

THE BEST TRANSLATION TOOLS FOR MEDICAL TEXTS: CAT, MT, CHAT GPT

WHICH ONE TO CHOOSE IN THE PL-EN LANGUAGE PAIR?

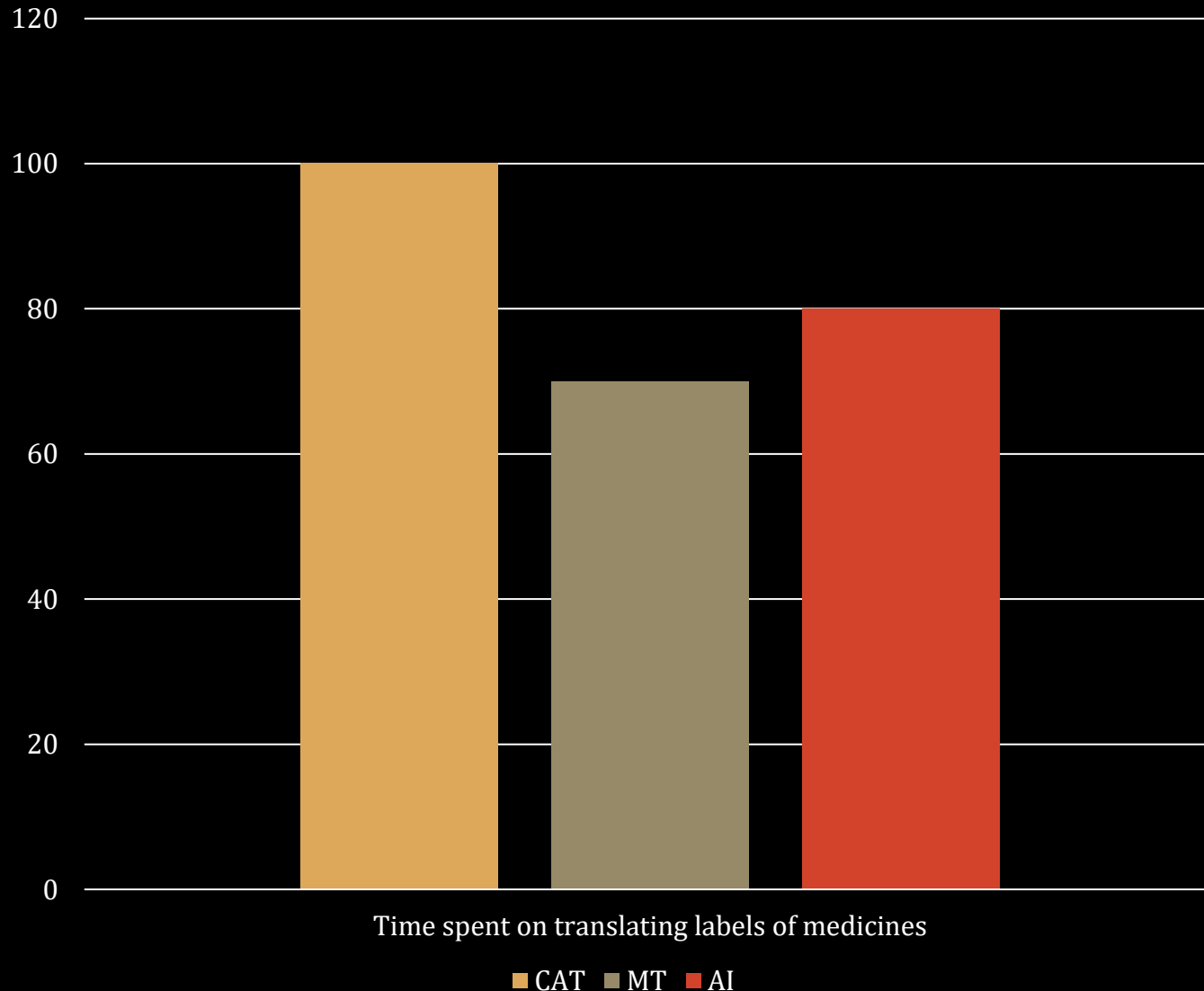
INTRODUCTORY NOTES

Translation from one language to another is a complex task, requiring precision and perfect knowledge of both languages. In today's global society, where the exchange of information is essential, effective translation methods have become crucial.

In this presentation, we will discuss the study results of three popular Polish into English translation options: manual/CAT translation, machine translation and Chat GPT support (AI, artificial intelligence). We will present the results of translations for five categories of texts in the medical and medicine-related areas: labels of medicines, medical results, academic texts, technical texts and general texts (from websites/brochures).

We will compare the time needed for translation (translated volume of about 1000 words, assuming 100% of the time is for CAT) and accuracy. We will also present the strengths and weaknesses of each method as well as the subjective impressions of the person assessing the process.

LABELS OF MEDICINES



Time spent on translation

For 1000 words: CAT – 3 h 12 min (100%), MT – 2 h 12 min (70%), AI – 2 h 40 min (80%). The MT method achieved the best result in terms of translation speed. Translating with CAT took the most time, with comparable accuracy to the MT method.

Quality of translation

The translation of labels of medicines is extremely important for patient safety. Our comparative study showed that the highest accuracy was achieved with the help of CAT. It takes into account specialist medical terminology and ensures that translations are consistent with previous works.

MT and AI also achieved good accuracy results, but slightly weaker than with the use of CAT. The latter does not offer suggestions of ready translations (they are present in MT and AI and can sometimes be misleading; with a slight decrease in mindfulness, you may not notice this).

LABELS OF MEDICINES

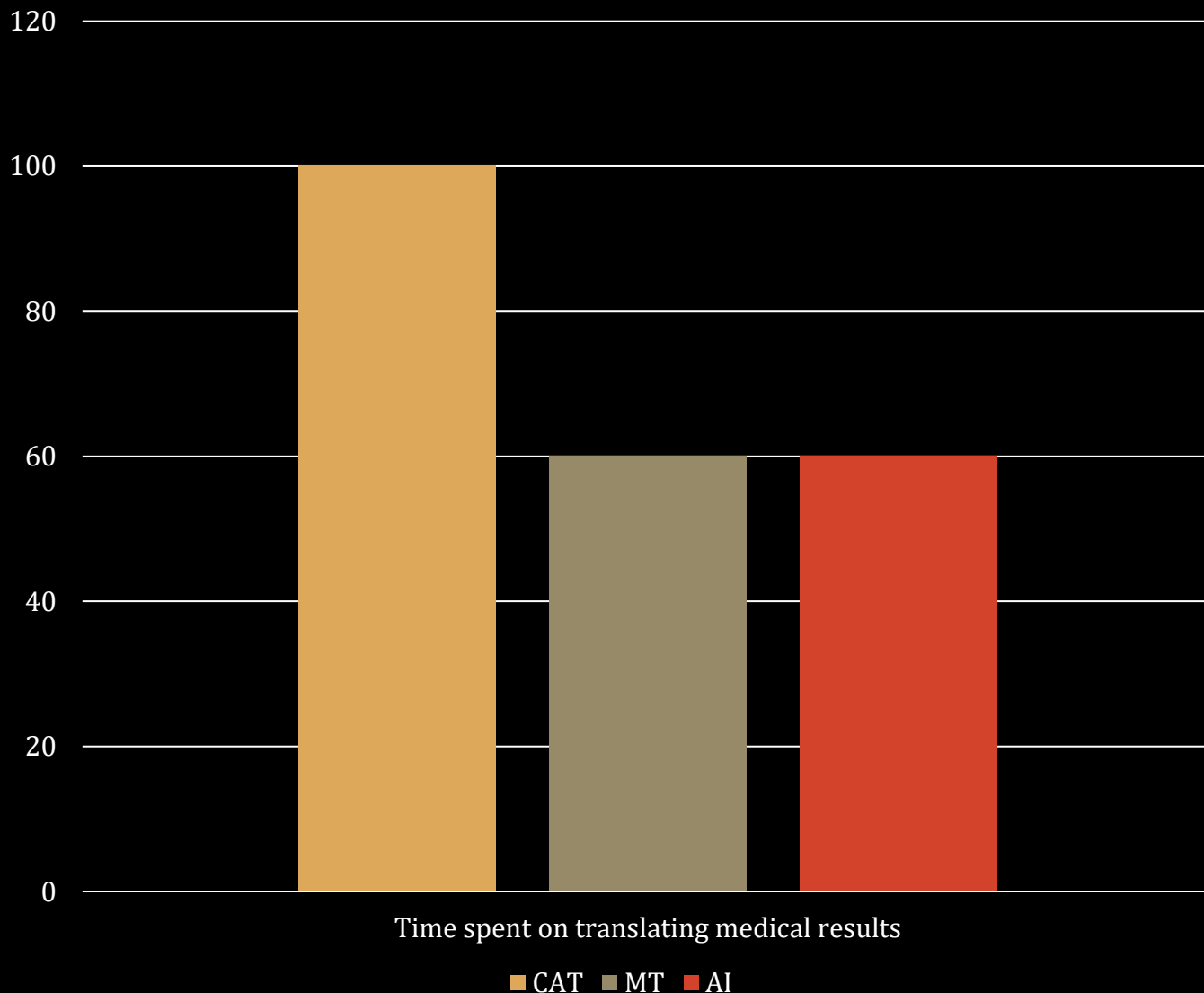
- **Advantages/disadvantages**

With CAT and MT, formatting is maintained, which saves the time.

While working, you can use previous translations and your terminology databases, which makes translations in a given field much easier and faster. When translating labels of medicines, the same structure of the text is used, so translating the first leaflet and developing a template makes it easier for subsequent works. This also includes the possibility to use/update your own terminology databases and use appropriate terms depending on the recipient of the text – e.g., in the field of oncology, the concept of cancer in the common language refers to malignancies, whereas in the professional language this is a malignant neoplasm from epithelial tissue only.

MT provides a ready text, which is very convenient, but the suggestions presented can make you distracted, so you can easily miss even obvious errors. The formatting of the text is preserved, which facilitates the final preparation of the translation for the client. Just like with CAT, you can use your previous translations and terminology databases, which are updated and supplemented on a regular basis. When using your CAT tool, e.g., Trados, the MT program is updated with each Trados update and included in its price.

When translating with artificial intelligence, we deal with a ready text, just like in the case of MT. You can be inspired by the proposed wording, which can be, but not always is, correct. Currently, the test version is free, but it is also inconvenient to use – the program is freezing and does not translate the entire text if it is long.



MEDICAL RESULTS

Time spent on translation

For 1000 words: CAT – 3 h 12 min (100%), MT – 2 h (60%), AI – 2 h (60%). Working with the CAT method took the most time, whereas the MT and AI time was the same.

Quality of translation

The study showed that, as in the case of labels of medicines, CAT achieved the highest accuracy in translating medical results from Polish to English.

The accuracy of the MT method was far superior to the AI one, which weights in favour of machine translation. Moreover, while using your own translation resources, you can perform a good quality translation at the optimal time.

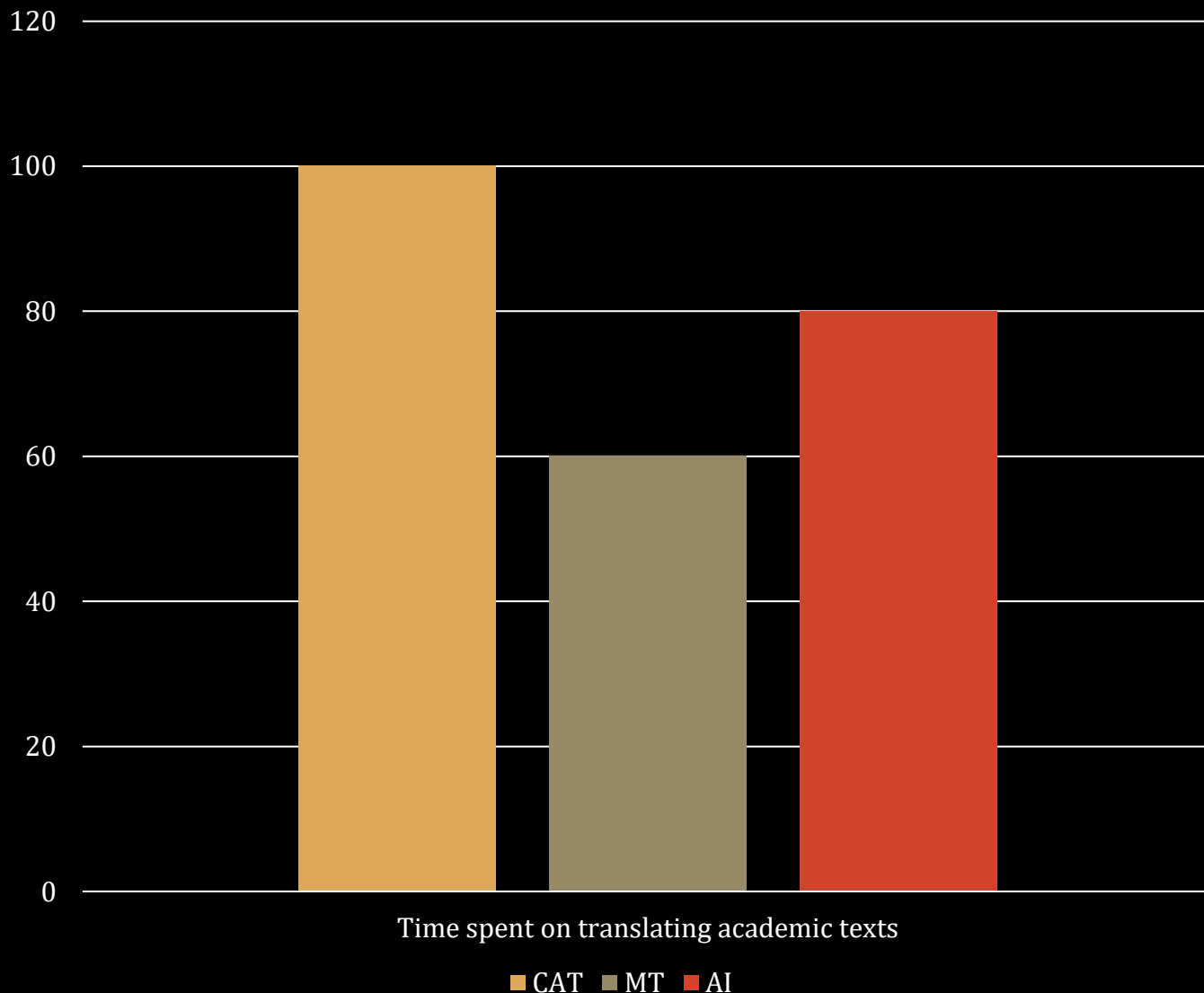
MEDICAL RESULTS

- **Advantages/disadvantages**

In the MT method and while using our own translation resources, you can perform a good quality translation at the optimum time.

In translating medical results, a lot of time (and even in many cases, most of it) is spent on processing the text – formatting, setting the correct names of units, procedures, equipment on which the test was performed. Formatting can largely increase the translation time. The use of MT means that there is no problem with formatting as is in the case of AI, and at the same time, the translation takes less time than in the case of CAT alone.





ACADEMIC TEXTS

Time spent on translation

The first text, for 1000 words: CAT – 4 h 30 min (100%), MT – 2 h 40 min.(60%), AI – 3 h (80%).
 The second text, for 1000 words: CAT – 2 h 30 min (100%), MT – 1 h 50 min (71%), AI – 2 h (85%).

The CAT method, as in the previous examples, took most time. The shortest time was achieved using the MT method.

Quality of translation

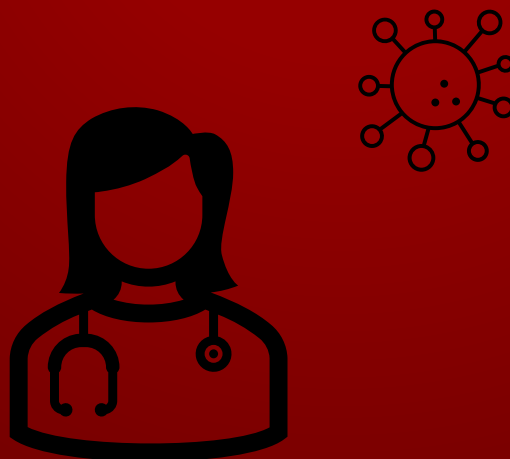
Translation of academic works requires precision and preservation of the author's intentions. Two texts were translated. The study showed that the CAT method achieved the highest level of accuracy and its lowest level was noticed in AI translation. The MT method ensures good quality of work.

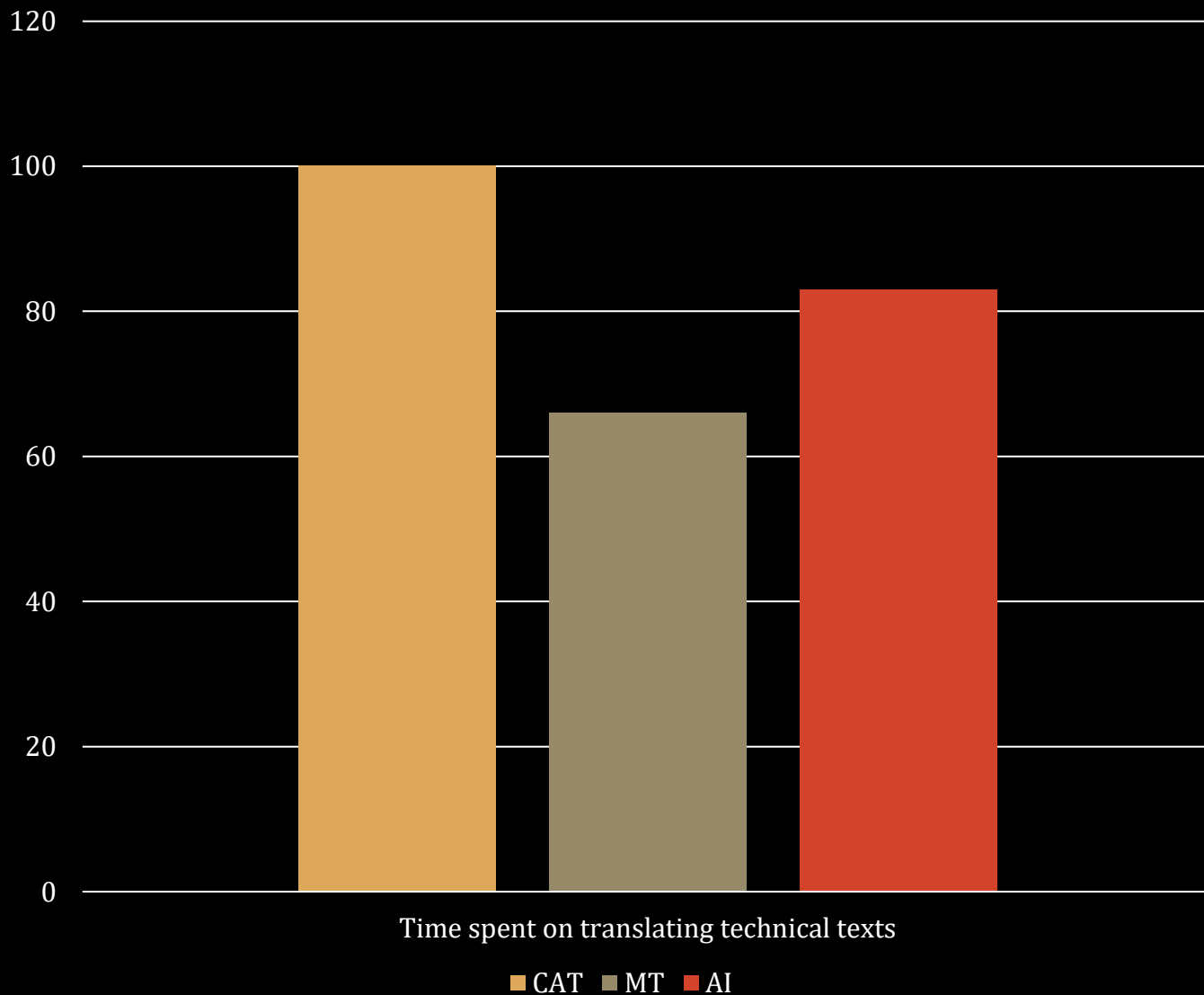
ACADEMIC TEXTS

- **Advantages/disadvantages**

The CAT and MT methods encompass specialist terminology and academic syntax, which is reflected in the consistency with the source documents. In the AI method, the translation was less accurate, it did not follow the style of scientific language.

It is well known that we deal with new words appearing in everyday and specialist language. Many words derived from English or Latin are used by professionals without any issues but some, for instance, the word *randomizacja* (ang. randomization, random selection) in clinical trials, is rejected and treated as incorrect by some scientists in Poland. With the help of CAT, we can use scientific terms with greater attention and take into account the scope of their application. The same can be achieved in the MT and AI, but the AI method does not use the previous works of the translator when handling a given concept. This is a weakness of the method compared to CAT and MT.





TECHNICAL TEXTS

Time spent on translation

For 1000 words: CAT – 3 h 20 min (100%), MT – 2 h 20 min (66%), AI – 2 h 45 min (83%).

Working with CAT took the most time. The shortest time was achieved using the MT method.

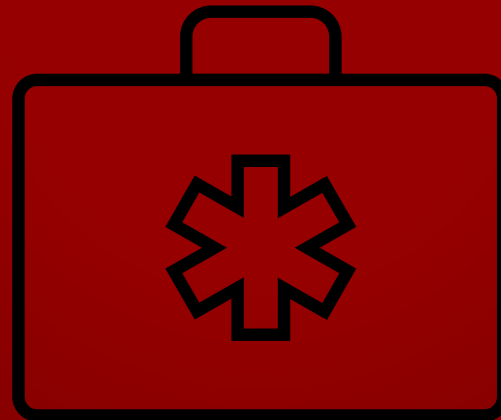
Quality of translation

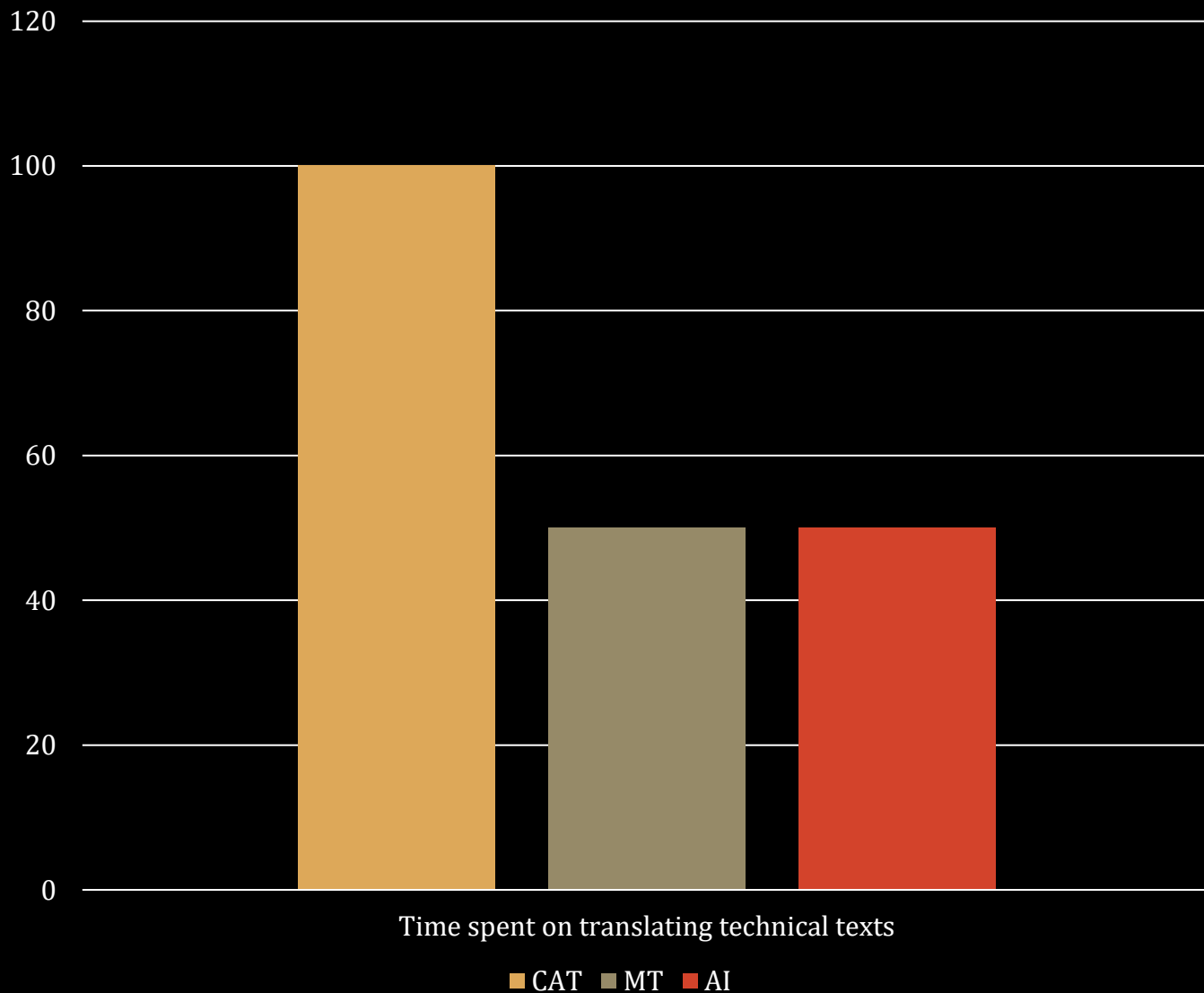
The translation of technical texts from Polish to English is important in today's Internet era. The study showed that CAT would achieve the highest accuracy in this type of translation. The most inaccurate results were achieved when using AI translation.

TECHNICAL TEXTS

- **Advantages/disadvantages**

The CAT method covers specific terminology related to the specific industry and correctly reflects the structure of the text. The AI method requires the greatest number of corrections to produce acceptable text quality.





GENERAL TEXTS

Time spent on translation

For 1000 words: CAT – 2 h 30 min (100%), MT – 1 h 25 min (50%), AI – 1 h 25 min (50%).

MT and AI work took half of the time spent on translating with only CAT.

Quality of translation

CAT achieves the highest level of accuracy in translating general texts from Polish to English. This method preserves the natural style and fluency of translations. As for AI and MT, good results were also obtained in this area, although be weaker than for CAT translation.

GENERAL TEXTS

- **Advantages/disadvantages**

The translation of general texts requires the knowledge of the context. Information should be communicated in a way that is understandable to the reader. Since this field does not require specialist language, the MT and AI methods have been found to be comparable quality-wise.



SUMMARY

When comparing three translation methods from Polish to English for different categories of medical and medical texts, the CAT and MT methods turn out to be a better choice in terms of translation accuracy, while the AI method turned out to be the weakest one.

In terms of working time, the best results were obtained for the MT method, in the case of medical research results – equally good for MT and AI.

Considering the quality-to-time ratio, MT translation proved the best for medical text translation method from Polish to English.

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