

Digital Communication

Editorial

While English is one of the most widely spoken languages globally, it cannot replace the richness of over 7,000 spoken and signed languages worldwide, each with its unique intricacies and cultural nuances. For understandable and precise medical or health information to support decision-making, translation into one's native language becomes crucial. Skilled human translators remain the

cornerstone of medical translation. However, digital translation tools like Google Translate, despite imperfections in accuracy and reliability, have, without a doubt, significantly enhanced the speed and accessibility of translations globally. Where automated tools may be lacking, human experts can bridge the gap. Natasha Grande de França introduces us to computer-assisted translation tools (CAT), a type of digital translator that relies on human involvement to

SECTION EDITOR



Nicole Bezuidenhout
njbezuidenhout@gmail.com

produce highly accurate translations quickly and consistently.

Happy reading!

Nicole

Purr-fecting translation: Unleashing the power of computer-assisted translation (CAT) tools

Natasha Grande de França

Aspiring medical writer, Toulouse, France
natasha.agf@gmail.com

doi: 10.56012/ifyr9495

Medical translations are fundamental, and precision is at the core of this work. Any minimal inaccuracy can impact patients' lives and the success of a treatment, as illustrated by a case of medical mistranslation and misinterpretation that happened in Germany. German law obligated that the instructions for medical devices be provided in the German language. However, there was no specification for labelling (i.e., "display of written, printed, or graphic matter upon the immediate container...").¹ Given this gap, a US-manufactured knee prosthesis was delivered to a German hospital with the instructions in German language on the interior of the package, but with the original English label. The responsible hospital staff then wrongly translated the "non-modular cemented" (porous) information from the English label to "non-cemented" or "without cement" (smooth surface) in German.² This translation error contributed to the failed total knee replacement of 47 patients between 2006 and 2007 – showcasing the importance of accurate translation in medical material content.

Other medical documents include written patient information and informed consent forms, hospital information brochures, and drug leaflets, which must be precisely translated to ensure that all information is fully understood (as intended) and patients are protected.

Translating is more than the "simple" conversion of words from one language to another. It involves understanding the function of language variations, culture, and values.¹ In the case of medical translation, it is also imperative to know medical terms, jargon, and expressions, as well as applicable laws and regulations. Beyond the translation task itself, the 2023–2028 European Master's in Translation (EMT) framework stipulates "the knowledge and skills to implement translation technology" as one of the five main areas of competence of a professional translator, which involves making effective use of computer-assisted translation (CAT) tools. Interestingly, EMT centralises the human aspect of using translator technologies by saying that "human skills are differentiators in a technologised employment market."³

In a fast-paced world, there is an increasing demand for higher productivity without compromising quality and consistency. In addition, it is always important that medical or health content is well and equally understood across the globe and in a very standardised way.⁴ In this article you can explore CAT tools in the context of medical writing – the good and the bad – to help medical translators become familiarised with this increasingly present and required translation technology.

What are CAT tools, and how do they work?

Firstly, it is crucial to differentiate CAT tools from machine translation (MT). Although both consist of technology created to help the translation process, CAT tools do not translate for you. The European Association of Machine Translation (EAMT) defines CAT tools as "translation software packages that are designed primarily as an aid for the human translator in the production of translation."⁵ In other words, when using a CAT tool, the human translator *does* the translation task with assistance from features contained in the software, which may include MT technology.^{4,6,7}

MT, on the other hand, performs automated translation without *any* human involvement, i.e., automatically converting a text into another language.⁶

MT is far more popular than CAT tools, especially among non-professional translators. Some classics include Google Translate, Babylon, Omniscien Technologies, Taouyou, and Microsoft Translator. However, despite its popularity, MT often produces translations where the language combination does not match the desired equivalence or oversimplifies the text.⁶

This can result in double the work for the translator, slowing down the translation process. CAT tools can be considered an evolutionary translation technology developed for professional translators that incorporates MT as one of its many linguistic tools.⁸

CAT tools are not machine translation – the human translator does the translation task with assistance from features.

How do CAT tools operate?

Once a source text is uploaded into a CAT tool, the software splits the text into smaller segments to be translated. After the translation is concluded and approved by the human translator, the software stores the translated segments (with the source text) in its database, called translation memory. When a new document is uploaded, the program scans it for the already-used words, terms, or sentences and provides an instant translation. The human translator can refuse any suggestion made by the software. The more translations are performed, the larger the memory and the faster future works will be concluded.^{6,8} The detailed steps of translating with the aid of CAT tools can be found in Figure 1.

Advantages and disadvantages of using a CAT tool

Advantages

At this point, we can see that using a CAT tool in medical translation has several big advantages:^{6,9}

- Increasing productivity (speeding up the translation process)
- Ensuring consistency across translations
- Promoting better quality control
- Simplifying the terminology management
- Keeping technical terminology consistent
- Reducing repetitive work
- Pricing with greater precision (word counting is done more easily)

With such extensive automated support, the medical translator can focus on the quality of the translation, delivering consistent translations in a shorter time.

Disadvantages

Some studies, mainly qualitative, have raised issues about using CAT tools in general translating.^{7,9-11} Despite these studies having certain limitations (sample size, diverse methodological approach, population, etc.), they highlight important factors to consider when choosing an automated- or computerised translation tool. Additionally, identifying potential challenges to users provides software developers with critical information needed to improve CAT tools.

The International Organisation for Standardisation (ISO/IEC 25010:2011) defines structured characteristics and sub-characteristics to “measure” the quality of software and its user experience.¹² Among the key determinants of software quality

CAT tools increase productivity and consistency if usability is ensured

Translating with a CAT Tool

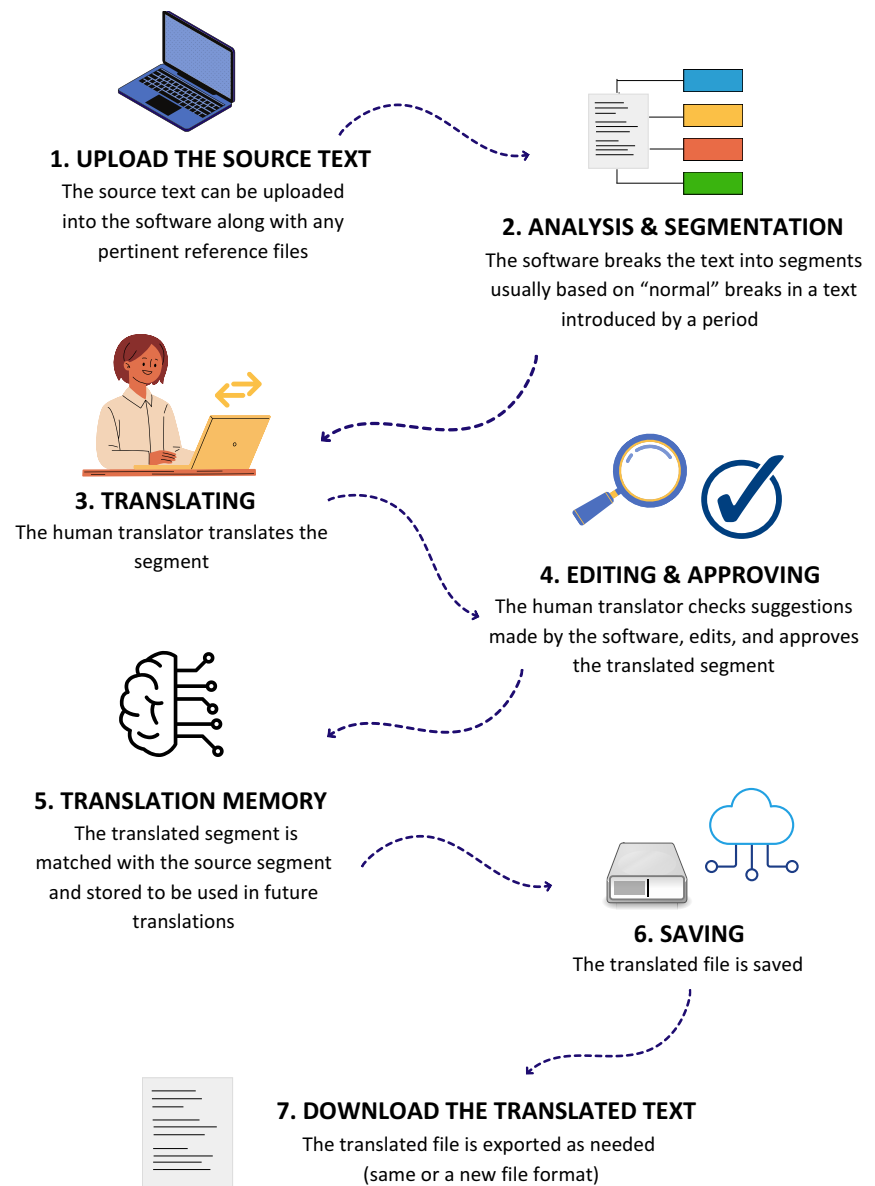


Figure 1. A computer-assisted translation (CAT) workflow^{4,8}

is its usability. That is, whether the software can be understood, learned, and operated pleasingly and satisfactorily to ensure usability compliance.¹² It is fundamental that the use of the software focuses on the task with minimal distractions, such as unnecessary steps or an overload of information.⁸

If the organisation, operations, design, amount, and complexity of functions are not user-friendly, using a CAT tool can cause cognitive overload,⁸ constant interruptions of the workflow, and irritability.¹⁰ The main issues

raised by users of different CAT tools are related to:

- **Learnability:** It takes time to get familiar with the software as the supporting material (tutorials and handbooks) is not very instructive, and there is a lack of clarity of information and interface.
- **Helpfulness:** It can be difficult to obtain assistance in the face of technical problems.
- **The complexity of the user interface:** It is unintuitive and requires many mouse clicks.
- **Layout:** The visual presentation of the source and target texts on the screen is not ideal and the menu is overcrowded.

Table 1. Main features to be considered when choosing a CAT tool ⁶⁻⁸

Category	Description	Why consider it?
Work system	<i>Desktop-based:</i> the software is installed on a specific device (sometimes more than one) <i>Cloud-based:</i> can be used on any device with internet	Desktop-based CAT tools don't require access to the internet and are "safer" against hacking. But they are limited in terms of cooperative work and flexibility. On the other hand, cloud-based CAT tools provide greater work flexibility, save automatically (data are not lost), and can be more rapidly updated and debugged. But they are susceptible to connection problems and being hacked.
Price	Paid version (annual subscription or perpetual license) or free version	Paid versions can be very expensive (around €300 for annual access and €650 for a perpetual license) but present more functionalities, capabilities, and safety. Free versions may be interesting to get familiar with CAT tools, but they are much more limited.
Layout and design	Amount of information visible on the screen (windows and tools), and usability	Ideally, the screen should not be overcrowded, and the operations can be executed intuitively. This prevents unnecessary interruptions of workflow and cognitive fatigue. Some CAT tools allow customising their settings.
Terminology management	Creation of a database with specific terms (termbase)	Having a glossary with specific terms (jargon, words, expressions, acronyms, brands) ensures more consistency across texts of the same client.
Project management	Collaborative functions	Allows more than one translator to work on the same project and direct communication with project stakeholders.
	Budgeting feature	Enables calculating the expenditure and revenues (assists with the financial aspect of the projects).
	Reporting and analytics tools	It generates measurable information on the translation progress, the volume of translations, and other relevant data to help in defining a budget, the deadline, and decision-making.
Supporting tools	Optical character recognition	Converts a printed or handwritten text into an editable text format, which is particularly useful when working with scanned documents, uneditable PDFs, or photos.
	Segment analyser	Assists the translator in understanding how much work the project will require.
	Machine translation engine integrated into the software or connected via plug-ins	As it automatically translates the text, can be useful in speeding up the translation when the translator starts a new project in a new domain (correcting automated translations can be faster than translating from scratch).
	Quality assurance management	In addition to spelling and grammar checking, this feature allows inspection of numerical divergences, missing tags, and format.
Upload and exportation file format	The supported file types can be diverse or limited. Some formats include SDL XLIFF, XLIFF, Microsoft Word, Microsoft PowerPoint, Microsoft Excel, RTF, HTML, and Adobe	When CAT tools are compatible with several file formats, it gives clients more possibilities, in addition to making the translators work easier and faster.



- **Segmentation:** Only a partial view of the text is available.
- **Formatting (font, tags, number):** It is immutable, not possible to highlight text, and it is difficult to delete or copy tags and quotation marks.
- **Incompatibility:** There are issues with non-Roman character sets, such as those used in Arabic and Asian languages.

Issues like the above-mentioned can impact productivity. In a study comparing two CAT tools, a more segmented layout (i.e., screen subdivided into more sectors) resulted in significantly fewer words translated in the same amount of time (194 vs. 222).⁸ In addition, problems and difficulties with any of the attributes can cause irritability and anxiety and be considered a barrier to translators using CAT tools – with no specific issues particularly related to medical translating.¹⁰

Learning a new technology requires not only time, which we don't always have but also support, which may explain why most CAT tool users are not freelancers.¹⁰ An additional issue frequently discussed in translator forums is how projects involving CAT tools should be billed.¹¹ Unfortunately, some clients don't understand the real role of the software in the translation process and may ask for a lower budget.

How to choose a CAT tool

Several CAT tools are available, some, even for free. In general, all CAT tools operate similarly: segmentation of the text, translation work, storage in the translation memory, and export of the file.⁶ However, since the first models in the 1980s,¹³ CAT tools have evolved and been refined, incorporating several functionalities. Table 1 details the main features to be checked before adopting a CAT tool.

To maximally avoid the issues described in the previous section, it's essential to closely examine the details of different CAT tools. Take the time to read not only the description of the software but also forums with user experiences, and test as many CAT tools as possible as most provide free trials – perhaps the one that suits your colleague best is not the best for you. It is also highly recommended to talk to colleagues and contact a few agencies to check if there are some preferable CAT tools.

No CAT tool is designed specifically for medical translation; however, some may be a better fit for this purpose. When looking for the best option, it's important to consider practical things, such as budget, flexibility (desktop-based vs. cloud-based),

integration with other software used in your daily work (e.g., layout and page design software such as Adobe InDesign), and specific needs (does the tool support the file formats I usually use?). Some medical translators have to deal with scanned medical or laboratory reports, so having access to optical character recognition (OCR) is essential.¹⁴ Others receive packages containing CAT projects (with termbase, translation memory, etc.), so using a compatible CAT tool is advantageous.

One of the first CAT tools launched was SDL Trados Studio, which today is one of the most well-known and comprehensive CAT tools. Therefore, it is common to come across Trados file format (SDLXLIFF) – an XML format developed for use in Trados Studio. The good thing is that nowadays many CAT tools are compatible with this format (another relevant aspect to consider).¹⁴ Besides SDL Trados Studio, other well-reputable CAT tools include MemoQ, Wordfast, Memsource, Déjà Vu, Across, Wordbee, and XTM Cloud. All must be purchased. Free options are also available and although they have fewer functions, they can be useful when becoming more familiar with CAT tools. They include OmegaT, CaféTran Espresso, Smartcat, MateCat, and Wordfast Anywhere.⁶

Last but not least, it is essential to evaluate the privacy conditions defined by the client and the applicability of using online CAT tools. Although safe, cloud-based tools can be more susceptible to compromised privacy, when working at an agency, where collaborative work is common. In this case, agencies have several options to ensure their security and privacy, such as using private clouds or server-based CAT tools (which require access or permission to be granted).

Conclusions and perspectives

It seems inevitable and even desirable to use a CAT tool, especially when consistency is required and cooperative work is common, such as in medical translating. Although careful consideration of possible drawbacks is needed, using CAT tools provides several benefits to the medical translator, including increased productivity, improved accuracy, and a generally higher quality of the work produced. More than this, it ensures better intra- and inter-consistency of the translation. Most professionals agree with these benefits. However, some hesitation exists due to issues in the software's usability, which can irritate translators. In this sense, constant

No CAT tool is designed for medical translation, but some features can better fit this purpose.



improvements to the software are central to making the translator's work as intuitive, easy, and fast, with as few interruptions as possible.

Disclaimers

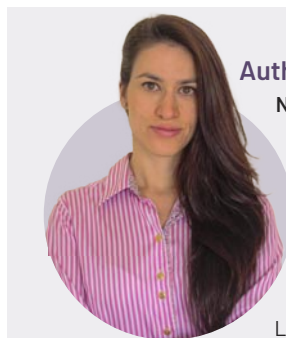
The opinions expressed in this article are the author's own and not necessarily shared by his employer or EMWA.

Disclosures and conflicts of interest

The author declares no conflicts of interest.

References

1. The US FDA. Introduction to Medical Device Labeling. Device Labeling. 2020 [cited 2023 Dec 1]. Available from: <https://www.fda.gov/medical-devices/overview-device-regulation/device-labeling>
2. Fakler JK, Robinson Y, Heyde CE, et al. Errors in handling and manufacturing of orthopaedic implants: the tip of the iceberg of an unrecognized system problem? *Patient Saf Surg.* 2007;1(1):5. doi:10.1186/1754-9493-1-5
3. European Master's in Translation. EMT Competence Framework. The EMT Board and Competence Task-Force; 2022. Available from: https://commission.europa.eu/system/files/2022-11/emt_competence_fw_2022_en.pdf
4. Serpil H, Durmuşoğlu-Köse G, Erbek M, et al. Employing computer-assisted translation tools to achieve terminology standardization in institutional translation: Making a case for higher education. *Procedia Soc Behav Sci.* 2016;231:76–83. doi:10.1016/j.sbspro.2016.09.074
5. European Association for Machine Translation. What is machine translation? [cited 2023 Nov 15]. Available from: <https://eamt.org/what-is-machine-translation/>
6. Han B. Translation, from pen-and-paper to computer-assisted tools (CAT Tools) and machine translation (MT). *Proceedings.* 2020;63(1). doi:10.3390/proceedings2020063056
7. Alotaibi HM. Computer-assisted translation tools: An evaluation of their usability among Arab translators. *Appl Sci (Basel).* 2020;10(18):6295. doi:10.3390/app10186295
8. Kappus M, Ehrensberger-Dow M. The ergonomics of translation tools: understanding when less is actually more. *Interpret Transl Train.* 2020;14(4):386–404. doi:10.1080/1750399X.2020.1839998
9. LeBlanc M. Translators on translation memory (TM). Results of an ethnographic study in three translation services and agencies. *The International Journal of Translation and Interpreting Research.* 2013;5(2). doi:10.12807/ti.105202.2013.a01
10. O'Brien S, Ehrensberger-Dow M, Connolly M, et al. Irritating CAT tool features that matter to translators. *HERMES – Journal of Language and Communication in Business.* 2017;56:145–162. doi:10.7146/hjlc.v0i56.97229
11. Vieira LN. Automation anxiety and translators. *Transl Stud.* 2020;13(1):1–21.
12. Standard (ISO/IEC 25010). Systems and software engineering – Systems and software Quality Requirements and Evaluation (SQuaRE) – System and software quality models. Published online 2011. <https://www.iso.org/standard/35733.html>
13. Hutchins WJ. The development and use of machine translation systems and computer-based translation tools. *Int J Transl.* 2003;15(1):5–26. Available from: <https://aclanthology.org/www.mt-archive.info/00/IJT-2003-Hutchins.pdf>
14. Thalmann O. The CAT tool – Medical translator's best friend. 2019 [cited 2023 Nov 16]. Available from: <https://www.medicaltranslator.co.uk/en/cat-tools/>



Author information

Natasha Grande de França has a PhD in Public Health from the University of Sao Paulo (USP) and did her postdoc in Gerontology at the Hospital Centre University de Toulouse (CHU de Toulouse). She has experience in epidemiological research within nutrition, metabolism, and gerontology and has previously worked as a research assistant and a university teacher.

Email: natasha.agf@gmail.com

LinkedIn profile: www.linkedin.com/in/natasha-grande-de-franca