the predicted benefit of enhancing predictability regarding certain legal texts.

Table 1: The Translation Assessing Quality of Legal Texts Translation

Main Scales	Details
Accuracy	20 scores
Competence	20 scores
Content	20 scores
Language	20 scores
Style	20 scores
Total	100 scores

6. Texts Assessment

The first text was selected from one of the Oil Company's contracts. The Professor who did the translation is lecturing at the Department of Translation in the College of Arts. Then, the same text was translated by one of the Artificial Intelligence translation programs (Microsoft Bing).

"Employer has revisited the project plan and comes to the conclusion that the Contractor is experiencing material delay in its execution, the harm of which will not be repaired until six (6) months from now on, or even more. Such delay will inevitably incur additional costs for the employer and will no doubt damage the employer's reputation in front of the Iraqi authorities."

"تمت مراجعة خطة المشروع من قبل صاحب العمل، وتوصل إلى استنتاج بأن هناك تأخيراً جوهرياً في تنفيذ المشروع من قبل المقاول، والذي لم يتم معالجة الضرر الناتج عنه إلا خلال ستة أشهر من الآن، أو ربما أكثر. فحتماً، سيتحمل صاحب العمل تكلفة إضافية بسبب هذا التأخير، وسيؤثر هذا دون شك على سمعته أمام السلطات العراقية."

The text was translated by the Asst. Instructor who has an experience more than 5 years in translation. So, the translation quality shall be good and accurate. The university professor's translation of the legal text into Arabic refers to the five criteria that were used to evaluate human and legal translation. The accuracy assessment of the translated text above is very good, without any mistakes, and really structured. But, sometimes, the translator selects some words which are not consistent with the real meaning; such gaps can be avoided by a qualified and more experienced translator. In this text, the translator succeeded in translating the text correctly and correctly and corresponding to the real meaning; however, he only has five years of experience. This means that such a translation depends on the translator's understanding of the source language. The researcher remarked that the translator used a good style. The accurate translation relies on the translator's knowledge and history of different fields and subjects, and not only on his long experience. Knowing both languages' cultures is important to the certified translator to reach a correct and accurate translation. In the above translated texts, we can remark on the accuracy and correctness of translation without any remarkable error or even a mistake, all due to the experience and knowledge of the translator. The translated text into Arabic is understood by the audience with mostly no mistakes or cultural differences. The researcher in this current study tries to confirm that the certified and legal translator may rely on his sense of knowledge in both source and target knowledge. The translation was clear and close to the original. The legal language can be noted in the translated text, which means the legal experience is available.

Below is the text translated by Machine Translation (Microsoft Bing), which can be defined as one of the translation software applications. Most scholars, students, and even other individuals are using these programs due to the speed with which they complete the task and the time saved.

"أعاد صاحب العمل النظر في خطة المشروع وتوصل إلى استنتاج مفاده أن المقاول في حالة تأخير مادي في تنفيذه، ولن يتم إصلاح ضرره إلا بعد ستة (6) أشهر من الآن فصاعداً، أو حتى أكثر. هذا التأخير سيتكبد حتماً تكلفة إضافية على صاحب العمل وسيؤثر بلا شك بسمعة صاحب العمل أمام السلطات العراقية."

The translated text above shows the correspondent with the one translated by humans, but with little differences in some words regarding the knowledge, experience and real sense of a human translator. The text above was translated using the Bing application. The real difference between the human and Machine translation can be found in the phrase "materially delayed". This phrase was translated by humans in the right way, but by machine, the translation was totally different and not accurate. Most Translation applications are fed by qualified translators to fit the required demands in different fields, but sometimes accuracy is missing in some of the translated texts, especially legal texts. The underlined phrase above is translated by the Bing Translator as materialism delay, but the real meaning is a delay in supplying materials, which gives a different meaning than the one translated

by the experienced Translator. This difference in translating this phrase changed the meaning and the understanding of the text. The assessment was made regarding the accuracy, and the artificial intelligence translation missed selecting the legal meaning. On the other hand, in assessment based on competence, translation lacks competence in one phrase, "materially delayed". The researcher remarked that the language was clear and that the source language matched the source language except for the phrase above. The legal language was found, and it was clear. The tone of the legal text regarding the style assessment was found, and the legal language was found. AI may sometimes struggle with idioms, cultural references and Linguistic structures. The phrase above was translated by AI incorrectly and translated in an ambiguous way (Materially delayed), and the real meaning, if translated by humans, is the delay in supplying materials. At this point, the AI couldn't recognize the proper meaning, but the human translation did.

The second selected text was translated first by humans and secondly by machine translation to make a comparison between both. This text was also selected from one of the foreign companies that contracted with local companies in Iraq. This text was first translated by a certified translator teaching in the Department of Translation at the College of Arts-Wasit University. He has long and sufficient experience in translation in different fields. For many reasons, such contracts need to be translated legally and professionally. The professor was requested by the researcher to do the translation perfectly without any gaps or errors. The remark of the researcher on this translation was that the translator was accurate when he translated, for example, the (scope of work), which means, in Arabic, the plans and work sections. This is due to the translator's knowledge and understanding. Regarding the overall review by the researcher, he highlights this error as an unexpected error by a qualified and experienced translator.

"The Services' or 'Work' shall mean the operations and activities to be performed and rendered by a contractor as required by the company as expressly set forth in the contract Annexes referred to in (Annex I) and also all of the contractor's activities that are reasonably inferable from the description of the Work. This shall include Work or Services performed pursuant to any authorization for Work, Services or alteration which will be issued to contractor from time to time and shall become a part of the Scope of Work."

تعني الخدمات أو العمل لعمليات والنشاطات اللازم أدائها وتقديمها من المقاول وكما هو مطلوب من الشركة وكما هو محدد في ملحقات العقد والمشار إليها في (الملحق 1) وكذلك جميع نشاطات المقاول التي يمكن تحديدها بشكل منطقي من وصف العمل. على إن يتضمن هذا العمل أو الخدمات التي تنجز بموجب أي تفويض بالعمل و الخدمات أو تغيير سيصدر للمقاول من وقت لآخر ويجب أن يصبح جزء من نطاق العمل.

The second selected text was from one of the foreign companies' contracts with Iraqi local companies. The text was translated by one of the experienced University professors (certified translator-ten years experience). The translator was selected because of his efficiency and long experience in translation. He succeeded in doing the translation perfectly without any mistakes or remarked errors. The translation was semantically and grammatically right and correspondent. There is no severing mismatch between the English text and the Arabic text translation except for the meaning of the word "scope of work", which was translated not in the proper way. For example, the "scope of work" was translated inaccurately, which is really different from the human translation. It gives far more meaning than its real meaning (zone of work). The underlined phrase means the work plan and table. So, sometimes, the machine translation is not able to catch the accurate and required meaning to achieve the true translation. Such words or phrases may influence the real meaning of the translated text.

The assessment based on accuracy was great. The Arabic translation was accurate in describing the required meaning. The content of the translated text into Arabic was clear, without any loss in meaning. The language was clear and matched in the legal phrases. The researcher remarked that the style of the translated text had a legal tone, and the model verbs used were used in human translation. That entirely means that human translation has a deep understanding of the language they translate, even the complex linguistic structure.

(1) وأيضاً جميع أنشطة المقاول التي لا يمكن تعويضها بشكل معقول من وصف العمل ويشمل ذلك العمل أو الخدمات المنفذة بموجب أي تصريح بالعمل أو الخدمات أو التعديل الذي سيصدر للمتعاقد من وقت إلى آخر ويصبح جزءاً من جدول العمل"

The translation of the Systran Translator was used to translate the Arabic text above. Systran Translator is one of the common applications used by most translators. Systran is considered the first operational third-generation translation system and a new design of new Systran generation systems (Senellart et al. 2001,p20). This type is considered one of the best devices used by professionals of Translators. It was increased according to rapid. The translation above by the Systran application is different from the translation by humans. The Arabic result translation was inaccurate, and the researcher remarked on weaknesses in the translated text, and the sentences are not related in the right way. There is a mismatch between the English and Arabic texts. The inaccuracy can be remarked between the lines of the translated text. The legal tone is not found, and the loss of meaning is clearly noticeable. The punctuation marks are mostly lost, and that may affect the production of legal language. We also have a mismatch in translating the word "authorization", which really means empowering, but not as the machine translated as "permission". So, the machine translation couldn't give the proper meaning regarding its position in the SL. But, the translation machine succeeded

in translating the "scope of work" in the right way. So, the researcher wants to indicate that even humans sometimes couldn't catch the right and accurate meaning depending on their history and experience in translation.

The third text was selected from one of the divorce certificates in the United States of America, the state of Michigan. The Google Translator application was used, which is considered the most common translation program. We can remark that many words were used inaccurately, and they have an influence on the meaning and the outcome of translation. For example, the "Meditations Settlement Agreement" was translated inaccurately, which does not match the one translated by humans; it does not have the required meaning, but the machine translated other meanings, which affected the legal tone. The second phrase was "which is consistent with this consent Judgment Divorce". Sometimes, these words may affect the meaning of the whole paragraph in the contract. The rest of the paragraph is correct and uses understood language. The lack of competence is remarkable in the second remarked underlined phrase (the words are not related well with missing words). So, the machine translates any word, line, and paragraph regarding the vocabulary it has in its memory, and sometimes, it suffers from or does inaccurate translation due to the lack of such vocabulary that may be added to the application in the future.

"Spousal Support: It is ordered and Adjudged that the parties agree that neither party will pay the spousal support, and they each waive any statutory or common law rights to seek spousal support at any time in the future with the exceptions stated in the paragraph 1 referenced Mediations Settlement Agreement dated 01-02-2022 exhibit 1 attached, which is consistent with this consent Judgment Divorce".

بأن يتفق الطرفان على عدم قيام أي من الطرفين بدفع النفقة الزوجية ويتنازل كل منهما عن أي حقوق قانونية 1 النفقة الزوجية: يُطلب ويحكم" أو حقوق بموجب القانون العام لطلب النفقة الزوجية في أي وقت في المستقبل مع الاستثناءات المنصوص عليها في الفقرة 1 المشار إليها 3" بتاريخ 01-02-2022 المرفق رقم 1 والذي يتوافق مع هذه الموافقة حكم الطلاق 2 الواسطات اتفاقية التسوية

The human translation of the third text was made by a professional translator, who is the head of the translation department. Regarding his history and long years of experience in translation, he set his translation according to his understanding. Such a kind of translation needs to be accurate and avoid any errors. So, the translator read the paragraph many times and underlined the difficult words, and finally, he made the translation. The language used by the translator corresponded to the aspects used in the translation. The rules and aspects of legal translation were followed and applied. This text needs high recognition and sensation to give the proper meaning. The translator relied on translating these texts based on his experience and knowledge and was really successful in selecting the right words that came out with an acceptable and legal tone. The sample was taken from a divorce certificate issued by the Notary Public in the state of Michigan in the USA. The translated text above by the machine missed the use of legal terms with mismatching, unlike the human translation, which was very good and achieved the corresponding meaning. The accuracy was preserved, and consistency existed without any remarkable or slight remarks. The legal effect was good, and the content was clear without any doubt about the origin. The translator uses his knowledge, idiomatic expressions, and other language features to make the right decisions. He succeeded in translating the text legally, avoiding the selection of the wrong words; the legal language style and language were obvious.

"النفقة الزوجية: وبموجب الحكم الصادر اتفق كلا الطرفين عن عدم دفع النفقة الزوجية وسيتنازل كل منهما وبموجب القانون وحتى في المستقبل باستثناء ما ورد في الفقرة 1 وحسب اتفاق تسوية الوسيط بتاريخ 2022-2-23 المثبتة بالمرفق رقم 1 والتي تطابق مع هذا الحكم بالطلاق".

Table 2: The comparison of Data between Human Translation and Artificial Intelligence in Arabic Translation Texts.

Scales	Human translation			means	Artificial Intelligence			Means
	Text1	Text 2	Text 3		Text1	Text 2	Text 3	
Accuracy	19,5	19	19,1	19.2	18.1	18.2	18.6	18.3
Competence	19.2	18.3	19	18.8	18	18.05	17	17.8
Content	19.4	19.1	19.3	19.2	18.6	18.6	18.4	18.5
Language	19.5	18.5	19.5	19.1	18.3	18.7	17	18
Style	19.6	19.8	18,4	19.2	18.6	17	18,2	17.9
Total	97.2	94.7	95.3	95.5	91.6	92	89	90.5

The table above shows the application of the five criteria to evaluate legal translation from human translators to artificial translation. The artificial intelligence scored a mean of 90.5, while the Human translation scored 95.5.

7. Findings of the Paper

Regarding the discussions above, the results showed that human translation showed a remarkable advancement (95.5) over machine translation (90.5). The researcher succeeded in revealing the difference between human translation and Artificial intelligence translation due to the human legal history by keeping and reserving the legal effect. However, not every time is human translation superior to artificial intelligence translation because it also depends on human qualifications and experience. Artificial

intelligence can be remarked slightly far from the legal effect using simple language. The translator is considered a decision maker when using legal effects to attract an audience. The statistical significance of human translation and machine translation in translating English texts into Arabic is found and can be remarked on. The results of these three translated texts into Arabic correspond mostly to outcomes difference. Human translation is still distinctive from artificial intelligence translation due to the translator's experience, legal history, and practical experience, as stated in previous studies on the same specialization. But, sometimes, even certified human translators are different in their levels when presenting proper and perfect translations. Even the artificial translation can beat the human translation if he presents a non good level of translation from English to Arabic regarding the legal texts and vice versa. Based on the abovementioned, artificial intelligence, in the future, and after feeding it with the required legal texts and vocabulary, may surpass human translation by one hundred percent. At the same time, even humans may sometimes (translators) rely on human translation to get the meaning of the words and texts.

8. Conclusions

The difference between human translation and Artificial intelligence can be seen in the result of translating the source language to the text target. The human translation requires a fluent and experienced translator to present the right and accurate translation. Most users use computer programs, or what are called translation applications, due to their speed in translation, which costs a lot, but they do not always fill the need for perfection and accuracy in outcomes. The only gap that can be found in human translation, other than in AI, is cultural nuance. Human translation is superior to conveying the meaning of the translated text and the correct choice to reach the high sensitivity of culture and accuracy. Between different jurisdictions, concepts and legal terminology can be varied. In the process of translating the legal text, an experienced translator with sufficient knowledge is required to come up with a satisfactory result. Algorithms and data were relied on to translate the text and come up with the required result at a low cost. In AI translation, accuracy is less than in human translation. It is remarkable that AI makes it hard to capture the subtleties and cultural nuances of text as accurately as humans did. The human translator uses language-specific features, metaphors, and idiomatic expressions better than AI, which confronts the struggle of translation. The researcher came up with many results regarding the three selected texts and other previous studies. The human translator conveyed the required meaning and legal language, unlike AI. As the Researcher stated above, this study highlights the legal text translation (legal field). Future studies are required to reveal the improvement of AI translation and how these programs can exceed human translation. Further studies and research are required in future to ensure AI development in translating legal texts. Also, the researcher reveals the truth that most users and translators rely on AI translation to save time and cost-effective, but this will decrease the translators' knowledge and experience in the field of translation.

Funding: This research received no external funding.

Conflicts of Interest: The authors declare no conflict of interest.

Publisher's Note: All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers.

References

- [1] Antoniou, G., Grobelnik, M., Simperl, E., Parsia, B., Plexousakis, D., De Leenheer, P., & Pan, J. Z. (Eds.). (2011). *The Semantic Web: Research and Applications: 8th Extended Semantic Web Conference, ESWC 2011, Heraklion, Crete, Greece, May 29–June 2, 2011. Proceedings, Part II* (Vol. 6644). Springer.
- [2] Al-Romany, T. A. H., & Abdul-Ameer, M. H. (2019). Saudi Iranian Conflict in English and Arabic Translated News Reports. *Larq Journal for Philosophy, Linguistics & Social Sciences*, 3(34).
- [3] Castilho, S., Moorkens, J., Gaspari, F., Calixto, I., Tinsley, J., & Way, A. (2017). Is neural machine translation the new state of the art? *The Prague Bulletin of Mathematical Linguistics*, (108).
- [4] Choudhury, R., & McConnell, B. (2013). Translation technology landscape report. *TAUS BV, DeRijp*.
- [5] Chávez, E. L. (2008). New Mexico's success with non-English speaking jurors. *J. Ct. Innovation*, 1, 303.
- [6] Esselink, B. (2003). The evolution of localization. *The Guide from Multilingual Computing & Technology: Localization*, 14(5), 4-7.
- [7] Giordano, S. S. (2013). It's all Greek to me: are attorneys who engage in or procure legal translation for their clients at risk of committing an ethical violation. *Quinnipiac L. Rev.*, 31, 447.
- [8] Hatim, B., & Munday, J. (2004). *Translation: An advanced resource book*. London & New York: Routledge.
- [9] Holmes, J., Sacchi, L., & Bellazzi, R. (2004). Artificial intelligence in medicine. *Ann R Coll Surg Engl*, 86, 334-8.
- [10] Kit, C., & Wong, T. M. (2008). Comparative evaluation of online machine translation systems with legal texts. *Law library journal*, 100(2).
- [11] Lewis, W. (2017, April 19). *Microsoft translator hub: Discussion of BLEU score*. Microsoft Research. <https://www.microsoft.com/en-us/research/video/microsoft-translator-hub-discussion-of-bleu-score/>
- [12] Leech, G., & Svartvik, J. (2013). *A communicative grammar of English*. Routledge.
- [13] Moneus, A. M., & Sahari, Y. (2024). Artificial intelligence and human translation: A contrastive study based on legal texts. *Heliyon*, 10(6).
- [14] Odacioglu, M. C., & Kokturk, S. (2015). The effects of technology on translation students in academic translation teaching. *Procedia-Social and Behavioral Sciences*, 197, 1085-1094.
- [15] Prates, M. O., Avelar, P. H., & Lamb, L. C. (2020). Assessing gender bias in machine translation: a case study with Google translate. *Neural Computing and Applications*, 32, 6363-6381.

-
- [16] Pym, A. (2011). What technology does to translating. *Translation & Interpreting: The International Journal of Translation and Interpreting Research*, 3(1), 1-9.
- [17] Pym, A. (2013). Translation skill-sets in a machine-translation age. *Meta*, 58(3), 487-503.
- [18] Robbi P, W., Hidayah, J., & Edy, S. (2022). *Comparative Study: Performance of Bing Translator and Sederet. com in Translating Children 's Story Book* (Doctoral dissertation, IAIN CURUP).
- [19] Senellart, J., Dienes, P., & Váradi, T. (2001). New generation systran translation system. In *Proceedings of Machine Translation Summit VIII*.
- [20] Shi, W., Zhang, M., Zhang, R., Chen, S., & Zhan, Z. (2020). Change detection based on artificial intelligence: State-of-the-art and challenges. *Remote Sensing*, 12(10), 1688.
- [21] Vieira, L. N., O'Hagan, M., & O'Sullivan, C. (2021). Understanding the societal impacts of machine translation: a critical review of the literature on medical and legal use cases. *Information, Communication & Society*, 24(11), 1515-1532.
- [22] Yang, C. (2022, August). The application of artificial intelligence in translation teaching. In *Proceedings of the 4th International Conference on Intelligent Science and Technology* (pp. 56-60).
- [23] Zalikha, Z. (2024). *Accuracy and acceptability of DeepL Translate in translating legal document* (Doctoral dissertation, UIN Sunan Gunung Djati Bandung).