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Technology and Translation: The Impact of Recent Technology Tools on Professional Translation

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Abstract

In spite of the growth of the translation industry in Nigeria and the influence of technology with recent computer-assisted translation tools, many translators based in Nigeria still do not appreciate the impact of these recent translation tools. This study, anchored on Computational Linguistics (CL), uses mainly secondary data to explain the impact of Computer-Assisted Translation (CAT) tools on the translation industry. It presents practical examples of the workings of Computer-Assisted translation tools not only in a bid to demonstrate the real practical impact of translation tools, but also to sensitize translators in Nigeria to the need to embrace the new translation tools since these have become the in-thing in the translation industry around the world. This study is expected to bring a high level of awareness to Nigeria-based translators about the impact of recent translation tools in the translation profession generally.

Key-words: Technology, Translation, Impact, Awareness

Introduction

Technology is the branch of knowledge that deals with the creation and use of technical means and their interrelation with life, society and the environment. Everett M. Rogers (1995) defines technology as

"a design for instrumental action that reduces the uncertainty in the cause-effect relationships involved in achieving a desired outcome". This definition is buttressed by Michael Bigwood (2004) in *Research-Technology Management* when he quoted J. Paap, as recommending "the use of science-based knowledge to meet a need". To Bigwood (2004), this definition "perfectly describes the concept of technology as a bridge between science and new products." In other words, technology could be seen more in terms of the methods, systems and devices which are the products of scientific knowledge as may be used for practical purposes.

Therefore, in translation, technology can be seen in terms of the use of technical means applied to further the work of translators and to facilitate their activities. In this wise, technology can be broadly seen as the material and immaterial entities created by the application of mental and physical effort to achieve some value. In this sense, technology will refer to the tools and machines like translation memory, voice recognition, terminology management and computer software that are used to solve translation problems.

It should be noted that ever since the electronic computer was invented in the 1940s, research has been on-going on how to apply it to the translation of languages (Hutchins 1986). For many years, the systems were based primarily on direct translations via bilingual dictionaries with relatively little detailed analysis of syntactic structures. By the 1980s, however, advances in computational linguistics allowed much more sophisticated approaches, and a number of systems adopted an indirect approach to the task of translation. John Hutchins (1999) notes that in these systems, texts of the source language are analysed into abstract representations of 'meaning', involving successive programmes for identifying word structure (morphology) and sentence structure (syntax) and for resolving problems of ambiguity (semantics).

According to Igor Bolshakov and Alexander Gelbukh (2004), some of these applications are used for the following purposes:

i. Text preparation, or text editing, in a broad sense, particularly including such tasks as:
   - Automatic hyphenation of words in natural language texts which is intended for the proper splitting of words in natural language texts;
   - Spell checking, that is detection and correction of typographic and spelling errors in the text at the level of word occurrence considered out of its context;
   - Grammar checking, that is detection and correction of grammatical errors by taking into account adjacent words in a sentence or even a whole sentence;
   - Style checking, that is detection and correction of stylistic errors using a dictionary of words supplied with their usage marks, synonyms, information on proper use of prepositions, compatibility with other words, etc, and using automatic parsing, which can detect improper syntactic constructions;
   - Referencing specific words, word combinations, and semantic links between them.

ii. Information retrieval in scientific, technical, and business document databases.

iii. Automatic translation from one natural language to another.

iv. Natural language interfaces to databases and other systems.

v. Extraction of factual data from business or scientific texts.

vi. Text generation from pictures and formal specifications.

vii. Natural language understanding.

viii. Optical character recognition, speech recognition, etc.

These applications have greatly transformed the translation industry. This presupposes, therefore, that in a country like Nigeria that has

witnessed significant changes brought about by technology and globalisation, translators exercising their profession in the country would be expected to follow the global trend and change with the times. Thus, instead of such Nigerian translators sitting at their desks for endless hours and days, poring over voluminous books and dictionaries, struggling to find the right word, expression and/or co-text to complete a given translation job, they should rather be churning out thousands of words per day to produce timely translations that may fetch them huge sums of money and generate much bigger sums for their clients.

Unfortunately, some of these Nigerian translators still use very limited modern tools like microsoft word and electronic dictionaries because they seem not to appreciate the impact of such other recently developed translation tools as translation memory software, voice recognition and termbase creation tools.

Literature Review

Scholars and researchers have written variously about CAT tools and how they can be used within professional and academic circles. For instance, Austermühl (2001) explains the use of such non-translation specific tools as computers (PCs), email, File Transfer Protocol (FTP), www-based working groups, search engines, website design, spreadsheets, graphics, word processor, online databases and Desktop Publishing (DTP) tools that are widely used by translators to facilitate their work. Though these tools can reduce translation time and cost, they are sometimes not to the benefit of the translators since they also reduce the latters' income. Bowker (2002) shares Austermühl's (2001) views on translation tools but she gives a basic introduction of computer-based methods that facilitate human translation and argues that "...for the foreseeable future at least, human translators will still have a large role to play in the production of translated texts". Though she maintains that Computer-Assisted Translation (CAT) tools assist translators in their work, she does not provide enough evidence of the real impact of CAT tools on translation.

Unfortunately, Dohler (1997), Nogueria (2002) and Somers (2003) do not fare better. While Dohler and Nogueria only provide a general discourse on recent translation tools with no description of a specific tool, Somers only makes an overview of the different tools with which translators work daily. From a similarly limited perspective, Sánchez (2006) focuses on word processors and argues that they have such important features as spelling and grammar checkers and can count the total number of words in a document which makes it easy for translators to fix the price of their services, since most translators charge per word.

For their part, Gil and Pym (2002) focus on three tools, that is, translation memory tools, localization tools and machine translation and elaborately discuss the positive impact of technology on translation. Unfortunately, their perspective seems to be limited as they hardly mention any negative impact of the tools on the jobs of professional translators. On the whole, the works of Gil and Pym (2002), Dohler (1997), Nogueria (2002), Somers (2003), De Lapp et al (2004) and Sánchez (2006) appear to have been adequately complemented by Byrne (2007) who not only discusses the impact of technology on translation from the point of view of a freelance translator and translator trainer, but also discusses other translation tools from the point of view of both a freelance translator and an in-house translator. But Byrne doesn't seem to think that CAT tools could have some draw backs.

Like Caleb Ebong and Ibrahim A. Salaudeen (2006 p.74), Garba and Adefarasin's (2014, p. 2) definitional and descriptive discourse about the product of Computer-Assisted Translation and other recent tools in their bid to bring awareness about these tools to the average Nigeria-based translator does not clearly explain the impact of these recent tools on the translation profession in Nigeria. Even Victor Aire's (2014) initiative to demonstrate how CAT tools function within a professional setting does not quantify the impact of CAT tools as used by most Nigeria-based translators.

While Nzuanke and Uchechi Chinaka (2018, January) make an in-depth inductive study about the low level of awareness and use of CAT tools in Nigeria, Nzuanke and Uchechi Chinaka (2018, June) go further to explain the differences and similarities between Computer-Assisted human translation tools and Machine Translation tools. Both studies are intended to create awareness about recent translation tools in the translation industry in Nigeria. Unfortunately, all these studies only seem to describe CAT tools without adequately highlighting their positive and/or negative impacts on the job of translators, especially in relation to the practice of professional translation in Nigeria. This study, therefore, seeks not only to help educate Nigerian translators on the impact of these new translation tools, but also to clear the misconception some of them may have about computer-aided tools and their impact on the translation profession generally.

Theoretical Framework

This study will be founded on Computational linguistics (CL) which has been in an intermediate position between Computer Science and Artificial Intelligence, Linguistics and Cognitive Science, and Engineering. While Computational Linguists are more interested in the correctness and plausibility of their models, Engineers are more interested in the usability of tools and techniques and their effect on society. To Richter (2005 pp.10-11), therefore:

> The application areas of Computational linguistics are machine translation, speech recognition, speech synthesis and man-machine interfaces, intelligent word processing (spelling correction and grammar correction), document management (find relevant documents in collections, establish authorship of documents, catch plagiarism, extract information from documents, classify documents, summarise documents and summarise document collections).

Computational linguistics has both theoretical and applied components, where theoretical computational linguistics takes up issues in theoretical linguistics and cognitive science, and applied computational linguistics focuses on the practical outcome of modelling human language use (Hans Uszkoreit, 2000). It is this practical outcome or impact of the usability of translation tools and techniques that will be anchored in this study by the theory of computational linguistics.

Impact of Recent Technology Tools on Professional Translation

a. Positive impact of technology on translation

Gil and Pym (2002) hold that translation memory tools are aids for translation of texts that have a "high degree of repeated terms and phrases, as in the case of manuals, computer products and versions of the same document (website updates)". They further state that the tools do the boring routine parts of translation since they re-use previous translations. According to Nyberg et al (2003), translation memory tools speed up the translation process by handling repetitive texts and texts that are written using controlled language. Evidently, translation memory tools have proven to be very functional tools for assisting the localization of HTLM and additional software files with Tags to maintain the format and the code of the original document. The Tag Editor is used in these cases. To Smith (2008), with Translation Memory (TM), there is no need for a translator to strain his/her eyes every time searching for the beginning of the next source sentence that needs to be translated. These tools will never allow a translator to skip a sentence or even a paragraph, which is one of the most common situations when translating any hard copy document or when overwriting electronic documents. With the help of TM, the translation will be free of missing translation bits and pieces. For Elimam (2007 p. 1), the use of Translation Memory Tools improves consistency, both in the same document and across documents. According to him,

> Translation Memory Tools save pairs of terms or strings of texts, and reproduce them when the same term or string comes along in any other position in the source language text. In other words, the translation becomes more efficient and consistent. The same TM can be used in future translations and will help to achieve consistency in terminology and style across translation jobs...

He adds that TM increases the productivity of a translator which can lead to an increase in income. These tools also make a translator more competitive since more and more clients require that their work be translated with TM tools. A study by Lynn Webb (1998) illustrates the time and cost-saving that can be achieved with the use of TMs. She shows that in a large translation project, the use of TM can result in enormous savings, both for the client and the translator or translation agency. Her study provides the following illustration:

	Without TM	**Using TM**	**Savings**
Number of words in project	400,000	400,000	N/A
Number of days for turnaround	33	9-10	23-24
Total translation cost	$84,000	$50,400	$33,600
Cost per word	$0.21	$0.13	$0.08

Table 1: Client gains from TM (Webb, 1998 pp.11-12)

	Without TM	**Using TM**	**Savings**
Number of words in project	400,000	400,000	-
Number of days for turnaround	33	10	22
Total translation	$50,848	$15,784	$35,064

cost			
Cost per word	$0.13	$0.04	$0.09
Total profit	$33,152	$69, 680	-

Table 2: Benefits of TM Technology in large translation projects (Webb, 1998 p. 12)

Webb (1998 p.12) explains that the use of TMs increases income since translation with TM takes considerably less time (30 percent or 40 percent), thereby enabling translators to accept more projects within a given period of time. She adds that it enables a translator to produce the translation in the format required and to have the ability to plan translation budgets and estimate time-to-market. It can be added that another good thing about TM is that it is portable. It is not easy for a translator to move his hard copy books, dictionaries, glossaries, CDs around from house to office or from one area to another in the same country or from one country to another. Therefore, there is the need for TM which makes it easy for the translator to move around with all his/her translation resources.

Other recent technological tools for translation can be carried around without any problem. For example, a laptop computer with a Translation memory tool, electronic dictionaries and glossaries, termbases and other necessary electronic documents can be taken from home to office and from one country to another. In a nutshell, a translator can work from anywhere and can accept a job anytime, anywhere without worrying about how to carry his/her translation resources along. With technology, translators can tour national libraries, multilingual databases, virtual bookstores, magazine and newspaper archives, translators' directories, and other sites online. He/she can also build up his/her own glossaries (with MultiTerm for example) and attach them to the TM to enhance its performance.

With the help of technology, translators now switch from translating only hard-copy documents to being involved in web page translation, software localization, subtitling and handling different electronic formats. According to Austermühl (2001 p. 140), "the possibility of

recycling existing translations helps increase consistency, which in turn leads to an improvement in quality".
Another advantage of TM is that it helps in the area of formatting. Clients love it when translators deliver their already formatted Word document, PDF document or PowerPoint presentation in exactly the same format. When using a CAT tool, the translator does not have to bother about the formatting, he/she can focus on the text while working in the CAT tool and when he/she finishes, he/she can export the translation in exactly the same format. This is especially useful for PowerPoint presentations containing lots of diagrams with text boxes.

Also, TM can be used as Backup. With TM, there is always a backup of the translations because each segment is saved. For example, a translator can finish translating a long text of 10 or more pages, and ready to send it to the client, Microsoft Word may crash or the file corrupted. If the translator had not used TM, he/she would have to do the translation all over again. But with TM, the translator will only need to take the original source file, click on the segment and the already translated segment will appear automatically.

Arntz and Picht (1989), in their study, explain that the search for terminology (or terminology mining) can take up to 75 percent of a translator's time. In order to use time efficiently, a translator needs a termbase where he/she will gather all the terms he/she comes across in his/her professional life. Even though Austermühl (2001) agrees with Arntz and Picht (1989), his own study does not include some of the tools in our study. It is worth mentioning that his work attempts as much as possible to provide not only information about some of the translation tools, it also provides details on how to manage terminology. According to Austermühl (2001), therefore, "terminology management is a generic term for the documentation, storage, manipulation and presentation of specialized vocabulary". The most effective solution for term management is the use of special terminology management systems which were designed for translators as the prime target group. Examples of this tool are MultiTelm, Termstar and tlTerm.

A termbase is a central repository, similar to a database, which allows for the systematic management of approved terms in both source and target languages (www. Translationzone.com/products/terminology-management). A term management tool such as MultiTerm by SDL is ideal for translators working with bilingual glossaries or projects with highly specific terminology. Many times, clients send their own glossaries in an Excel sheet with their own translations of product names or terminology for the sake of maintaining consistency between terms found in their documents. In these cases, it is very important to use the glossary sent by the client. Here, the term management tool converts the glossary into an .xdt file which is recognized by CAT tools and can be linked to them. This means that the translator will no longer search through countless entries of an Excel file for the right term. Rather, a CAT tool like *Trados* will automatically recognise the term if it is in the glossary, and display the corresponding translation in the "Term Recognition" window on the environment.

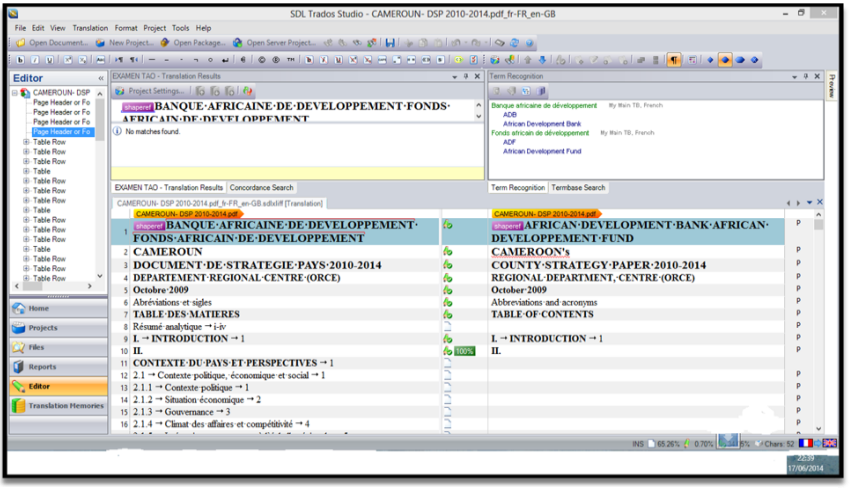

Fig. 4*:* Example of Term Management Tool embedded in a CAT tool

Source: African Development Bank Website, 2014.

In the sample above, you can see terms marked with a red line at the source language segment on the left, while on the right hand corner at the top, you can see the terms written out in the termbase. Here, the translator can choose the right term and it will be inserted in the target language segment. The translator does not need to open another window or search so many glossaries or dictionaries; all the glossaries can be put in the term management tool and the tool can be activated in the CAT tool. This process facilitates the work of a translator. The term management tool is good for a translator who has no knowledge of a particular subject area and needs a number of technical terms which cannot be found in general-language dictionaries. Efficient terminology management is crucial for manufacturers and publishers when translating and localizing their products. The quality of the translated and localized product should always adhere to the highest possible standard and maintain consistent terminology in order to ensure continued familiarity with the product. So, termbases are designed to avoid problems of inconsistency and the imprecision of dictionaries.

Kinga Maślanko (2004 p. 14) notes that using terminology management tools in translation is advantageous because there are generally no specialised dictionaries for new and quickly developing fields of knowledge where perhaps

> the production of up-to-date reference works is lagging behind. The reason for this situation is that the process of compiling and publishing printed dictionaries takes much longer and is more costly than in the case of electronic terminology collections. Therefore, machine-readable sources can reach the users much faster. Moreover, it is much easier to update and modify an electronic termbase than a printed dictionary.

Another advantage is that the results of terminology research can be saved and kept for re-use in later projects. Also, the electronic form

allows for easier exchange and sharing of resources among translators. Consequently, teams of translators working on large translation projects are equipped with tools ensuring greater terminological consistency, and therefore higher quality of translation. For Austermühl (2001), some of the advantages of term management system are that the tools are suited to translation-specific routines. For example, looking up terms from within a word processor and importing data from the termbase into the word processor. In addition, they are fast and flexible and there is automated communication between termbase and word processor. In summary, term management tools enhance the translator's ability not only to transmit a correct message to the recipient, but also to ensure better quality and consistency and boost the speed of the translator, thereby reducing the time spent in searching through printed glossaries and dictionaries or through electronic glossaries and dictionaries to find the right term to use.

Another tool which is important to translators is a speech recognition tool like Windows Speech Recognition tool that comes with Windows PC and Dragon Speech Recognition. This tool enables computers to receive spoken commands and data. This does not mean that the computer can understand spoken words; rather, it means that the computer is capable of recognizing the basic sounds that make up words. This system analyzes the person's specific voice and uses it to fine-tune the recognition of that person's speech, resulting in more accurate transcription. When a translator uses the speech recognition software, he does not need to use a keyboard to input information. The software spells every word correctly and writes as quickly as the translator speaks, sometimes generating over 100 words per minute, thus helping the translator to produce a large amount of writing within a short space of time. Luciano Monteiro (2009, section 4.5.1) explains that this tool helps to prevent occupational hazards which are major issues for many professionals. According to Monteiro (2009, section 4.5.1), looking at the computer monitor for long hours and sitting in an improper position are examples of activities that might affect muscles and nerves and cause musculoskeletal injury and

repetitive strain injury (RSI). To prevent this, voice recognition tool is needed and is important in the field of translation.
With this tool, the translator can relax while dictating to the software, making sight translation easier. Example, the translator can lie in any position and do sight translation while the speech recognition tool writes down the words which the translator will edit later. With this tool, a translator can write a lot without being held by spelling or keyboarding problems. The software can read back to the translator what he/she has written, helping with proofreading.

The Save as PDF plugging is another tool which is important to translators. This plugin can be installed to be a part of Microsoft Word. Since translators receive documents in PDF format and are expected to return the documents to the client in the same format, they only need to run the document in a CAT tool like Trados, translate it, and save the document in Word format which is the option for saving documents in Trados. Then the translator can open the Word document and save it as PDF format and return it to the client in the same format the document was sent. Here, the option of converting the PDF file to a Word document is not encouraged because there could be errors in converted documents. For instance, if a French text is converted to a Word document, the accents on the words may be omitted or even replaced by funny signs or other letters.

Also, electronic communications brought about by technological advancement have been used to enhance communication between translators, especially through translators' directories or internet forums for professional translators. Some of these directories or forums may be open and free, while others are restricted to registered members. In these forums, translators exchange advice, tips and discuss their work. They also share experiences with clients, note the agencies to trust and the ones that will be blacklisted. Students and novice translators can learn about translation from these directories or forums which include LinkedIn (though not for translators only but has several groups for translators), Translatorscafé, Proz.com, Translators Workplace, Translators' base,

etc. They, thus, build a valuable bridge between students and the professional world (Gil and Pym, 2002 p. 7).
With the help of technology, translators now have a variety of choices to pick from. One of those choices is localization. The need to adapt software to a new market led to the common use of the term "localization" rather than "translation". The term "localization" has been defined by the Localization Industry Standards Association (LISA) as "involving taking a product and making it linguistically and culturally appropriate to the target locale (country/region and language) where it will be used and sold" (Esselink, 2000 p. 3).

The word "localization" is associated with "locale", a term to define specific target markets. Locales are often smaller than countries or languages (Gil and Pym, 2002 p. 13). Localizing a word processor developed in Switzerland so that it can be sold in the German market involves translating the menus, the dialogue boxes and other user-visible messages, translating the online Help files, and the printed reference material, and adapting any cultural references along the way into German. Professional localization tools include functions to assign and check hotkeys to menu, resize dialogue boxes, manage non-textual resources (such as icons or sound files), edit and check programming code, calculate the complexity of a project, and replace programming code to make the programme work on another platform (Gil and Pym, 2002 p. 14). With these tools (*Passolo,* for example), translators can localize software and web pages and not be restricted to translating only texts.

b. Negative impact of technology on translation

Although some scholars and translation professionals view technology on translation as having advantages fundamentally, technology has equally brought many disadvantages to translation worldwide. Pym (2011 p. 3) tells us that in some circumstances, the external memory (translation memory tool), may simply complicate the decision-making process, and thus become an impediment to the process of selecting terms or words. He adds that:

> Technology does not necessarily make things better or more efficient. Just as the internal combustion engine created traffic jams, if not global warming, so translation memories, along with machine translation engines and quick online documentation, can extend the list of alternatives only to impede efficiency in selection, undercutting intuition.

There are also other negative aspects generated by these translation tools. According to Pym (2011), in workstations that integrate translation memories and machine translation, texts are segmented, broken into units or paradigmatic form; its linearity is repeatedly interrupted. The translating mind is thereby invited to work on one segment after the other, checking for terminological and phraseological consistency but not so easily checking, within this environment, for syntagmatic cohesion. To him, therefore, the more the technology, the less it is likely to make decisions in terms of linearity, and the less we tend to see translation as communicating between people.

In a study, Gil and Pym (2002) analyse the negative impact of technology on translation in relation to client-translator communication tools, translation memory tools, localisation tools as well as on machine translation. According to them, electronic communication (such as emails, etc) increase security risk since confidential documents are passed from a client in one part of the world to a translator in another part of the world. They add that due to the security risk, translators are obliged to learn various forms of zipping, secure FTP or other company-specific forms of encoding and their corresponding passwords.

Technology might be driving us to a world of amateurish fun. Let us take an example of the sharing options in *Google Translator Toolkit* which is a tool built for translators who want to share with each other. In the same technology, it was found out in 2011 that there were options for importing text from *Wikipedia* and *Knol* (tool for people

who want to donate their translation free, and for free public use). Less obviously perhaps, *Google Translator Toolkit* obliges translators to upload their texts to the euphemistic "cloud", floating without restraint in space. This becomes technology for translators with no professional secrets. García and Stevenson (2009), in their early review of Google Translator Toolkit, remark with considerable regret that this is technology for translators who do not work for big money. This is heading towards a world where translation will no longer be a special profession meant for special people.

Another negative impact of technology on translation is that with the advent of translation memory (TM) tools, the income of translators has been affected negatively. For Byrne (2007), the increased awareness among clients and translation agencies of TM tools and their capabilities means that more and more clients expect translators to pass on the benefits in the form of discounts. As a result, graded payment structures such as the one shown below are not uncommon:

Level of Repetition	**Rate Payable**
Repetitions & 100% matches	25% of normal rate
99-95% matches	30% of normal rate
94-85% matches	60% of normal rate
84% and under	Full rate

Table 3: Typical payment rates for fuzzy matches (Austermühl 2001 p. 141)

Although translation memory and termbase creation tools have alleviated much of the monotonous work which translators do in translating certain types of texts, they have also led to a drop in translators' income. This is in spite of the fact that the translator has to spend money to buy the technology in the first place. TM gives clients the freedom to use different translators for future translation jobs. This is because consistency with previous translations is still maintained since clients can always request the TM to be handed over with the translation and can later give it to new translators to use and

update. Clients may negotiate a lower fee when they provide TM along with the text to be translated, thus reducing the income of the translator. Even though the Term Management tools have many advantages, we should not turn a blind eye to their imperfections as well. The term management tool as a whole discourages translation novices and inexperienced computer users with its complexity. To bring the best out of the tool, one needs a high level of expertise in operating a computer.

As regards the speech recognition tools, the translator has to spend a lot of time training the software before it will recognise his/her voice. In order to have a useful speech recognition system, users must first train the dictation software to recognize their voice. This is often the point at which many translators become frustrated. The common complaint about the speech recognition software is that the training is a waste of time. If the translator has a non-standard accent, the software tends to run words together or jumble them up. This is often very frustrating, especially as some punctuation marks must also be dictated. Even though the software spells every word it recognises correctly, it recognizes 5-20 % of the words incorrectly. It cannot recognise homonyms. So, there is a lot of time involved in editing a text produced with a speech recognition tool. Regrettably, too, if there is noise or some other sound in the background (e.g. a kettle boiling, the television or a phone ringing), the number of errors made by the speech recognition tool will increase because its sensory devices will capture those background sounds.

Conclusion

For translators, the challenges presented by the Internet mean that they need to invest in new technologies, primarily software as well as the infrastructure necessary to support them. The infrastructure necessary to support these new technologies include more powerful computers with faster processors, more storage capacity, etc, as well as securing the fastest Internet access. However, with this barrage of new technologies that translators are told they simply must have, many translators will find themselves in a position where they spend a

lot of money on technologies which they cannot use to their full potential. As such, there is a distinct need for translators to commit to a process of on-going training in order to stay abreast of these technologies. This requires both time and money on the part of translators, something which is challenging in that when translators are not translating, they are not earning money.

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