

Machine Translation: An Objective Look and Primer

Carol Luttrell

Machine Translation (MT) is a wonderful technology partner for the technical communicator, saving, under the right circumstances, time and money. As with any partnership, roles, responsibilities, and accountability must be clearly defined. In this human-machine partnership, the technical communicator shoulders most of the responsibility. There are many translation systems available, and the one that is best for you can be identified by considering, among other things, the purpose of the translation, its audience, the document's size, and the desired quality. Despite the sophistication of the systems currently on the market, a human translator is a requirement for most post-translation editing!

ONE WORLD, MANY LANGUAGES

The translation industry is growing at a rate of 15 to 20 percent a year, due principally to two forces: the global marketplace, with its marketing and legal documentation requirements, and the Internet, with its increasingly global and linguistically diverse users.(1,5) Technical communicators work with both "forces."

Machine Translation (MT) is an indispensable software partner. As with any partnership, each member must have realistic expectations of what can be achieved and live up to roles and responsibilities. In the case of the technical communicator and MT, one partner is human and the other a computer. The computer partner's output is only as good as the human partner's input.

What MT Is

Machine translation, in the broadest context, is the use of a computer to translate text from one natural language (i.e., Spanish, Chinese) to another.

Producing perfect translation was one of the very earliest objectives in computer science, but it still hasn't been achieved.(3,6) Realistically, it probably won't ever be because a machine does not have the human dimension required for dealing accurately with the subtle nuances of natural language. However, today many products that produce a reasonable level of quality and accuracy are available in cost-effective versions.

How MT Works

Translation software converts natural language texts from a source language into a target language. The

languages involved are paired, i.e., Japanese into French, Russian into German. In general, the software analyzes a sentence in one language and builds a sentence with the same meaning in another language using various types of logic and approaches.(1) The program builds its vocabulary through additions to customized dictionaries.(2)

Translation software programs are available from your local software market for under \$100, but you and your company can pay much more for a higher priced system. You can often do free translations on the Internet. You get what you pay for. The higher priced package will give you a higher quality translation. However, the lower priced or free one may be correct for you if it does what you need it to do.

When to Use MT

Machine translation can meet many basic needs. Among them are:

- To get the general meaning or gist of document such as a patent or email,
- To understand simple instructions,
- To review content to determine if a document merits a high quality translation by a better MT system and/or a professional human translator, and
- To save time and money on translating clearly written, straightforward, large technical documents that contain a lot of repetition.

When Not to Use MT

Realistically, MT should be used either with extreme caution or avoided entirely when abstract thought is involved, specific connotations are necessary, *or* the consequences of a misunderstanding are too great.(2) Marketing communications, advertising, non-computer training materials, and legal briefs are generally not candidates for machine translation unless you want to risk a catastrophe or have some humor on the job, or both.

The Human Dimension

Some of the better and more expensive programs produce text that is highly accurate. However, there is one big caveat with any MT product: *Virtually no system will give completely perfect and usable text.* Human translators are still needed for post-translation editing. The first translation systems disappointed many users

because they believed (or were led to believe) that the system would produce perfect translations regardless of the input.(3) It didn't then and it won't now!

Selecting Your MT System

The computer partner to be selected is contingent upon your needs. Here are some questions to ask yourself:

- **Quality/Accuracy:** How accurate should the translation be? What level of quality is required?
- **Source/Target Language:** Who will be the recipient of the translation? Will it be you, or someone who doesn't understand the language you speak?
- **Purpose:** Are you translating to get a rough idea of the document's content for yourself? Are you translating to sell your product or provide instructions to the end-user?
- **Size:** How large is your document?
- **Volume:** Is this a one-shot job or the start of a series of translations? Has a version of the document been translated before?
- **Content:** How much repetition does the document contain? Are there long, complex sentences?
- **Audience:** What source and target languages are you dealing with? What language pairs are needed?
- **Cost:** What is your budget for machine translation and post-translation editing? **Remember: A cheap translation that is a bad translation is worthless and reflects poorly on you and your company.**
- **Time:** Have you allotted the proper amount of time for creating good documentation, doing *thorough* pre-translation editing, using machine translation, and doing *thorough* post-translation editing?
- **Technical Considerations:** What type of hardware, memory, operating system, source text requirements, source text entry, output appearance, dictionaries and speed are involved?(4)

Using Your MT System

A human translator often can and will turn poorly written text into something readable. A computer system can't! As with any computer the quality of the output depends on the quality of the input. Following the

basic rules of good technical communication is a pretty good way of ensuring success with MT. Use of controlled language also contributes to a better product because its limitations on vocabulary, writing style, format, punctuation, and syntax give the system a better chance of doing an accurate translation.

Summary and Conclusion

Machine translation can significantly reduce time and save money. It can be a wonderful partner if the correct system is chosen and used properly.

Practical Application

If technology cooperates, live examples of machine translation input and output will be demonstrated. If technology does not cooperate, previously prepared examples will be distributed and examined.

REFERENCES

- (1) Freivalds, John, "The Technology of Translation" in *Management Review*, New York, Jul/Aug 1999.
- (2) *Computer Aided Translation (CAT): Selecting the Right CAT Tool*, Language Partners International, Inc., Evanston, IL, 1998.
- (3) Hutchins, W. J., *Machine Translation: Past, Present, Future*, Halsted Press, New York, 1986.
- (4) Desau, Ralph B., "Machine Translation Evaluation Criteria", in *Proceedings of a Workshop Sponsored by the National Science Foundation*, San Diego, CA, November 1992.
- (5) Somers, Harold L., "The Current State of Machine Translation," in *Machine Translation Summit IV Proceedings*, San Diego, CA, 1997.

Carol Luttrell
Senior Technical Writer and Instructional Designer
DuPont Company
121 Continental Drive, Suite 207
Newark, DE 19713, USA
302-636-7886

Carol Luttrell is a senior member of STC and works at DuPont. She holds a BA and MA in English Literature. She is the current manager of STC's International Technical Communication SIG, and is an associate member of the American Translators' Association.