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TRANSLATIONS THAT COMMUNICATE

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Abstract

Communication lies at the very heart of human progress. Speed and language evolved from the need to transmit and exchange ideas and information. Today, we live in a "global village" created by fast and sophisticated communications. To be competitive in the "global village", today's business must recognize the importance of the transfer of information and respond in the most effective and efficient way possible.

The key ingredient in meeting this challenge is the use of computers.

Attempts at machine translation (MT) and computer-assisted translation (CAT) have been made for many years without much success. Recognizing the short-comings, EDS has taken the computer-assisted translation approach where man and machine interact to significantly improve the translation process. Further, EDS has incorporated other computer technologies, such as electronic publishing and telecommunications to provide communications service custom made to the requirements of its clients.

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Communication, it can be said, lies at the very heart of human progress. Speech and language evolved from the need to transmit and exchange ideas and information. In cases where language differences made understanding difficult, communications were often swift and direct, whether to close a sale or score a diplomatic point. Today, after our long and arduous journey through the ages, we have entered the Age of Communication. Now, we live in a "global village" created by fast sophisticated communication. However, in terms of getting the essential message across, we still have a long way to go.

To star in the "global village" game, a business must not only recognize the fundamental importance of the transfer of information, it must respond in the most effective and efficient way possible to the competitive challenge it represents.

The need is becoming more urgent. Large balance of trade deficits, especially in manufactured goods, have resulted in government initiatives which make it incumbent on business to aggressively pursue export customers.

Also, government language mandates designed to protect national, cultural and ethnic heritages present further opportunities to hone a competitive edge on the whetstone of language. One example is Bill 101 which preserves the French language in the province of Quebec.

Thirdly, an increasingly sophisticated technology demands accurate, timely technical support information about assembly, operation, maintenance and repair in a language the end-user understands; if the technology is to perform as expected and promised, accurately translated assembly instructions can eliminate confusion and avoid customer alienation. And aftersales service in a language the customer understands, is the glue that cements a profitable future relationship between seller and buyer.

The growth of multi-national companies provides additional impetus for fast, accurate translations. Not only must a company answer the needs of its foreign branches, it must address itself to the needs of its multinational customers even if it does not have its own overseas operations, simply to keep its competitive edge.

The sheer volume of technical documentation required by our increasingly complex products is absolutely staggering. The Canadian designed and built DeHavilland Dash 7, perhaps the most successful short landing and take-off passenger plane in the world, requires almost 30,000 pages of technical literature to cover the operation, maintenance and overhaul of the aircraft.

30,000 pages is equivalent to 12 million words - give or take a few thousand, just to keep the plane in the air.

We are still attacking the translation logjam the way we have since time immemorial - with a translator or translators laboriously wading through the text word by word.

A good translator working manually can produce about 1,500-2,000 words of finished copy per day - of five to eight pages of manuscript - depending on the difficulty of the text.

At this rate it would take almost 50 man years to translate the technical documentation for the Dash 7.

Tody our "global village" economy has another, more serious aspect for manufacturers.

A company that produces anything that might involve a public liability needs the protection of accurate, legally consistent, legally acceptable language.

How can we improve our translation performance?

With computers. The idea is not new. Many attempts to utilize the electronic wizardry of computers for language translation have been made for the past 30 years. However, the apparent simplicity of this method - so attractive on the surface - is not the answer since syntax, context, expressions and non-conforming usage can have ramifications which result in a translation scarcely better than none at all.

In 1975, computer assisted translation received a big push as a result of the joint Soyuz-Apollo space mission which involved the meeting and locking up of American and Russian space craft.

Vital to the success of the mission was technical understanding on both sides. The technical exchange that made the historic link-up possible in July of that year was a natural extension of the ongoing work by the United States Air Force in translating Russian into English and English into Russian using computers.

In 1976, General Motors and now EDS began using a refinement of this system which can translate about 16 manuscript pages of copy per second once it is entered into the machine. GM used a similar system to translate English technical text from English into French for the province of Quebec as well as other French-speaking GM markets.

The translation which emerges is about 60 to 70 percent complete depending on the accuracy of the source material and the extent of the computer dictionary. Bad grammar, incomplete sentences and misspelling, of course, adversely affect the end product. In this case it is "garbled in, garbled out".

Initially, GM's English-French dictionary programmed into the machine consisted of some 15,000 single words and 4,000 expressions. The objective, because of the high volume expected, was accuracy over style since the material to be translated was shop manuals, parts manuals and technical bulletins.

Today EDS's computer dictionary contains about 53,000 single words and 80,000 expressions, in mainly automotive and locomotive technical language. The dictionary is constantly being updated with new words and expressions. During the interim, EDS has translated the following publications:

- a 700-page Chevrolet Truck Shop Manual for the Canadian Department of National Defense,
- 350 pages each of locomotive blower-type and diesel engine manuals in a side-by-side English-French format,
- 5 locomotive operator's manuals comprising 600 pages,
- a 750-page Detroit Diesel Allison Series 92 engine service manual,
- a 300-page Detroit Diesel Allison Fuel Pincher engine service manual,
- product service bulletins which average 100 pages per month and,
- technicians' training guides which average 50 pages per guide.

In calendar year 1984, EDS translated more than 600,000 words with the assistance of computers. Our capabilities are still growing.

There are four main steps in an EDS's Computer Assisted Translation System: Dictionary check, translation, post editing and print out.

Presuming that the source text is in machine-readable form on magnetic tapes or word-processor diskettes, the English words are first checked against the computer's dictionary in order to determine "unfound" words. "Unfounds" can be caused by the English text containing abbreviations, typing errors, misspellings and genuine new words not in the dictionary. Genuine new words are translated, coded and entered into the dictionary. If the number of "unfounds" is very low, the dictionary is considered to be acceptable without additions.

Step two, the actual translation process occurs in three phases. First, an initial linguistic analysis determines the grammatical structure of each sentence in the source language text.

The second phase is a synthesis routine which generates the correct grammatical forms for the target language with rearrangement of the sentence structure to conform. For example, in French the adjective follows the noun and we have "la maison blanche", literally, "the house white", for "the white house".

The final phase of the translation process step is a printout of the source and target language texts in a side-by-side format.

The third step is post-editing to verify the accuracy of the translation and correct errors in grammar and word arrangement.

This is done by a translator with the assistance of a word processing terminal. The translator's goal is to establish the literal meaning of the material, not to refine style.

Post-editing eliminates those ambiguities of meaning. Consider the phrase "ship sinks today".

This kind of ambiguity is not handled well by the computer. Is it a news bulletin announcing the sinking of a steamship, or an order to a plumbing company asking that the sinks be shipped today? Post editing clarifies it.

The fourth step is the production of a final printout incorporating all of the post-editing changes. This can be a high-quality word processor printout - a straight computer printout - or simply a magnetic tape suitable for use on any compatible equipment.

At this point the customer can use the finished translation for any purpose desired.

The basic system just described can be expanded to embrace a range of language pairs. Although EDS has concentrated on English to French translation, some dictionary development is underway on English to Spanish. As for the future, perhaps even Japanese can be translated this way, although it is a formidable challenge.

But, let's return to how the translated text might be used or published.

As mentioned earlier, the English source text must be "machine-readable" to begin the translation process. For customers who wish to submit source language material in manuscript form, EDS provides a range of data entry services including keyboarding, optical character recognition and magnetic conversions to suit the customer's equipment.

EDS's equipment is compatible with the most popular word processors such as Wang, Xerox, MICOM, AES, IBM, Lanier and most text-editing systems.

In addition, it is possible to arrange a telecommunication link between the customer's local and the EDS terminal in Oshawa, Ontario, for the direct transmission of material.

For those customers hung up on how to best use or publish the finished translation, EDS can assist you with graphics and photo composition. We can imbed photocomp codes, do keyline and paste-up, insert the illustration labels and do electronic printing.

This wide flexibility of format, layout and type styles availability, is added assurance of a high-quality finished document.

As you may know, composition of a French text is a bit tricky because it is longer than its English equivalent. It may, in the end, require additional pages.

Our composition capabilities permit a customer to select the level of quality required for the effective presentation of the material. A camera-ready master can be forwarded to the customer's printer for printing, collating and binding. For small production runs, EDS can perform the same services.

An EDS client has three ways to go; take the complete translation service package that includes data entry, machine translation, post-editing, photo-composition, and printing - or, edited translation service that provides a standard printout of the refined document, or a raw translation on a computer printout side-by-side with the source language text - or on a magnetic tape which requires post-editing by the customer's translator.

In every case the benefits are manifold. If a client has a translation/publications department, productivity will improve. Experience has shown that translators are three to four times as effective when they can concentrate of the important elements in a text instead of the nuts and bolts.

EDS can provide valuable assistance during those times when peak workloads slow down an entire operation.

Additionally, those clients with a translation/publications capability can retain control over editing and terminology as well as investigate the advantages of computer-assisted translation without making any large capital investment in terms of computers, software or technical personnel.

Clients without a translation/publications capability can use EDS for a one-stop translation and publication service, realize the significant timesaving possible with machine translation, and reap the benefit of standard and consistent terminology.

Overall, every EDS customer enjoys the higher quality, accuracy and consistency of a system that eliminates the differences between translators, permits faster turnaround, easier changes and quicker updates, lets you use your translation manpower more effectively and profitably, improves customer relations, and provides a competitive edge.

AND REALLY, ISN'T THAT WHAT IT IS ALL ABOUT?