

## **POST-EDITING SERVICE FOR MACHINE TRANSLATION USERS AT THE EUROPEAN COMMISSION**

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*Machine translation is freely accessible, via the internal electronic mail system, to all staff working in the European Commission. The machine translation help desk supplies a number of back-up services to a growing population of users. This paper deals specifically with the post-editing service (PER). Post-editing aims to strike a balance between quality and speed and can be a viable option for short-lived documents in cases where information has to be made rapidly available. Some differences between post-editing and translation are highlighted and the issue of quality control is addressed. The paper concludes with a brief look at future prospects.*

### ***Machine translation at the European Commission***

As a multilingual institution the European Commission has to access and distribute information in 11 languages and to that end has gathered together the largest concentration of linguists in the world dealing with a formidable workload of European Union business. This language burden is borne not only by the in-house professional translators, but also by the administrators in the numerous operating departments of the Commission, for whom the challenge of a multilingual environment is part of the daily grind. It was specifically in a bid to ease these pressures that machine translation (MT), in the form of SYSTRAN, was introduced to the Commission in 1976. It was not until the early 1990's, however, when electronic mail had come to be accepted as a reliable method of interdepartmental communication, that the use of MT became widespread. Since then, demand for machine translation throughout the institution has increased five-fold to around 260 000 pages per year. Another sharp increase is expected over the next few months with the introduction of a new web interface, which makes the Commission's machine translation system accessible by all the other European institutions.

### ***Machine Translation Help Desk***

This covers a large user population and the machine translation help desk is there to answer queries, assist with format conversions and prepare texts for submission to SYSTRAN. It acts as an essential link between users and developers. On the technical side it reports back to the informatics experts on any problems which arise, and on the linguistic side it channels feedback from end-users to the linguists working on the system's dictionaries and programs. Last, but by no means least, the team devotes a considerable proportion of its time to running the post-editing service.

### ***Post-editing service as a pilot project***

User surveys show that the great majority of machine translation requests at the Commission come not from the in-house linguists, but from the administrative staff in the operating departments. The significant increase in the use of MT at the beginning of the decade was clear evidence that the volume of texts needing to be translated within the institution exceeded the professional capacity available to do it. Although much of the machine-translated material could be understood by recipients in the form of raw output, it was usually necessary for refinements to be made within the end-user departments by staff of the appropriate mother tongue who were familiar with the source language. To take the matter further, the Translation Service thought that value could be added to raw machine translation by rapid post-editing, leading to the setting up in the machine translation help desk of a pilot project known as the PER service (for *post-édition rapide*). In the early days the revision of the raw MT output was entrusted to a small group of volunteers, experienced free-lance translators for the most part, who picked up their post-editing skills in the course of the assignments they did for us.

If Commission officials used MT, it was because they were often faced with tight deadlines. It followed that PER's main function was to offer a fast service geared to the perceived demand for urgent translations. Post-edited MT was appreciated in cases where it had not been possible to plan ahead and allow time for full translation. If the term "rapid" applied to the job of post-editing itself, it also applied to the speed with which the texts were shifted between requesters and post-editors. As a matter of principle, therefore, communication takes place entirely by electronic mail. Procedures are kept to a minimum, so that texts can be transmitted to the free-lance within minutes of receiving the request and sent directly back to the requester on their return from the free-lance. Deadlines are tight, although they naturally vary according to the length of the source text.

PER customers are required to return evaluation forms to the MT help desk. This enables us to monitor their general level of satisfaction with the service and alerts us when contractors are not producing appropriate quality levels. In addition to general comments, terminology feedback is particularly valuable. Terminology preferences are communicated, on the one hand, to the post-editors, so that they can be noted and incorporated into future work for the Commission and, on the other, to the developers of the MT system for encoding. Thus significant improvements, directly geared to users' needs, can be introduced into SYSTRAN. As the machine output improves in specific domains, so the amount of post-editing required will be reduced proportionally.

From modest beginnings in 1994 the service expanded more or less spontaneously by about 20% a year, with a sharp increase of nearly 50% last year. News of the project spread by word of mouth, without the help of publicity, indicating that the post-editing of machine translation was indeed meeting a real need.

### *Call for tenders*

By the end of 1997 the pilot project had become so successful that we were obliged, under the Commission's financial regulations, to launch a formal call for tenders, which would enable us to sign framework contracts with a wider network of freelance post-editors. The tenders procedure was launched in March of 1998 with a view to covering the institution's foreseeable needs for the rapid revision of machine translation output.

The call was divided into 6 lots, according to the six language combinations involving English, French and German, which are the so-called "vehicular languages" of the institution, and hence the ones most in demand. Although 17 language pairs are available in the Commission's version of SYSTRAN, some 50% of PER requests are absorbed by combinations of French and English, and 40% by combinations of German in relation to French or English. The remaining 10% are made up of Spanish combined with French or English, or, more rarely, target Italian or Portuguese from English source.

The choice of an open procedure was dictated by the fact that we were dealing with an emerging market. Aware of the fact that this was a relatively new approach, and unsure of the amount of interest the call would arouse, we invited applications for freelance post-editors from outside as well as inside the European Union. In addition to publication in the Commission's Official Journal, a notice was put on **Europa** (the Commission's web site) and on various linguists' discussion groups and lists. We were looking for applicants with experience in the revision of MT, able to absorb urgent requests and familiar with the workings of the European Union. Obviously, potential candidates had to know exactly what they were letting themselves in for. Hence, anyone who requested the specifications received a diskette containing extensive examples of source text, raw machine output and post-edited MT, to enable them to evaluate the amount of work involved and to help them determine the prices they could offer.

It is true that machine output tends to be unpredictable. One reason for this is that the various language pairs in EC SYSTRAN have not all attained the same level of maturity. Combinations of French and English, for example, will produce much better results than any language pair with source or target German. Post-editing techniques themselves vary considerably from one language pair to another. Another reason is that the quality of the source text has a direct influence on the quality of the raw output. Sloppy syntax, spelling or punctuation in the original text compound the difficulties of analysis and this is reflected in the MT output. As a result, the amount of post-editing required may vary considerably upwards or downwards.

In the event, the response was very positive. We received 71 formal offers, of which 58 were declared admissible by the selection committee. However, since the overall post-editing capacity of these applicants exceeded the Commission's expected needs

for the next three years, a further selection was made, thus ensuring that we will be able to rely on very high standards. As in previous calls launched by the Commission's external translation department, contracts were allocated to the "economically most advantageous bids", with price and methodology receiving equal weighting. We have signed contracts with 39 of the applicants. They are located mainly in Europe, but also in the USA and Canada. It transpires that the average price of a post-edited page is slightly more than half the average price of a page translated by the free-lance contractors currently translating for the external translation department.

### ***Some differences between translating and post-editing***

It is perhaps worth reflecting at this juncture on what exactly is meant by the term "post-editing" and in what ways the task of post-editing is different from that of translating. First and foremost, a clear distinction should be drawn between the production of a finished translation on the basis of machine-translated output and the introduction of added value to MT output by a process of post-editing.

An increasing number of professional translators at the Commission do take raw machine output as a first draft, which they then polish up to produce a finished translation. It is perhaps more appropriate to refer to this activity as the "correcting" rather than the "post-editing" of MT. The customer in this case is interested in a flawless, final product. How this is achieved is of no concern to him.

PER, on the other hand, is geared to urgent texts, which have to be read because they contain useful information, where style is not of primary importance. And indeed the degree of literary merit required in a translation may vary considerably. The customer has weighed up the advantages of a faster service against the possible risk of lower quality, has made an informed decision to opt for this solution, and is not expecting perfect prose. This is often a perfectly viable option, provided that three conditions are met:

- 1) the customer urgently needs a version of the text in another language;
- 2) the text is not destined for publication, but will serve some temporary purpose;
- 3) the customer is fully aware of the process involved in producing the post-edited text.

How does the post-editor comply with the customer's demand for both speed and information? There are no hard and fast rules, but if there is one guiding principle that should be borne in mind, it is that the end product is determined by the urgency of the end-user's need. Perfection is not the goal. A translator will always strive to disguise the fact that the text has been translated. In the case of post-editing, it is enough for the text to conform to the basic rules of the target language, even if it closely follows the source text. A machine translation rarely breaks away from the linguistic patterns and stylistic features peculiar to the original language, but this does not necessarily mean the meaning is obscured. While words which have not been recognised by the system's dictionaries must be replaced, changing a phrase from active to passive, for instance, often adds no more than stylistic value. If such a change does not directly improve the intelligibility of a text, it is not worth making. The post-editor reaps as much benefit as possible from what the computer gives him. Often it is just a case of

rearranging what is there, using global replace functions and macros to speed up the process.

It goes without saying that a post-edited text must be intelligible. Cohesion and readability, however, are necessary but not sufficient factors. The post-editor has to take particular care to ensure that it is **reliable**, by rectifying any distortions of meaning introduced by the machine. There is a very real danger of providing the reader with something which is comprehensible but not what the original means. Post-edited MT must be free of any errors which might lead an end-user to draw the wrong conclusion on a point of substance. In the interests of efficiency, post-editors acquire, with experience, a feeling for different degrees of error: that which must be changed, that which may be changed and that which it is superfluous to change.

While people are generally tolerant of less than perfect quality in informal dialogue, acceptance of PER implies a change in attitude with regard to the perception of the written language. Just as the foreign accent and unusual turns of phrase of a non-native speaker provoke a more indulgent attitude on the part of a listener, so the informed reader of a post-edited text has to overlook awkwardness in style, concentrating on the message. It is for this reason that all the texts leaving the post-editing service bear the disclaimer "*Rapidly revised machine translation*".

### ***Post-editing as a product***

Translation requesters are not always aware that there is more than one way to translate, and that different options are available for different categories of document. Some customer education may be necessary. It is this very approach which has recently been adopted by the Commission's Translation Service with the introduction of the POETRY interface (Processing of electronic translation requests), which enables requestors to select from a variety of products ranging from a full translation, an oral summary, a written summary, the revision of an original text, to a post-edited machine translation. It is the destination of the text which determines the choice of processing.

Urgent texts, intended for restricted circulation or information purposes, that do not need to be rendered in the target language to a standard required for further publication, are suitable candidates for post-editing. The PER product can offer the most appropriate solution for short-lived administrative documents (minutes of meetings or technical reports), the type of text which is not generally couched in nuances and allusions. Politically sensitive texts, however, or legislative documents will always require top quality treatment. The MT help desk has an important role to play in filtering requests and, where necessary, redirecting customers to the right channels. Ultimately, however, responsibility for the choice of product lies with the end-user.

### ***Quality control***

In the case of PER, quality assessment is also entrusted to the end-user. This represents a departure from standard practice. Translations leaving the Translation Service are generally subjected to thorough revision procedures by in-house linguists before being returned to requesters. By contrast, post-edited texts are returned to the

requesting departments as soon as they arrive back at the MT help desk, in order to keep the turnaround time as short as possible. Hence, users' reactions are the best way of measuring the success of the PER system. It is the requester, after all, who has opted for rapid post-edited quality rather than a highly polished translation and it is he who is best placed to judge whether his needs have been met to his satisfaction. It is generally recognised that there are few absolutes when it comes to identifying and measuring translation quality. In the case of a PER product the notion of quality embraces more than just linguistic criteria and includes the notion of fitness for purpose. A post-edited MT finished in time for a meeting is worth more (provided that it does not mislead on an important point), than a flawless text received after the event. Although professional linguists may well find fault with post-edited texts, the aim is to achieve standards which are acceptable to the users.

### ***Future prospects***

We are witnessing the beginning of a communications revolution created by the Internet and other on-line facilities, which will inevitably influence customer expectations in relation to rapid response. There can no longer be any doubt of the real demand within the institution for urgent translations for information purposes. While it is essential that documents of publication quality continue to be the full responsibility of professional translators, there are a number of text types which lend themselves very well to machine translation. The setting up of a post-editing service aimed at MT users in the Commission is a new and pioneering venture, and tradition dies hard. Nevertheless, there is a powerful economic motivation to turn machine translation resources to good account. The PER project has developed in the context of the Commission's current management policy, which is to contain expenditure and improve the cost/quality ratio of all its activities. The number of official languages is due to increase from 11 to 22 in the foreseeable future with the arrival of the Eastern European countries, creating an additional strain on finite resources. The post-editing of machine translation seeks to strike the right balance between time, quality, and available capacity. Applied to the right types of text, it offers a pragmatic approach to three main areas of concern: increased productivity, effective use of existing tools and reduced costs.

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