

Managing a translation service to maximize quality and efficiency

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Introduction

In this paper, I wish to examine certain elements of the operation of a translation service, looking at organizational and other aspects and also discussing how the technology currently available can help to enhance both productivity and the quality of work.

At the risk of stating the obvious to an audience such as this, I should like to remind you that translation can be defined as the transfer of meaning from one language to another. This is essentially an intellectual process because to be able to transfer meaning reliably, I would contend that the translator must first understand the source text and then, based on that understanding, express the meaning in the target language.

Translation thus remains a highly labour-intensive (or should I say "brain-intensive"?) activity. It does not easily lend itself to automation, unlike most industrial processes today: despite valiant efforts over several decades to develop machine translation systems, none of them is yet capable of fully matching a human translator. The technology which we earnestly discuss at these annual gatherings thus often concerns activities which are in fact marginal to translation proper: storing and retrieving data, word-processing, transmission of information, etc. That does not mean that such systems are not valuable in themselves, but this leads me to my first main point: given the limitations of current technology, to ensure that we produce translations as efficiently as possible and with the best possible quality, **we need to focus on people as much as on machines.**

Quality versus productivity

It is fairly easy to define and measure efficiency: for example, we can count how many words are translated by a given individual or team of translators over a given period. I shall discuss this in more detail later and for now concentrate on quality. Quality can be defined in terms which I believe most of us would accept, but is much more difficult to quantify. I should nonetheless like to offer the following working description of what we understand by quality of translation:

- a. Accuracy (or reliability)
- b. Use of correct (standardized) terminology
- c. Consistency
- d. Clarity of expression
- e. Style

I have listed these attributes in what I would consider to be a descending order of importance for translations in the scientific or technical fields, or in the context of large organizations, whether these are commercial companies, administrations, international bodies, etc. The order might change if one is translating other types of material, such as literature, advertising, poetry, adapting plays for the theatre and so on.

How much quality?

We must also determine how important each of these attributes is to the recipient of the translation. Translators tend to be perfectionists or to put it less kindly, "nit-pickers". Sometimes people will come to my office with a text, saying "Can you give me a rough translation of this?" It is tempting to reply "Well, we don't do "rough" translations..." But what they really want is often just a general idea of what a text is about. In other cases, our customers will be happy with an accurate translation or even a summary, not worrying about the style, provided it is comprehensible. So this leads me to main point number two: **"don't make a Rolls-Royce when a Volkswagen will do the job just as well"**. As we all know, generally-speaking the greater the quality required, the greater the effort that needs to be put into producing a translation and therefore the lesser the overall efficiency of the translation service.

Controlling quality

Before undertaking translation work, the provider of the service must thus carefully find out exactly what the customer wants in terms of quality. Having determined how much quality is needed, the translation service then needs to have mechanisms to ensure that the required standard is achieved. This is generally known as quality control or quality assurance.

Now I listed **accuracy** as the first and most important attribute of quality. In other words, the meaning of the translation must be as close as possible to the meaning of the original. Even though the only method that I know of to determine whether this attribute has been achieved is human judgement, a machine translation system may be able to do the job sufficiently well if the customer's only requirement is to have some idea about the content of a text in a foreign language. This is point number three: **"machine translation may be good enough"** despite its limitations. Such a service can even be provided completely without the intervention of human translators, as is done by some Internet providers. In terms of efficiency for an organization, a machine translation system can be a valuable asset as it allows customers to determine whether a human translation is really needed, thus avoiding unnecessary work for the human translators.

However, accuracy is traditionally achieved first through the training, knowledge and experience of the translator (these are aspects we neglect at our peril) but also through the standard mechanisms of having the work checked by other persons: revisors and possibly proof-readers, editors, etc.

The second attribute of quality I listed is the use of correct **terminology**. In any sizeable organization, "correct" means not only using words and expressions which are technically right but which are standardized.

The NATO Terminology Programme

As you know, I work for NATO. Now NATO is not a monolithic organization: it has many headquarters and agencies and currently sixteen (soon to be nineteen) member nations. While it has important political functions and some civil activities, NATO is essentially a military alliance. It has to be able to set up, control and employ multinational military forces to defend its territory or to carry out what are called "peace support operations", among others. NATO has amply demonstrated its ability to do just that, for example in the former Yugoslavia, where it is in control of a large multinational force which has succeeded in bringing a halt to the fighting between the factions. But you can easily imagine the chaos that might have ensued if those forces had not been able to understand the orders given to them, to communicate with each other, had vehicles and aircraft which did not use the same fuels, guns which could not fire the same ammunition, etc. To overcome such problems, as far back as 1951 NATO set up an organization called the Military Agency for Standardization (MAS).

The MAS publishes hundreds of documents (known as "Standardization Agreements - STANAGs") covering standardization in a variety of areas. They are drawn up by groups of experts and many of them also contain glossaries defining terms related to specific technical fields. MAS also publishes a "NATO Glossary of terms of military significance" (known as "Allied Administrative Publication (AAP)-6") which contains terms and definitions in both official languages (English and French) and has been translated into a number of other languages. It also publishes a list of NATO abbreviations (known as "AAP-15") covering a wide range of subjects of interest to general users. In future, these glossaries and others will be made available on Internet for anyone to consult. Incidentally, a great deal of information about NATO is already available from our site: www.NATO.int. These glossaries are controlled and kept up-to-date by a body of which I am a member: the NATO Terminology Conference. I won't go into all the procedures we follow for coordinating and approving NATO terminology. Suffice it to say that the glossaries are ratified by all NATO member states and are therefore normative.

In addition to the official terminology work carried out by NATO, a terminology exchange system has been set up by the NATO linguistic services. This allows us to benefit from the work done by the other services and helps to harmonize the language we use.

All of this effort naturally helps the NATO translators to use correct terminology and this is one area where current technology is genuinely enhancing quality. A number of our linguistic services are using the TRADOS Translator's Workbench. This is a translation memory system coupled with a terminology data base called Multiterm. One of the beauties of the system is that terminology is retrieved automatically from the data base as the translator is processing a text. This means not only that the

correct terminology is provided to the translator but also that he/she is always alerted to the existence of an officially-approved equivalent for a given term. Lastly, one little aside regarding terminology data bases: however good they are, **the translator must still use his/her judgement!** In other words he/she remains in control of the process and is the final arbiter on whether a particular term is appropriate in a given context.

The next attribute of quality I listed is **consistency**. By this I do not mean just consistency of terminology, but consistency of phraseology, presentation, etc. In any organization, texts will often be produced that are similar to others, or that quote or refer to others. Sometimes this is obvious: it will be mentioned in the text. The translator must then find the text referred to and use the previous translation. All organizations have systems for cataloguing, storing and retrieving documents. There is nothing revolutionary about this, however it is done. At other times, the existence of similar text is less obvious. As we know, filing systems vary in their method of classifying documents and the "similar" text may be buried in another document concerning a different subject for example. The translator then traditionally relies on his/her experience: "Ah yes, I remember translating something similar last year..." But the next problem is to find the document in question. And memory is not infallible. Or the similar text might have been translated by someone else... This is another area where current technology is genuinely enhancing quality: a translation memory system will very frequently find the similar text, whether the translator remembers or is aware of it or not. As I mentioned, we are getting considerable benefits from the TRADOS system in this area. That system also allows the translator to search for concordances, which is a very useful tool for maintaining consistency when the translation memory does not find sufficiently close matches.

The last two attributes of quality I mentioned were **clarity** of expression and **style**. In the fields I work in, it is usually more important to ensure that the message is transmitted clearly and unambiguously than in someone's idea of perfect style. I recognize however that there are contexts where style is at least as important as the content. In both of these areas however, it is once again only human judgement that can ensure that the required level of quality is achieved.

Efficiency

I now turn to the area of efficiency. To quote the Concise Oxford Dictionary, to be efficient is to be "productive with minimum waste or effort". Here it is useful to break down the functions of a translation service into various elements to determine how each of them can be performed with minimum effort.

I suggest that these functions can be divided into the following broad categories:

- Administration
- Research
- Terminology Management
- Translation
- Revision

- Formatting
- Proof-reading

This is not meant to be a flow-chart, as the functions are not necessarily performed sequentially in this order. I now want to look at each of these categories to discuss who should be performing them and how. I do not wish to give the impression that what I suggest is the only way to perform these functions, but whatever solutions are adopted, the general principles followed should be similar. The first general principle is that **tasks should be performed at the lowest possible level in the organization**. In other words, if someone less well-qualified (usually paid less) can do the job adequately, don't give it to someone who is more capable.

To look at the various functions I have described, "**Administration**" covers all tasks such as receiving, registering, transmitting texts, etc. In a commercial company it would include such activities as invoicing, accounting, etc. Such tasks are easily computerized using low-cost systems (data bases, spreadsheets, accountancy packages, etc.) and can be done by clerical staff. It is a waste of resources for them to be performed by linguists.

Next I listed "**Research**". By this I mean essentially searching for the correct (standardized) terminology and for related material which has possibly already been translated. I remember some years ago at this conference, someone mentioning that studies had shown that a translator spends an average of 40% of his/her time performing "research". Now this is an interesting figure, even if it is not completely accurate. If the amount of time a translator spends researching could be reduced by half for example, this would represent a significant increase in productivity as the translator's output would increase by 20%. It may therefore be cost-effective to employ someone to carry out research on behalf of a number of translators, particularly if that person does not need to be a fully-qualified linguist. In theory, a person paid half as much as a translator would more than earn their keep if they halved the amount of time three translators spent on "research".

Next comes **terminology management**. I have already described how the NATO programme works. However, that programme is not sufficient on its own for translation purposes. Many terms do not need to be defined: the translator merely needs to know what is the equivalent in the target language. This information needs to be stored and made available to translators. There are of course trained terminologists who can manage terminology for translators. Generally speaking, we find that terminologists need to have a similar level of qualifications to translators, so the kinds of efficiency mentioned under the "research" heading are harder to achieve. We also find that the translators and revisors themselves are the main contributors to our terminology data banks. However, it is possible to use what we call "linguistic assistants" to help in managing terminology under the guidance of trained linguists. Terminology is an area that readily lends itself to computerization and there are a number of systems on the market which can do the job of storing and retrieving information efficiently. We have adopted Multiterm (TRADOS) as the NATO standard and are using it to exchange data among the various translation services: we have developed a common format for this purpose. A big advantage of

that system is that when it is coupled with the TRADOS Translator's Workbench, terms are looked up automatically and provided to the translator as he/she is translating. This means not only that the translator is alerted to the existence of terms in the data bank but does not waste his/her time searching for terms that are not there. This obviously improves efficiency. Efficiency is also improved by exchanging terminological data with other organizations so that we do not duplicate research carried out elsewhere.

I now turn to the actual act of **translating**. As we all know, this requires qualified, professional staff who should be well paid. The work of a translation service should therefore be organized in such a way that translators are able to produce as much actual translation as possible. To achieve this, two areas must be looked at: the translation process itself and the tasks translators are required to perform. To start with the latter, **the more translators can be relieved of "ancillary tasks", the more they can concentrate on their core function**. I have already mentioned how other personnel can help in the research and terminology management areas. Translators should thus not be expected to perform tasks which actually detract from their productivity as translators. This is in fact a drawback of the currently available technology: it is easy and apparently cheap to provide a translator with various systems: word-processing, spreadsheets, presentation packages, such as PowerPoint, or desk-top publishing systems. The danger is that translators can then find themselves spending more time on presentational matters than the "transfer of meaning". These functions should be handled at the appropriate skill level. Other functions too, such as proof-reading can be handled by personnel who are less qualified.

As regards translation proper, the organization needs to consider how the requisite level of quality can be achieved as efficiently as possible. I do not have a magic recipe to propose in this area. Much will depend on the type and volume of texts to be translated: in some cases machine translation with human editing may be the best solution (although it is not always an option as it is only available for the most common language pairs). In others, systems such as we are using (a translation memory system) may be the best option. I have already discussed the benefits of a translation memory system in terms of quality. Such systems have obvious advantages in the area of efficiency: translators do not waste their time retranslating previously translated text as the latter is retrieved automatically and offered to the translator.

The following function is **revision**. Naturally, this is performed by professionals who are even better qualified (and paid) than the translators. The first rule that needs to be followed is **only revise when necessary**. The decision will therefore depend on the required level of quality, which as I mentioned, needs to be carefully defined at the outset. Secondly, revisors' time is even more valuable than translators': all the more reason to relieve them as far as possible of ancillary tasks. For example, we generally find that it is slower and less effective in terms of quality for revisors to key in corrections themselves. We therefore prefer to revise on paper and have the corrections entered by typists. The ratio of revisors to translators should be kept as low as possible, depending on the required quality. We find that one revisor can

handle the output of about three experienced translators if all translations are fully revised. There is of course a trade-off between having revisors or not. Where translations are not revised, the translator has to check his/her output more carefully, which will in turn reduce the translator's overall productivity (as well as quality).

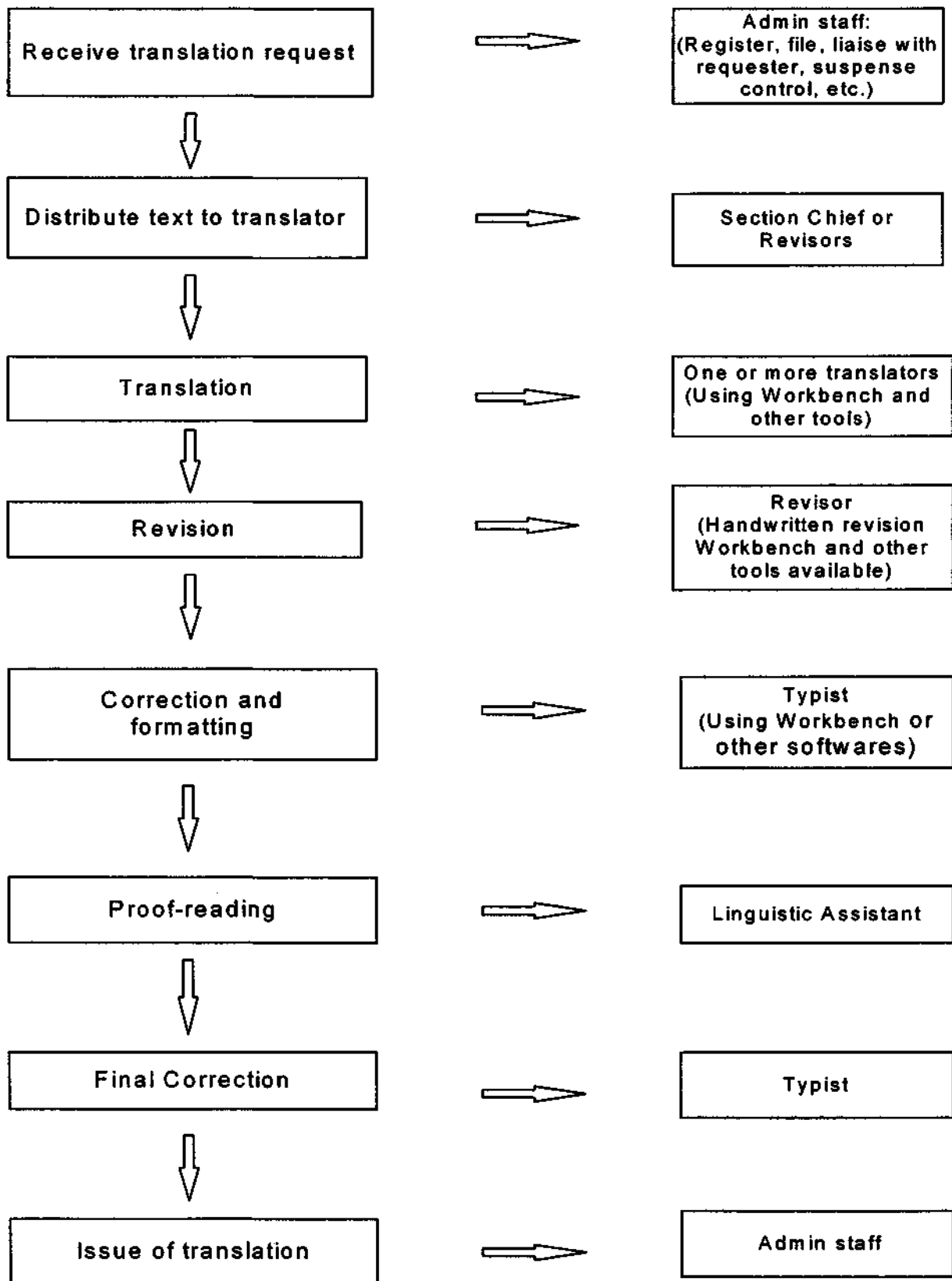
We now come to **formatting**. By this I mean entering all corrections, putting the text into its final form, etc. I strongly believe that to achieve maximum efficiency, this function should not be performed by qualified linguists unless it can be done without reducing their productivity. Even though translation memory systems for example usually preserve the formatting of the original text, it is frequently necessary to adapt the text in the target language, especially when translating from English where the target text is typically longer than the source text. The best persons to do this job are trained typists: they are paid less than linguists and often do a better job than translators in this area. I know that there is a trend in many organizations to expect professionals to do many tasks such as word-processing which were previously done by clerical staff (and numbers of the latter are being reduced). In a translation service, if this is done to the detriment of the productivity of translators and revisors, then we are very definitely in the realm of the false economy.

The last function I have mentioned is **proof-reading**. For all the reasons I have already stated, this can and should be done at a lower skill level than the professional linguist and can therefore safely be entrusted to less well-paid staff. Incidentally, it is usually more effective in quality terms for work to be checked by someone other than those who have produced it.

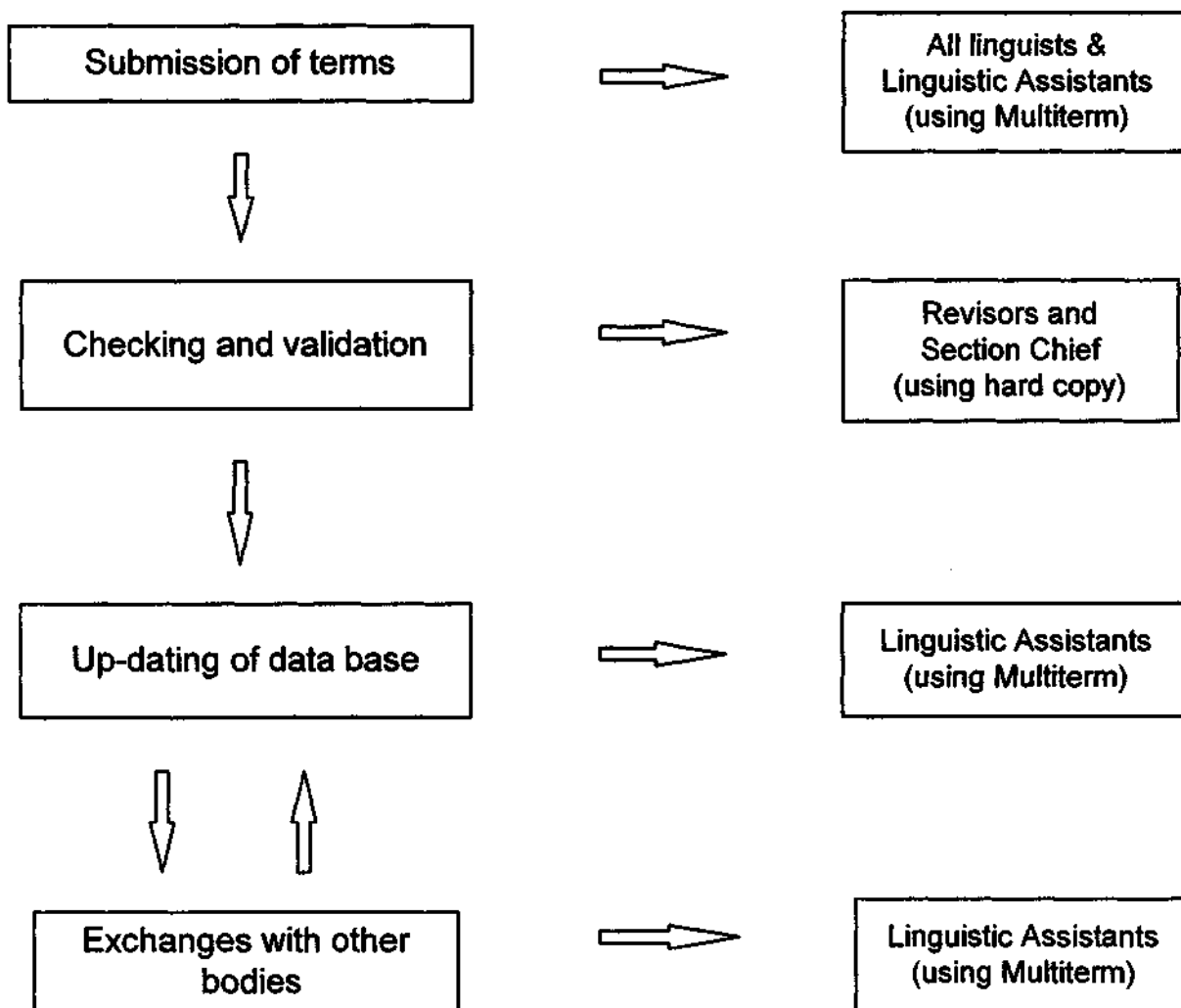
A concrete example

How can we put all this together? I will now show how the work is organized in my own Section as an example.

The translation process



The terminology process



The important thing to note in all the above is that as much as possible we try to relieve the linguists of work that can be done by less qualified staff so as to achieve the efficiencies I have mentioned. As regards the level of quality required, because of the nature of the texts, virtually all of our translations have to be fully revised and checked before issue.

The future

When I provided the short synopsis of my paper to ASLIB, I rather rashly stated that I would set down some thoughts on what the future might bring. I say "rashly" because any attempts to predict the future will probably turn out to be incorrect. If we were to believe 1950s science fiction, by now we would all be existing on food pills and travelling to work in atomic rockets!

However, I think that some trends can be discerned for the fairly close future. Firstly, it does not seem likely that there will be any sudden major breakthroughs in the

quality of machine translation. I imagine that those systems will continue to improve gradually but that significant human input will still be required to produce translations of acceptable quality for many applications. MT will however become increasingly popular and widely-used, at least to give users an idea of the content of a text in a foreign language. On the other hand, MT systems are unlikely to be of much use in the case of "local" languages which can suddenly present major challenges to organizations, e.g. currently Serbo-Croat or potentially Albanian for NATO.

So we shall still be left with trying to improve the way people work.

I think that there are two areas which need to be improved and which, if they were, would significantly improve translation quality and efficiency. The first concerns the methods of searching for and retrieving the information a translator needs. The second is the manner in which the translator inputs information to the computer.

My ideal, when searching for terminological or other data, would be to achieve what I call "**one-stop shopping**". In other words, the computer system would automatically be able to scan many potential sources of information and sift out the dross with some discernment. Anyone who uses Internet knows that however wonderful it may seem, you often end up with information that is more useless than not. As well as using Internet, translators search through all sorts of glossaries, dictionaries, references, etc. How much time could we save if we never searched for information in places where it is not to be found? And how much better would our translations be if we were always immediately given the right information?

The second area where I see encouraging progress being made is **speech recognition**. I know from experience that the fastest method to actually translate is to dictate. However, the gains are quickly cancelled out by the need for the dictation to be transcribed by a human typist. Typing is in fact a rather clumsy and slow method of imparting information to a machine. We must not forget that speech precedes writing, both historically and in infant development. It is a far more natural mode of communication than writing, and I often find, when I am dictating, that the text flows much better stylistically than when I am typing or writing. Lastly, and this is by no means to be neglected, if we can free ourselves from the tyranny of the keyboard, we may also be able to avoid certain occupational hazards such as back problems, repetitive strain injury, etc.

I could of course mention other aspects such as teleworking, improved communications, etc. but we would be getting farther and farther away from translation proper.

Conclusion

In this overview of translation activities, I have tried to stand back from discussion of individual systems and to look at the overall picture. At these conferences we often spend a lot of time looking at systems which may only concern one small aspect of the process of translating and it is easy to forget how they relate to all aspects of our

work. I hope that I have at least given you some food for thought. I certainly do expect you to agree with everything I have said or with the solutions I suggest!